Phased Approach to Total Sanitation (PhATS)

End-line Assessment

March 2016

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Executive Summary:

Context

On the 8th November 2013, 'Super Typhoon' Haiyan (locally known as Yolanda) first made landfall, lashing coastal communities across the central island of the Philippines. With Tsunami-like storm surge and winds reaching up to 375 kilometers per hour, it was one of the most powerful storms in recorded history. The devastation was overwhelming. A total of 16 million people were affected, with more than 6,300 people killed, more than 1,000 still missing and 4.1 million people displaced, including 1.7 million children.

In the direct aftermath of Typhoon Haiyan, access to safe water and sanitation was severely compromised across affected areas of the Philippines. Many of the main water service providers suffered damage to main pumps, transmission lines and distribution pipes. Many water, sanitation and hygiene (WASH) facilities at household and school levels were also damaged or destroyed, with some 16,800 classrooms in need of repair and 1,127,041 houses damaged. Two years on, as the focus shifts from emergency reconstruction to sustainable development, there is a critical opportunity to address long-term WASH challenges that remain a major problem in the Philippines.

The Phased Approach to Total Sanitation (PhATS) programme was launched to build on the work of the emergency response and tackle longer-term WASH challenges such as open defecation, which remains a major problem in the Philippines. The programme is expected to have reached over 900,000 beneficiaries across six provinces. It aimed to end the practice of open defecation through facilitating changes in social norms and fueling demand for sanitation and hygiene; sustaining demand through supply side interventions; and promoting good governance, resilience and disaster risk reduction.

Prior to the launch of the PhATS programme in December 2014, UNICEF partnered with REACH to conduct a baseline assessment at household and school level to inform programme planning and implementation, including analysis of knowledge, attitudes and practices, which would facilitate measurement of changes to social norms. In February and March 2016, on completion of the PhATS programme, REACH conducted an end-line assessment to measure the change in knowledge, attitudes and practices, the results of which are presented in this report.

Methodology

This assessment used a mixed-methods approach, collecting both quantitative and qualitative data. Household level surveys were conducted to provide statistically significant quantitative data. Focus group discussions were conducted for additional depth and context (particularly around social norms), therefore providing qualitative information. A similar approach was taken at the schools level, with a school survey administered to principals/head teachers, supplemented by focus group discussions with students in selected schools.

Quantitative Data: Household Surveys

A total of 1,794 households were assessed as part of the household survey. The sampling methodology was designed to generate representative data that was statistically significant at the province level, with a confidence level of 92% and a margin of error of +/- 7%, and at PhATS project area level with a confidence level of 95% and a margin of error of +/- 3.2%. Among the 6 provinces targeted in the PhATS project, 180 barangays were selected for inclusion. The household survey also included visual observation components, such as verifying the type of toilet used or asking to see soap if it was reportedly used. All data collected at household level were collected using smartphones with KoboToolbox.

Concerning the school survey, 180 schools were assessed. These schools were randomly selected from the list of all schools in PhATS program areas (a total of 649 schools). This sampling methodology was designed to generate statistically significant data (92% confidence level, +/-7% margin of error) at the level of all schools in PhATS program areas. The school survey had two parts: a key informant interview with the school principal (or Officer in Charge) and a direct observation component covering toilets, taps and other facilities. This allowed for cross-checking and triangulation of information.

Qualitative Data: Focus Group Discussions

A total of 24 community focus group discussions (FGDs) were conducted to help analyse and explain information collected from household surveys. FGDs were held with a male and a female group in each of 12 barangays.

These barangays were purposively selected to ensure the inclusion of coastal and inland barangays to capture different themes depending on setting. As far as possible, selected barangays reflected the ZOD (Zero open defecation) status of the communities.

In selected schools, student focus group discussions were held to draw out student perspectives and supplement the quantitative data collected in the school survey. A total of 28 student FGDs were conducted in 14 schools, with FGDs for boys and girls held separately in each. The schools were purposively selected to ensure the inclusion of schools of different sizes. It was also important to ensure that the perspectives of both older and younger students were included.

Findings

This end-line assessment found a general improvement in the reported knowledge, attitudes and practices of households and schools within the sector of PhATS project intervention compared with the baseline. In particular, improved not shared sanitation facilities have become more common, with a statistically significant increase in the proportion of households having one, from 63.7% to 76.3%. Likewise, there has been a statistically significant increase in the proportion of schools where the presence of water has been observed in all the handwashing facilities, from 33.5% during the baseline to 55.0% during the end-line. The frequency of handwashing was also seen to have increased since the baseline assessment, both at the household and school level. In particular, 25.2% of key informants reported that children do not wash their hands when the facility is broken, down from 52.7%. Nevertheless, some of the results show no significant differences between the two assessments, highlighting opportunities for improvement. Notably, no significant change has been found in the proportion of households practicing open defecation between the baseline and end-line assessments, and the lack of available toilets has remained the most prominent reason reported by households for practicing open defecation.

Water supply

An estimated 95.6% of the population in PhATS project areas was using an improved source of drinking water, up from 93% during the baseline. The two most common sources of drinking water were piped water and bottled water. There was an unexpected increase in proportion of households that relied on bottled water for drinking from 16.5% during the baseline to 29.8% during the end-line, mainly due to a lack of trust by households in their improved water source, rather than the lack of availability of improved water sources. For 87.1% of those who had to fetch water from a source outside their plot, the task took on average less than 15 minutes.

More than half of all households in PhATS project areas reported to pay for their drinking water, the cost of water being closely linked with the type of water sources used by the household. 92.1% of households that used an unimproved water source are not paying for their water, compared to 38.6% of those relying on an improved water source. The main type of improved water source accessed for free by households was a protected dug well (96.4%), followed by a protected spring (78.6%) and public tap (41.7%). This result is important in the light of ensuring a sustainable supply of safe drinking water in communities, since a free access to an improved water source might mean that no money is reinvested to support the maintenance cost of the infrastructure.

The main way that households stored drinking water was in containers, as reported by 99.3% of households in PhATS project areas, up from 95.8% during the baseline. 84.9% of households with water stored in containers had all their containers covered at the time of the survey, down from 89.6% during the baseline. This result is concerning since uncovered household water storage containers can contribute to the spread of dengue.

Although 93.3% of all respondents could name at least one specific health risk of unsafe water, most households in PhATS project areas do not treat their drinking water, including 38% of those using an unimproved water source. There was a significant decrease in the proportion of households treating their drinking water, from 36.4% during the baseline to 29.0% during the end-line. Amongst the main techniques used to treat drinking water, there was a significant increase in the proportion of households using boiling water or filtering it with a piece of cloth (respectively from 48.6% and 18.6% to 65.0% and 35.7%) and a significant decrease in the use of chlorine (from 27.9% to 5.2%). This suggests a shift in treatment types used by households that might have occurred after households used the chlorine supplies received after Haiyan. This finding is encouraging in the light of households understanding the need of treating water. However, 88.7% of households relying on filtration of water with a piece of cloth, use it without any disinfection method, which is not sufficient. It highlights the need for campaigns to raise households' awareness on adequate treatment methods.

School Level

A statistically significant decrease was found in the proportion of schools in PhATS areas that do not have a drinking water point, from 55.1% during the baseline to 37.2% during the end-line assessment. In schools without water points, any drinking water available was brought in from external sources, such as children bringing in water from home or teachers fetching water for school use from a communal source outside the school compound.

The most common problem identified for accessing drinking water was water inconsistent availability (mentioned by 30.6% of schools). A significant increase of this issue has been found between baseline and end-line study, suggesting that even when water points are available in schools, the intermittent water supply continues to pose problems.

Hygiene

At the time of data collection, 50.8% of respondents were found to have received WASH messages during the last 6 months. Among those, 75.8% had received a message about personal hygiene (excluding handwashing). There was overall a decrease in messages received about handwashing with soap and an increase in messages about solid garbage management; safe disposal of excreta, and most dramatically, from 0.0% to 36.8%, environmental and domestic hygiene.

93.2% of households were observed to have a designated place for handwashing. Where handwashing facilities were present, they usually had both soap and water, with 84.7% of all households observed to have a handwashing facility with soap and water present at the time of the visit. There was no significant change in proportions compared to the baseline.

Frequency of handwashing was seen to have increase since the baseline. While 36.1% reported washing their hands 7 times or more per day during the baseline this rose to 44.3% by the end-line. These results are encouraging since they show an increase in understanding on hygiene. Looking at the key handwashing moments, significant differences in change were seen between provinces when comparing respondents that reported washing hands both before eating and after defecating.

School Level

In 86.6% of schools in PhATS project areas, the school or the Department of Education had led at least one hygiene-related education activity in the last six months, compared to 48.0% during the baseline. The most common themes were handwashing, tooth-brushing and personal hygiene, in respectively 89.1%, 72.9% and 57.4% of schools that receive WASH campaigns. This indicates a strong increase of leadership on WASH on the part of individual schools and the Department of Education since the baseline.

With regards to group hygiene activities, it was found that in 57.8% of schools in PhATS areas, all classes are practicing daily group handwashing with soap. 55.0% were practicing daily group tooth-brushing activities in all classes.

Based on direct observation at the schools in the sample, an estimated 11.7% of schools in PhATS areas do not have any handwashing facilities near the toilets. A further 28.9% have handwashing facilities near some but not all toilet. Where schools did have handwashing facilities, the two main types were taps connected to piped water (56.8%) and buckets or containers (22%). A significant increase in the proportion of schools that use a locally made facility was found, from 1.6% during the baseline to 8.8% during the end-line, which might be a positive outcome of the three-star approach used that promotes the use of locally made / available solution.

Lack of water was a major barrier to properly functioning handwashing facilities. At the time of visit, 44% of schools with handwashing facilities were observed not to have water at some or all of the handwashing facilities. However a significant decrease in the proportion of key informant reporting that children do not wash their hand when the facility is broken has been found, from 53.7% during the baseline to 25.3% during the end-line. There was also an increase in the proportion of schools where children bring water from home or communities that provide water for the school. These increases indicate an improved commitment to handwashing on the part of students, schools and communities in PhATS Haiyan project areas.

Sanitation

It was found that an estimated 91.1% of households in PhATS areas are currently using an improved sanitation facility, with the most widespread type being flush or pour flush toilets. There was an increase in the proportion of households that used an improved not shared sanitation facility, from 63.7% during the baseline to 76.3% during the end-line study.

Significant differences in the proportions of households that reported having no toilets could be detected between provinces, with a statistically significant decrease recorded in three of the six provinces. This can be seen as a positive outcome of the PhATS programme in areas where UNICEF partners have been promoting the use and the construction of latrines.

The main barrier for households that do not have their own toilets to have their own is the high cost of toilet construction, which was mentioned by 81.6% of the households. 47.2% of households reported that access to materials was one of the main barrier, which was significantly higher than the proportion during the baseline (33.5%).

15.2% of households are still practicing open-defecation and there has been no significant change between baseline and end-line. While small differences between the proportion of household members that practice open defecation could be observed, these fell within the margin of error for the assessed sample and therefore could not be generalized to the population overall.

Likewise, no statistically significant difference could be detected in the proportion of households practicing open defecation when comparing Zero Open Defecation (ZOD) certified areas with uncertified areas. However, a statistically significant difference was found in the proportion of households practicing open defecation when comparing the type of toilet facility used. Indeed, 7.7% of households that were using an improved, not shared toilet facility practiced open defecation, compared to 38.9% of households that had access to other types of toilet facilities.

Water collection time was also found to make a significant difference. Indeed, among households that use a toilet facility that requires water, 24.2% of households who take more than 15 minutes to collect water were practicing open defecation, compared to 9% of those who need 15 minutes or less. While this difference was explained in the focus group discussions by the fact that "people are too lazy to fetch water", it might also be the consequence of other factors influencing both outcomes, for example, a household living in the outskirt of a community and in consequence far from the water point might be less subject to peer pressure toward open defecation.

The main reason for open defecation reported by respondents was the lack of toilet availability, mentioned by 96.2% of all respondents. Other reasons, which were more commonly reported during the end-line, can be seen to be related to sharing of toilet facilities.

Overall the perceived rate of open defecation in communities decreased since the baseline. There was a significant increase in the proportion of respondents that believed that no one in their community practiced open defecation, from 9.7% during the baseline to 27.7% during the end-line.

School Level

An estimated 99.4% of schools in PhATS area have improved sanitation facilities, while only 0.6% of schools have no sanitation facilities at all. The vast majority of toilets were flush or pour flush toilets connected to septic tanks (used by 86.1% of all schools). No significant change has been found since the baseline. However, a statistically significant decrease was found in the number of students per functioning toilet between the two data collection rounds, 39.9 students per functioning toilet to 31.9.

A key issue identified during the baseline was the relative rarity of single sex toilets in schools in PhATS area (23.6%). A significant increase in schools reported having sex separated toilet, with 53.1% of schools having at least one sex separated toilets during the end-line. In 95% of schools, toilets were less than 2 minutes walk from classrooms or in the class room. Having toilets to close to (and particularly adjacent to) classrooms was actually reported to be a disincentive for students to use them for defecation.

In terms of cleanliness, 87.7% of toilets were observed to be very clean or most clean, while 2.2% of school were observed to have very unclean toilets at the time of the school visit. No significant difference was found between

the baseline and end-line. The most commonly reported challenges of keeping toilets clean were a shortage of water (46.7%) and a shortage of cleaning supplies (38.3%). A significant decrease of key informant reporting the lack of cleaning supplies was found, from 55.5% during the baseline, which could be an effect of the incorporation of WASH in school budget.

As a result of this, 82.7% of schools reported that when school toilets are not functioning, students' main coping mechanism is to go home to use the toilet. However, in 10.1% of schools, it was reported that the main coping mechanism was to defecate openly inside or outside the school compound. Indeed, open defecation was reported in 15.1% of schools in PhATS areas, while open urination was reported in 64.4%. No significant differences were found between baseline and end-line for these indicators. The significant role played by teachers in enabling or discouraging open defecation, mainly by allowing children to go home, or to other classrooms when the toilets are not working, was also highlighted.

School Governance

WASH was found to be incorporated into the Annual Investment Plan (AIP) or the School Improvement Plan (SIP) of 91.1% of schools in PhATS project areas, while it was the case for 67.1% of schools during the baseline.

Furthermore, 83.9% of the schools in PhATS project areas reported having funds allocated or available for WASH in the Maintenance and Other Operation Expenses (MOOE) or the School Building Repair and Maintenance Fund (SBRMF), up from 59.2% during the baseline.

A significant increase in the role of student club or committee in raising awareness on this topic was also reported. Indeed 78.3% of schools in PhATS project areas reported having a student club or committee promoting water, sanitation and hygiene awareness while 23.7% of schools had during the baseline.

The findings in this section show a net increase in the proportion of schools having the structures in place to improve the water and sanitation situation of schools during the end-line compared to the baseline.

Summary of change observed across key indicators

Indicator	Baseline value	Margin of error	End-line value	Margin of error	Overall trend
Water Supply					
Proportion of household using an improved source of drinking water	93.5%	(92.0;94.9)	95.6%	(94.3; 97.0)	▲ Significant increase
Proportion of households treating their drinking water	36.4%	(34.1; 38.8)	29.0%	(25.8; 32.1)	▼ Significant decrease
Proportion of schools without a drinking water point	55.1%	(49.5; 60.7)	37.2%	(30.1; 43.5)	▼ Significant decrease
Hygiene					
Proportion of households having a designated place for handwashing	89.8%	(88.0; 91.6)	93.2%	(91.8; 94.6)	No significant change
Proportion of schools in which at least one hygiene-related activity was conducted in the last six months	48.0%	(42.3; 53.6)	86.6%	(82.1; 91.1)	▲ Significant increase

Proportion of schools not having any handwashing facilities	25.3%	(20.4; 30.2)	11.7%	(7.5; 15.9)	▼ Significant decrease
Sanitation					
Proportion of households that used an improved not shared sanitation facility	63.7%	(60.6; 66.7)	76.3%	(72.5; 80.2)	▲ Significant increase
Proportion of households practicing open defecation	18.4%	(15.8; 21.0)	15.2%	(11.7; 18.7)	No significant change
Proportion of school having at least one sex separated toilet	23.6%	(18.9; 28.5)	53.1%	(46.5; 59.6)	▲ Significant increase
Proportion of schools in which open defecation was reported	17.1%	(12.9; 21.4)	15.1%	(10.4; 19.8)	No significant change
School Governance					
Proportion of schools having WASH incorporated into the AIP or the SIP	67.1%	(61.8; 72.4)	91.1%	(87.3; 94.8)	▲ Significant increase

Conclusion

The PhATS approach recognizes that sustainable improvements in sanitation and hygiene behavior come through the gradual changing of social norms, and thus requires detailed data on WASH knowledge, attitudes and practices. This assessment was designed to provide that data at household and school level, which will be used to inform the second phase of program planning and implementation and to monitor and evaluate further progress.

This assessment found a general improvement in the sector of PhATS project intervention: an increase of in the proportion of households that use an improved water source, improved health and improved hygiene and sanitation. However, results highlight the fact that several challenges persist across PhATS project areas. Notably, findings show no statistically significant differences in the proportion of households that practice open defecation, with 15.2% of households found to continue to practice open defecation across the project area. Similar to the baseline assessment, the main reason given for this was related to a lack of available toilets or a lack of ownership of household toilets. However, it is also important to note that some households that do have access to improved non-shared toilet facilities are also continuing to practice open defecation. This suggest that other factors, such as water availability, or social norms related to open defecation at household level must also be considered in order to ensure a decrease in open defecation.

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List of acronyms

ACTED	Agency for Technical Cooperation and Development
ACF	Action Against Hunger
AIP	Annual Investment Plan
ASDSW	A Single Drop for Safe Water
DepEd	Department of Education
DILG	Department of the Interior and Local Government
DoH	Department of Health
FGD	Focus Group Discussions
GPTA	General Parent Teachers Association
HWF	Handwashing Facility
MOOE	Maintenance and Other Operations Expenses
NGO	Non-Government Organisation
OD	Open Defecation
PhATS	Philippines Approach to Total Hygiene and Sanitation
SBO	Student Body Organisation
SBRMF	School Building Repair and Maintenance Fund
SIP	School Improvement Plan
WASH	Water, Sanitation and Hygiene
WinS	WASH in schools
ZOD	Zero Open Defecation

Introduction

One of the most powerful storms in recorded history, 'Super Typhoon' Haiyan cut through the Philippines with Tsunami-like storm surge and winds reaching up to 375 kilometres per hour. Even in the third most disaster-prone country[1], where on average 20 typhoons make landfall every year, the devastation was overwhelming. Locally known as Yolanda, Haiyan made landfall in the early hours of 8 November 2013, lashing coastal communities in the Philippines central islands. More than 6,300 people lost their lives, more than 1,000 are still missing, and a total of 16 million people were affected. 4.1 million people were displaced by Typhoon Haiyan, including 1.7 million children[2]. People were simultaneously cut off from assistance as land, air and sea access was close to impossible.

In the direct aftermath of Typhoon Haiyan, access to safe water and sanitation was severely compromised across affected areas of the Philippines, triggering concerns about water-borne disease. Many of the main water service providers suffered damage to main pumps, transmission lines and distribution pipes. Winds and storm surge also damaged or destroyed many water, sanitation and hygiene (WASH) facilities at household and school levels, with 16,800 classrooms in need of repair and 1,127,041 houses damaged, while health centres were shut down across all affected areas.

The government estimated the total loss at 12.9 billion USD, while the country as a whole was still recovering from other emergencies, including an escalation of conflict in Zamboanga in September 2013 which displaced 120,000 people and a 7.2 magnitude earthquake that struck Bohol province in October 2013 affecting more than 3.2 million.

Given the scale of the devastation, the Government of the Philippines mounted an immediate response to deliver life-saving relief, accepting the offer of assistance from the United Nations. Based on a Multi-Cluster/Sector Initial Rapid Assessment (MIRA) an Inter-Agency Strategic Response Plan (SRP) was developed. The UN response was rolled out under the SRP, running from November 2013 to November 2014 with a total appeal of 791 million USD, including a 119 million UNICEF component. The inter-agency response complemented the Government-led efforts under the "Reconstruction Assistance for Yolanda" (RAY) plan for 2014-2015 and beyond, with requirements estimated at more than 8 billion USD.

The response of the WASH cluster, led by Department of Health and co-led by UNICEF, responded to lifesaving needs in the most affected areas, based on analysis of the Typhoon's path, storm strength, and the pre-crisis population. It included the rehabilitation of water systems and latrines and the distribution of hygiene kits. The implementation of these activities resulted in considerable achievements, in many cases returning access to water and sanitation to pre-Haiyan levels. In fact, the WASH cluster response was able to target not only households with storm-damaged latrines, but also those that had no access to latrines before the typhoon. The 40 targeted municipalities were home to 1.34 million affected people, 558,000 of them children. However, despite achievements during the emergency response, long-term progress on sanitation has remained slow, particularly in rural areas and amongst the lowest income groups.

To address this need, the Philippines WASH Cluster partners have developed a Sanitation Strategy for Early Recovery in Yolanda (Haiyan)-affected areas based on prior rural sanitation practices. The proposed Phased Approach to Total Sanitation (PhATS) is designed to assist the national government achieve goals in the Philippine Sustainable Sanitation Roadmap and the National Sustainable Sanitation Plan. It aims to develop safe disposal of human waste, health and hygiene practices promotion and creation of a phased and holistic approach to sanitation development. The strategy was envisioned to provide a common framework to detail initiatives on the sanitation road-map, while also reaching out to a large number of affected Barangays and achieving the WASH cluster targets of providing access to basic sanitation to about 650,000 people by end of November 2014.[3]

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[1] World Disaster Report, 2012

[2] NDRRMC – Final report re Effect of Typhoon "Yolanda" (Haiyan)

[3] Strategic Response Plan – Philippines, December 2013

PhATS aimed to build on the work of the emergency response, and tackle longer-term WASH challenges such as open defecation, which remains a major problem in the Philippines, contributing to the almost 10,000 deaths caused by diarrhoea every year in the country, and constraining economic and social development It aimed to end the practice of open defecation through facilitating changes in social norms and fuelling demand for sanitation and hygiene; sustaining demand through supply side interventions; and promoting good governance, resilience and disaster risk reduction. The program is expected to have reached over 900,000 beneficiaries across six provinces.

The PhATS program is funded and coordinated by UNICEF, and implemented by a coalition of 11 NGOs: ACF (Action Against Hunger); ACTED (Agency for Technical Cooperation and Development); A Single Drop for Safe Water; Catholic Relief Services (CRS); International Medical Corps (IMC); Islamic Relief; Oxfam; Plan International; Relief International; Save the Children and Samaritan's Purse (SP).

With the launch of the PhATS program in December 2014, a baseline assessment was conducted at household and school level to inform program planning and implementation, including a section on knowledge, attitudes and practices, which would facilitate measurement of changes to social norms. Just over one year later, after completion of the activities, an end-line assessment was needed in order to measure the change in knowledge aptitude and practice since the beginning of the programme.

To provide this data, UNICEF funded REACH to carry out a mixed-methods assessment, consisting of a large-scale household survey, community focus group discussions, a school survey, and student focus group discussions. Fieldwork was conducted in each of the six provinces of Leyte, Eastern Samar, Samar (Western Samar), Cebu, Iloilo and Capiz. The baseline took place between September and November 2014 and the end-line between February and March 2016.

This report provides a detailed description of the methodology and outlines the key findings, organised into two main sections. The first section focuses on Water, Sanitation and Hygiene (WASH) at household and community level. The second section addresses WASH in schools (WinS) - including WASH governance, group hygiene activities, water supply and sanitation.

Methodology

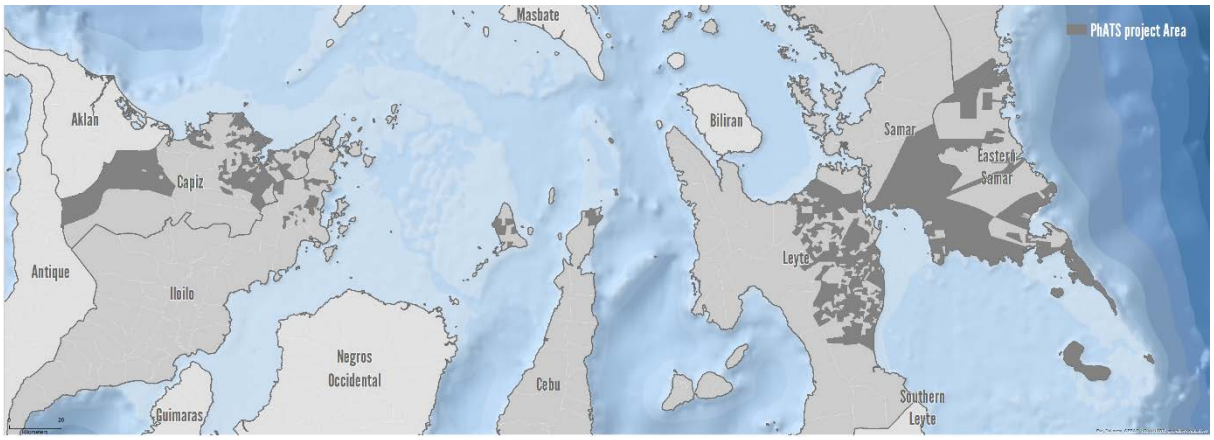
This assessment used a mixed-methods approach, collecting both quantitative and qualitative data. Household level surveys were conducted to provide statistically significant quantitative data. Focus group discussions were conducted for additional depth and context, therefore providing qualitative information. A similar approach was taken at the schools level, with a school survey administered to principals/head teachers, supplemented by focus group discussions with students in selected schools.

The questionnaires and other tools (see Annexes 1 and 2) were designed in close consultation with UNICEF, and all fieldwork was conducted between February and March 2016. Data collection was undertaken by mixed teams of female and male enumerators, who were thoroughly trained on the tools and methodology, with between two and four full days of training depending on their roles.

Geographical Scope

This assessment is limited to PhATS Haiyan project areas, which were identified by the WASH cluster as the areas being in greater need of WASH intervention after Haiyan, as shown in the following map.

Map 1: PhATS Haiyan project areas



The project areas include three regions, six provinces and 879 barangays, covering a total of 223,365 households and 1,009,003 individuals (see Table 1).

Table 1: Populations and NGOs in PhATS Haiyan project areas

Sn	PCA Partners	Province	# of Barangay	# HH	# ind.
1	ACF ES	East Samar	40	5,805	28,704
2	ACF	Capiz / Iloilo	44	11,827	58,289
3	ACTED	East Samar	74	12,634	59,331
4	ARCHE NOVA	Leyte	38	13,459	59,802
5	ASDSW - Single Drop	Capiz	105	29,747	151,257
6	CRS	Leyte	62	17,762	73,680
7	IMC	Leyte	74	12,932	56,451
8	Islamic Relief (IR)	Cebu	15	13,308	58,842
9	OXFAM	Eastern Samar	79	14,209	63,835
10	Plan International	E-Samar / Samar	62	10,444	51,542
11	Relief International (RI)	Leyte	93	20,146	95,413
12	Save the Children	Leyte	63	28,516	117,243
13	Samaritan Purse (SP)	Leyte / Samar	130	32,576	134,614
	Grand Total		879	223,365	1,009,003

WASH Assessment at Household and Community Level

Quantitative Data: Household Surveys

A total of 1,794 households were assessed as part of the household survey. The sampling methodology was designed to generate representative data statistically significant at the province level, with a confidence level of 92% and a margin of error of +/- 7% *(see Table 2 below)* and at PhATS Haiyan project areas level with a confidence level of 95% and a margin of error of +/- 3.2%. Among the 6 provinces 180 barangays have been randomly selected for inclusion.

The sampling was a two stage cluster sampling; the first stage was a Probability Proportional to Size (PPS) cluster sampling with replacement of PSUs (primary sampling units). Cluster sampling generally increases variances in the findings compared to simple random sampling. The ratio of variance assuming cluster sampling and assuming random sampling for a given variable is known as "design effects" (DEFF) [4].

$$ICC = \frac{DEFF - 1}{M - 1}$$

M = average sample size per cluster; ICC = intra-cluster correlation; $DEFF$ = design effect

[4] Kish, Leslie (1965). "Survey Sampling". New York: John Wiley & Sons, Inc

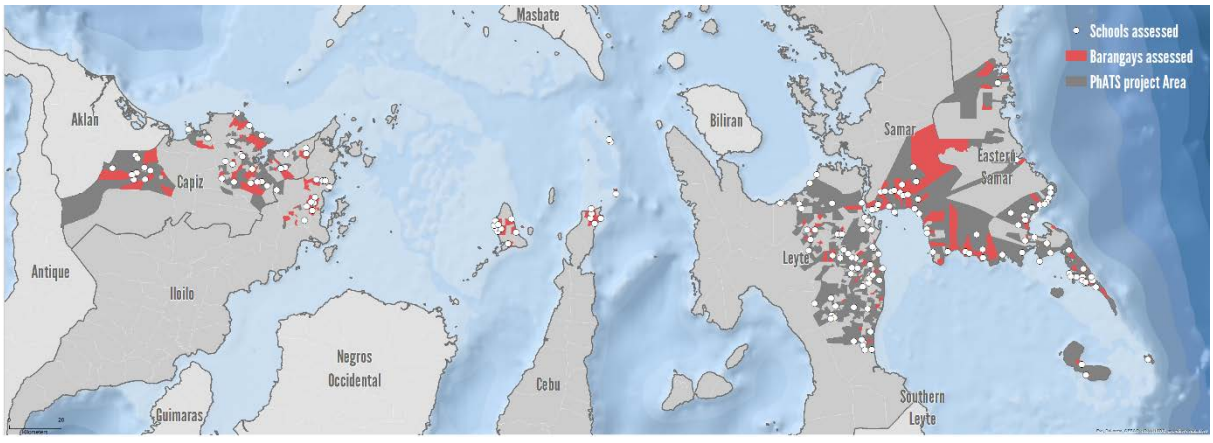
The intra-cluster correlation coefficient (ICC) is a measure of the relatedness of clustered data. The sampling size by province was thus adjusted to account for the design effect that affects cluster sampling methodologies, with an average intra-cluster correlation (ICC) by province (average calculated on the PhATS baseline). A cluster of five surveys was conducted in each selected barangay. Where a barangay was selected more than once, an additional cluster of five surveys was added. In the second stage, a simple random sampling of the households inside the barangays was conducted based on household lists available at barangay level.

Where a list of households was not available from the Barangay Captain, households were selected randomly inside each Porok using proportional sampling based on population and field randomisation technique. Each household on the list was assigned a number, and a random number generator was used to select the required number of households. Interviewers then visited these households and requested to interview the head of household. This list-based sampling approach was chosen instead of an 'every fifth house' type geographical approach, to ensure that households far away from the centre of the barangay also had an equal chance of being selected. This approach was time-consuming, but meant that households outside the central sitios (which often had very different sanitation facilities and practises) were included in the assessment.

Table 2: Sample size and statistical significance by administration level

Province	Population (estd. HH)	Effective sample size	Average cluster size	Intra Class Correlation	Average design effect	Sample size (with DEFF)	Number of surveys conducted	Statistical Significance
Capiz	36,673	157	6.77	0.06	1.34	210	244	92% +/-7%
Cebu	13,308	155	16.67	0.039	1.61	250	349	92% +/-7%
Eastern Samar	40,046	157	6.03	0.1	1.5	235	279	92% +/-7%
Iloilo	4,901	155	15.91	0.084	2.26	350	400	92% +/-7%
Leyte	113,989	160	5.77	0.086	1.41	225	270	92% +/-7%
Samar	14,448	156	7.65	0.057	1.38	215	252	92% +/-7%
Area of intervention	223,365	940				1,485	1,794	95% +/- 3.2%

Map 2: Barangays and schools assessed during PhATS end-line data collection



The household survey also included visual observation components, such as verifying the type of toilet used or asking to see soap if it was reportedly used. All data collected at household level were collected using smartphones with KoboToolbox. This allowed completed questionnaires to be uploaded directly from the phone to the database on a daily basis, therefore eliminating the need for data entry and improving accuracy. In addition, the following measures were taken to ensure data quality: 1) Constraints have been integrated in the Kobo questionnaire to ensure consistency of answers during the interview. In case of inconsistency, the enumerators were invited to

check the previous answers for entry mistakes or with the respondent in order to complete the interview. 2) Before sending the data to the Kobo server, the team leaders were tasked to double check each questionnaire. 3) REACH team in country created an interactive monitoring dashboard in order to visualize and monitor data collection on a daily basis. 4) The data have been checked for inconsistencies and cleaned when possible. Both baseline and end-line have been checked to write this report. This additional cleaning of the baseline data led to slight differences between the results of the baseline report and the present report.

Collecting surveys in the largest and smallest provinces yield very similar statistical significance. That is, the samples are weighted, not every house has an equal opportunity to be selected; those in smaller province will have a greater chance of being selected. This needs to be taken into consideration when aggregating data (it should be weighted) but will provide more accurate information as a result. For example, if two provinces are aggregated then the province that has a larger population should have a larger impact on the aggregated results.

The data was analysed using R cran with 'survey' package library. All the results have been weighted based on population size and the confidence level stated takes the design effect into account.

Qualitative Data: Community Focus Group Discussions

A total of 24 community focus group discussions (FGDs) were conducted to help analyse and explain information collected from household surveys. FGDs were held with a male and a female group in each of 12 barangays. These barangays were purposively selected to ensure the inclusion of coastal and inland barangays to capture different themes depending on setting (see Table 3 below).

Table 3: List of barangays selected for focus group discussion

Province	Municipality	Barangay	Urban / Rural	Coastal / Inland	ZOD status
Capiz	Panay	Binantuan	Rural	Inland	Not Certified
Capiz	Panay	Pawa	Rural	Sea access	Not Certified
Iloilo	San Dionisio	Agdaliran	Rural	Sea access	Certified
Iloilo	San Dionisio	Amayong	Rural	Inland	Certified
Cebu	Bantayan	Kabangbang	Rural	Inland	Not Certified
Cebu	Daanbantayan	Carnaza	Rural	Sea access	Not Certified
Eastern Samar	Borongan City	Pinanag-an	Rural	Inland	Certified
Eastern Samar	Giporlos	Barangay 1 (Pob.)	Rural	Sea access	Certified
Leyte	Palo	Baras	Rural	Sea access	Certified
Leyte	Tabontabon	District IV Pob. (Macarthur)	Rural	Inland	Certified
Samar	Basey	Inuntan	Rural	Inland	Certified
Samar	Marabut	Logero	Urban	Sea access	Not Certified

WASH in Schools (WinS)

Quantitative Data: School Surveys

180 schools were assessed as part of the school survey. These schools were randomly selected from the list of all schools in PhATS program areas (a total of 649 schools). This sampling methodology was designed to generate statistically significant data (92% confidence level, +/-7% margin of error) at the level of all schools in PhATS program areas. A full list of the assessed schools is available in Annexe 3.

The school survey had two parts: a key informant interview with the school principal (or Officer in Charge) and a direct observation component covering toilets, taps and other facilities. This allowed for cross-checking and triangulation of information. The full questionnaire is available in Annexe 2.

Qualitative Data: Student Focus Group Discussions

In selected schools, student focus group discussions were held to draw out student perspectives and supplement the quantitative data collected in the school survey. A total of 16 student FGDs were conducted in 8 schools, with FGDs for boys and girls held separately in each. The schools were purposively selected among schools selected for the quantitative assessment to ensure the inclusion of schools of different sizes. It was also important to ensure that the perspectives of both older and younger students were included.

Table 4: Schools selected for students FGDs during the end-line data collection

Number of students	Number of schools (FGDs)
> 1000	2
500 - 999	2
< 500	4
Total	8

Limitations

Bias in Self-Reported Data and Key Informant Reports

This assessment was largely based on self-reported data. Indeed, one of the key objectives was to go beyond assessing infrastructure (which can be directly observed) to explore attitudes and social norms, which are best assessed through individual self-reporting and group discussions. Self-reporting is a practical method of collecting data on individual behaviour, as direct observation of hygiene behaviours (such as handwashing or open defecation) of large numbers of individuals over extended periods is rarely feasible. However, self-reported data is subject to various bias, with social desirability bias being a particular concern for WASH topics.

Such a concern also arose at school level. Indeed, the school survey was administered to school principals (or the Officer in Charge where the school did not have a full-time principal or where the principal was unavailable). This offered a useful snapshot of the WASH situation in each school, but was based largely on the report of key informants, who may have been incentivised to either understate or overstate problems with WASH in their schools.

A range of strategies were used to minimise the impact of social desirability and other biases, including:

- Ensuring complete anonymity and confidentiality of all data collected, and carefully explaining this to respondents before beginning the survey/FGD.
- Explaining before FGDs and household surveys that there are no right or wrong answers, and making sure that respondents understand why these questions are being asked, how the information will be used, and why truthful responses are important.
- Giving respondents the opportunity to skip any question they would prefer not to answer (minimising the chance of capturing false answers when respondents are not comfortable answering truthfully)
- Training data collection team on the importance of neutral, non-judgemental approaches, including specific verbal and non-verbal facilitation and interview techniques.
- Ordering questions so that more sensitive questions come later in the interview/FGD when greater trust has been established.
- Wording questions so that there is no assumption of hygiene-positive behaviour, or even an assumption of hygiene-negative behaviour, so that disclosing socially undesirable behaviour (including behaviour perceived as shameful) is as easy as possible for the respondent. For example, the question used to ask about open defecation was 'how often does a member of your household defecate openly?' instead of 'do any members of your household defecate openly?' This phrasing assumed open defecation was being practised, to make it easier for households to disclose this practise, while still allowing respondents to report that members of their households never defecated openly.
- Including direct observation components to verify self-reported data where possible. For example, as part of the household survey, soap and handwashing facilities were observed to verify self-reported data on

handwashing and soap availability. Another example is from the school survey: in order to verify the information reported, the assessment team requested to observe toilets, water infrastructure, handwashing facilities, outside areas and (where group hygiene practices were reportedly practised) evidence of group hygiene practice. The direct observation component also allowed to assess issues that may be overlooked by principals but important to students (such as adequate light in toilets and appropriate facilities for menstruating girls).

- Triangulating data from difference sources (eg. FGDs, survey and secondary data).

Despite these strategies to minimise the impact of social desirability bias, behaviours perceived as 'undesirable' are still likely to be somewhat underreported, and behaviours perceived as socially desirable over-reported. This is noted in the findings where relevant.

Moreover, it is important to note that improvements highlighted in this report cannot be attributed to the PhATS project only. Emergency response following the typhoons that made landfall in the Visayas in 2015, other WASH projects outside the PhATS project framework and the recovery of households after Haiyan are all factors that could have contributed to the results found in this report.

Generalisation

The sampling methodology for the household assessment allows for accurate generalisation about households in PhATS areas in each province and overall. However, this does not apply to data from questions that were not asked to every household. This data, particularly at province level, offers a reduced precision that impacts the confidence interval on findings (broader interval).

The assessment of knowledge, attitudes and practices was focused at household level rather than individual level. This was an efficient way of assessing WASH practices that relate to households rather than individuals (eg. water storage) and enabled the generation of statistically significant data at province level across the six provinces - which would not have been feasible to do at individual level with the existing resources. However, a limitation of this approach was that variation within households for example, gender differences in attitudes and knowledge could not be thoroughly explored.

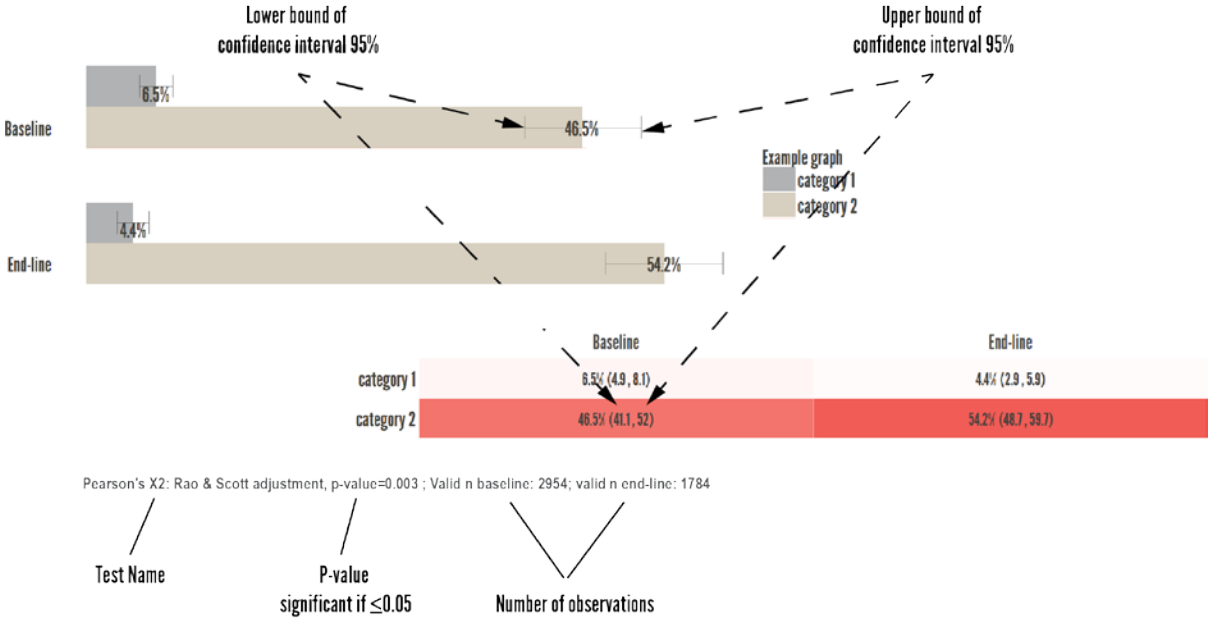
The sampling methodology for the schools assessment was designed to generate statistically significant data (92% confidence level, +/- 7% margin of error) at the level of all schools in PhATS program areas. It does not provide accurate data at the province/division level that can be used to compare between provinces/divisions. Selecting statistically significant samples at the level of each province/division was discussed, but not considered efficient as it would essentially have involved a census, which was not required. Actual student input was limited to 8 focus group discussions, which allowed for some student perspectives to be included in the analysis, but was not representative. A compressive student survey on WASH knowledge, attitudes and practises was well beyond the scope of this assessment, but may be relevant to consider in the future.

It is important to note that the change between baseline and end-line measured in the PhATS Haiyan project areas cannot be attributed to the PhATS project by itself. Granting that the project might have led to change in water and sanitation, emergency response following the typhoons that made landfall in the Visayas in 2015, other WASH projects outside the PhATS Haiyan project framework and the recovery of households after Yolanda are all factors that could have contributed to the results found in this reports.

Notes on graphics and visualisation

The graphs and visualisations presented in this report show confidence intervals for all findings. These are demonstrated using an error bar that shows the confidence interval for each finding, with a 92% confidence at province level and a 95% confidence level for results generalised to the PhATS Haiyan programme area overall. The confidence interval indicates the range within which the finding observed in the sample is true in the population of interest with a given level of confidence (e.g. 95%). The confidence interval is also reported in brackets [] directly following the findings throughout the report. If the confidence interval of two percentages overlap, we cannot be confident that the two values are different.

Figure 1: Graph interpretation of national level findings



Findings

This section of the report presents the main findings of the baseline assessment and is comprised of two main sections: WASH assessment at household and community level; and WASH in schools.

WASH Assessment at Household and Community Level

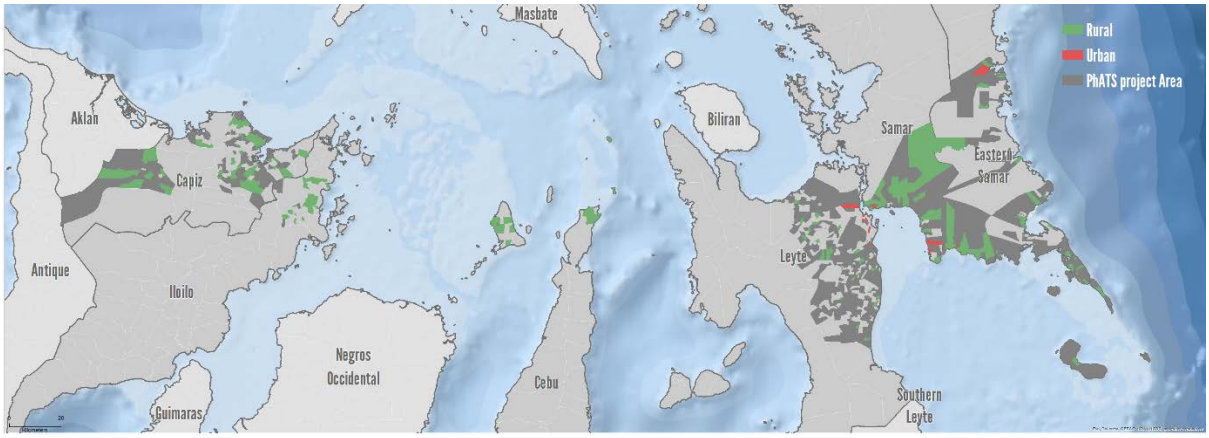
Population of interest

A brief description of the population of interest in the PhATS area is given in this section.

The results concerning the geographical features in the area are used to check the adequacy of the sampling in the two data collection rounds. For example, a significant difference between baseline and end-line in the proportion of rural / urban households might have been the sign of a bias in household selection between the two rounds of data collection.

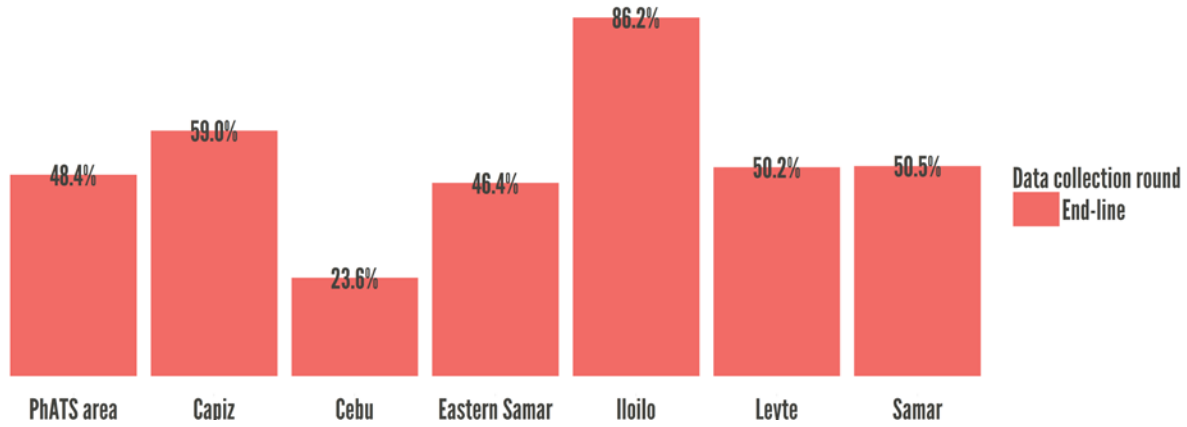
The households surveyed were largely living in rural areas: 78.5% [68.7;88.3] and half of households were living in a Barangay with sea access, 50.5% [54.5;66.4].

Map 3: Rural / Urban barangays in the PhATS Haiyan project areas



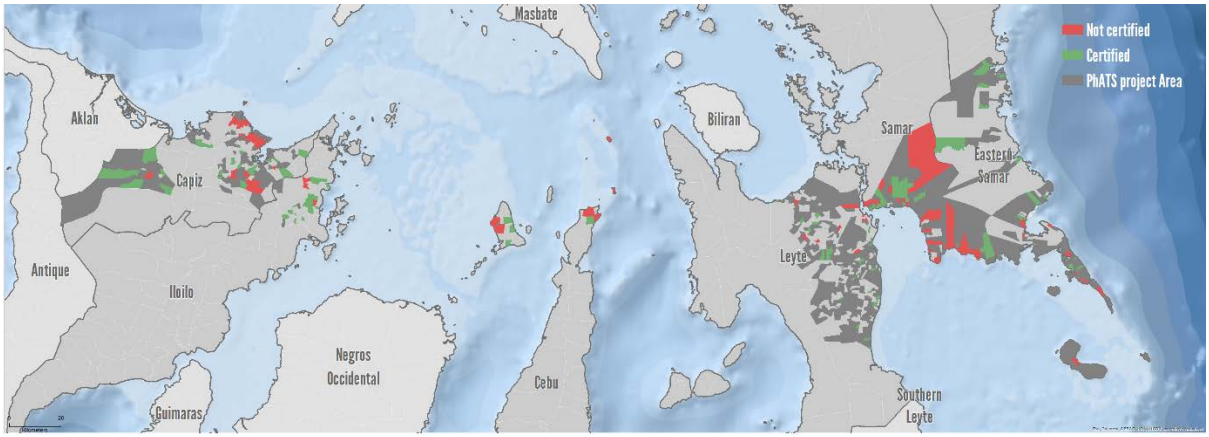
Almost half (48.4%) of households in the PhATS Haiyan project areas are living in certified ZOD (Zero Open Defecation) barangays according to ZOD data obtained from UNICEF (November 2015) (see Figure 2: Households living in ZOD certified barangays during end-line data collection below).

Figure 2: Households living in ZOD certified barangays during end-line data collection



Valid n end-line: 1794

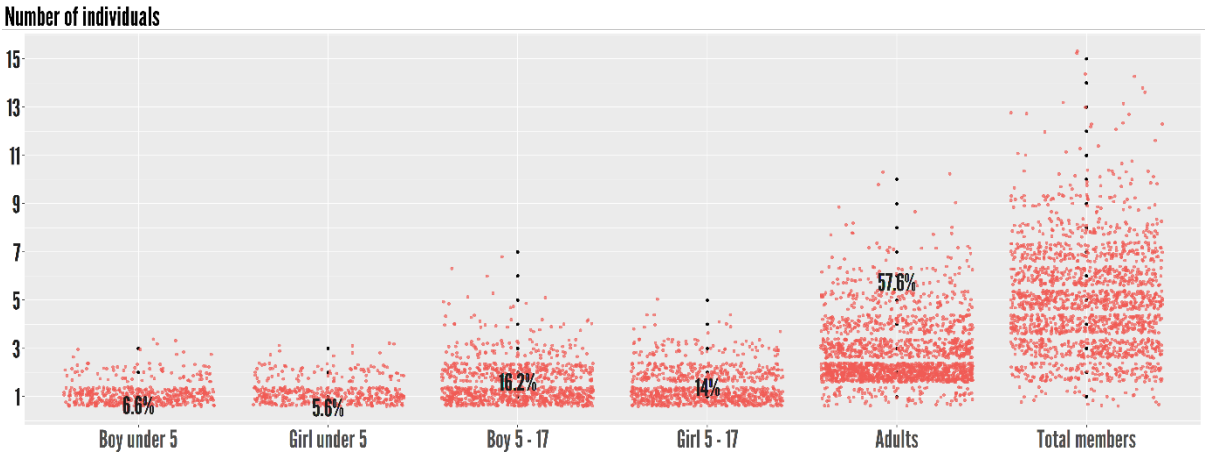
Map 4: ZOD certified barangays in PhATS Haiyan project areas



Respondent and household characteristics

The majority (62.5%) of respondents were female. Less than half (41.1%) of respondents had left school between grades 7 and 10 and 38% of respondents that had graduated had done so from primary school. 15.2% of the respondents reported having attended college. The average household size was 5.1. 57.6% of household members were adults and 13.2% were children under 5.

Figure 3: Distribution of household members and percentage of members by age and sex



In the PhATS Haiyan project areas, 9.5% of households had at least one member with a physical disability. No significant difference could be detected between the provinces assessed or the two data collection rounds.

Figure 4: Households' average monthly income by data collection round

	Baseline	End-line
0 PHP	4.2% (3.2, 5.2)	2.1% (0, 4.2)
1 - 3,332 PHP	64.5% (61, 67.9)	54.7% (50.1, 59.4)
3, 333 – 5000 PHP	19.3% (16.7, 21.9)	27% (24, 29.9)
5001 – 8, 333 PHP	8% (6, 10.1)	9.3% (7.1, 11.5)
8, 334 – 20, 833 PHP	3.2% (1.5, 4.9)	6% (3.3, 8.8)
More than 20,883 PHP	0.7% (0.1, 1.2)	0.8% (0.2, 1.4)

Pearson's X2: Rao & Scott adjustment, p-value=0.003; Valid n baseline: 2954; valid n end-line: 1784

A significant increase in households reporting an average income between 3,333 and 5,000 PHP could be identified, from 19.3% [16.7;21.9] during the baseline to 27% [24;29.9] during the end-line. Correspondingly, the proportion with an average monthly income between 1 and 3,332 PHP (under 40, 000 PHP per year), had dropped from 64.5% [61;67.9] to 54.7% [50.1;59.4] by the end-line, indicating that households may have started to recover after being affected by Haiyan (see Figure 4).

Almost half of households were living in timber frame houses with nipa or corrugated galvanized iron (CGI) roofs (see Figure 5 below). The next most common house type was timber and concrete: 23.9% [20.8;27.1].

Figure 5: Type of housing by data collection round

	Baseline	End-line
Timber frame	46.2% (42.8 , 49.5)	44.2% (40.6 , 47.8)
Timber and concrete	25.2% (22.5 , 27.9)	23.9% (20.8 , 27.1)
Hut	14.1% (11.9 , 16.3)	14.4% (11.6 , 17.2)
Concrete	10.6% (8.6 , 12.7)	16.9% (13.4 , 20.5)
Makeshift shelter	3.9% (2.7 , 5.1)	0.5% (0 , 1)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 3024; valid n end-line: 1794

There was an increase in the proportion of households living in concrete houses from 10.6% [8.6;12.7] during the baseline to 16.9% [13.4;20.5] during the end-line. This increase might be the consequence of the recovery of households after Haiyan. The highest proportion of households living in huts was found in Iloilo where all barangays assessed were in rural areas.

94.2% [92.8;95.7] of households in the PhATS Haiyan project areas overall reported owning the house where they lived, this proportion had increased from 89.6% [87.5;91.6] during the baseline. No significant differences could be detected between provinces in proportion of households owning their house.

Water Supply

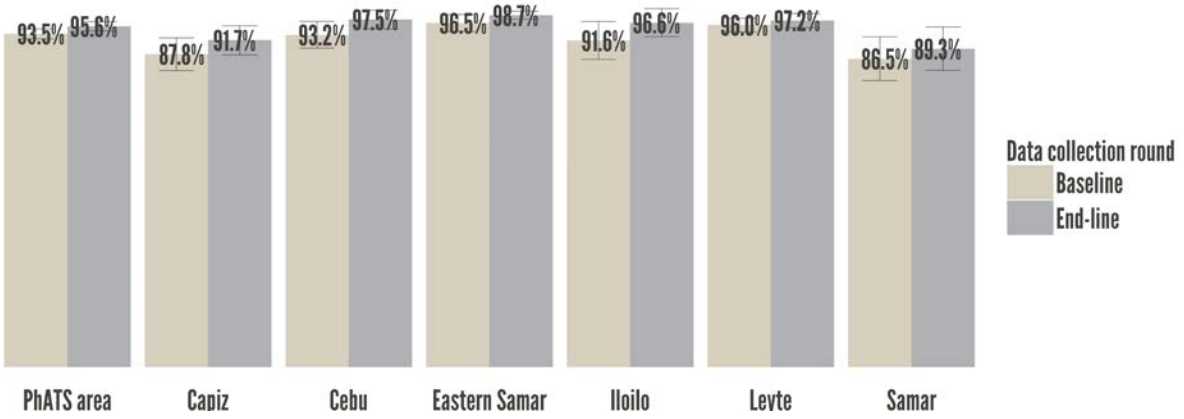
Drinking water source

This assessment found that an estimated 95.6% [94.3;97.0] of the population in PhATS Haiyan project areas were currently using an improved[5] source of drinking water. This proportion includes households using bottled water or purified water[6] as main source of drinking. No significant variation could be found between provinces, as shown below.

[5] An "improved" drinking-water source is one that, by the nature of its construction and when properly used, adequately protects the source from outside contamination, particularly faecal matter. Is considered as improved water source in this report: Bottled water; Piped water into dwelling (house); Piped water to yard or plot; Public tap or standpipe; Tube well or borehole; Protected dug well; Protected spring.

[6] In this report the term “bottled water” includes usual water bottle and jugs of water coming from purifying stations

Figure 6: Households accessing improved water source for drinking water by data collection round



Valid n baseline: 2938 ; valid n end-line: 1794

The two most common sources of drinking water in PhATS Haiyan project areas were piped water and bottled water. Piped water was used by 24.4% of households (see

Figure 7 below), with 13.3% [10.4;16.2] of all households having water piped directly into their dwelling and 11.1% [8.7;13.6] having piped water inside their yard or plot. No significant variation could be detected between provinces.

However, a significant increase in households using bottled water as main source of drinking water was found, from 16.5% [13.2;19.9] during the baseline to 29.8% [25.4;34.1] during the end-line assessment. Correspondingly, a significant decrease was seen in households relying on tube wells or boreholes, from 26.4% [22.1;30.6] to 17% [13.2;20.8].

Figure 7: Household drinking water source by data collection round

		Baseline	End-line
Improved water source	Bottled water	16.5% (13.2 , 19.9)	29.8% (25.4 , 34.1)
	Piped water into dwelling (house)	10.9% (8.7 , 13)	13.3% (10.4 , 16.2)
	Piped water to yard or plot	18.1% (14.9 , 21.2)	11.1% (8.7 , 13.6)
	Public tap or standpipe	11.3% (9 , 13.6)	11.9% (9.3 , 14.5)
	Tube well or borehole	26.4% (22.2 , 30.7)	17% (13.2 , 20.8)
	Protected dug well	5.8% (4.2 , 7.4)	8.8% (5.9 , 11.6)
	Protected spring	2.3% (1.4 , 3.3)	3.8% (2.1 , 5.5)
Unimproved water source	Unprotected dug well	3% (2 , 3.9)	2.4% (1.4 , 3.5)
	Unprotected spring	1.8% (1 , 2.7)	0.8% (0.2 , 1.4)
	Rainwater collection	0.7% (0.2 , 1.2)	0.7% (0 , 1.3)
	Cart with small tank or drum	0% (0 , 0.1)	0.1% (-0.1 , 0.3)
	Tanker-truck	0.4% (0 , 0.8)	0% (0 , 0.1)
	Surface water	0.4% (0.1 , 0.7)	0.2% (0 , 0.4)

Pearson's X^2: Rao & Scott adjustment, p-value=0.00; Valid n baseline: 3016; valid n end-line: 1794

Sources of drinking water varied significantly between the provinces. The full breakdown by province is outlined in Figure 8 below.

Piped water into dwelling or plot was the main source of drinking water overall and in Leyte, but it was used by less than 25% of households in project areas in Iloilo, Capiz, Eastern Samar and Samar. Tube wells were the main source of drinking water in Capiz and Iloilo, while in Samar public taps were most common. In project areas in

Cebu and Eastern Samar, bottled water was the main source of drinking water, relied upon by 57.8% [48.0;67.7] and 45.2% [32.7;57.6] of households respectively.

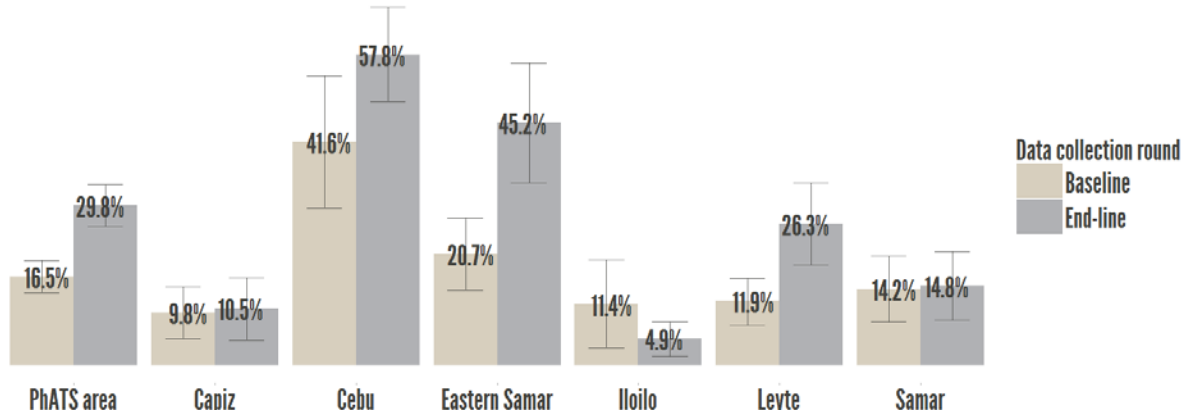
Figure 8: Household drinking water source by province

		Samar	Leyte	Iloilo	Eastern Samar	Cebu	Capiz
Improved water source	Bottled water	14.8% (7.6 , 22)	26.3% (17.7 , 34.9)	4.9% (1.3 , 8.4)	45.2% (32.7 , 57.6)	57.8% (48 , 67.7)	10.5% (3.9 , 17.1)
	Piped water into dwelling (house)	12.6% (7.9 , 17.4)	20.3% (14.7 , 25.9)	1.4% (-0.2 , 2.9)	14.4% (10.6 , 18.3)	6.9% (3.6 , 10.1)	11.7% (2 , 21.4)
	Piped water to yard or plot	8.7% (4.7 , 12.6)	20.3% (15.7 , 24.9)	0.8% (-0.4 , 2)	7.7% (2.6 , 12.7)	10.2% (5.2 , 15.3)	4% (-0.6 , 8.7)
	Public tap or standpipe	29.4% (19.4 , 39.5)	15.4% (9.8 , 21)	5.1% (-0.6 , 10.9)	18.4% (9.8 , 26.9)	3.3% (1.2 , 5.4)	1.1% (-0.1 , 2.3)
	Tube well or borehole	15.6% (4.6 , 26.5)	10% (3.8 , 16.2)	46.9% (33.5 , 60.3)	10.9% (4.8 , 16.9)	4.2% (0 , 8.4)	38.9% (25.5 , 52.2)
	Protected dug well	7.8% (2.3 , 13.4)	3.2% (0.7 , 5.6)	11.6% (7.1 , 16.1)	2.3% (0.5 , 4.1)	15% (4.8 , 25.2)	17% (9.2 , 24.8)
	Protected spring	1.3% (-0.8 , 3.4)	1.7% (-0.3 , 3.6)	26% (9.3 , 42.6)	0% (0 , 0)	0% (0 , 0)	8.5% (2.7 , 14.2)
Unimproved water source	Unprotected dug well	6.5% (1.7 , 11.3)	1.2% (0.1 , 2.3)	2.4% (-0.6 , 5.5)	1.3% (0 , 2.5)	2.5% (-0.4 , 5.4)	3% (0.7 , 5.2)
	Unprotected spring	0.8% (-0.5 , 2.2)	1.1% (-0.4 , 2.7)	0.4% (-0.4 , 1.1)	0% (0 , 0)	0% (0 , 0)	2% (0.1 , 4)
	Rainwater collection	1.6% (-0.2 , 3.3)	0% (0 , 0)	0% (0 , 0)	0% (0 , 0)	0% (0 , 0)	2.9% (-0.7 , 6.4)
	Cart with small tank or drum	0% (0 , 0)	0% (0 , 0)	0.2% (-0.2 , 0.5)	0% (0 , 0)	0% (0 , 0)	0.5% (-0.5 , 1.5)
	Tanker-truck	0.3% (-0.3 , 0.9)	0% (0 , 0)	0% (0 , 0)	0% (0 , 0)	0% (0 , 0)	0% (0 , 0)
	Surface water	0.5% (-0.5 , 1.5)	0.4% (-0.1 , 1)	0.4% (-0.4 , 1.1)	0% (0 , 0)	0% (0 , 0)	0% (0 , 0)

Valid n end-line: 1794

Looking specifically at the consumption of bottled water, there are significant differences between provinces and data collection rounds, as illustrated in the figure below. A significant increase in households using bottled water as main source of drinking water was found in Leyte and Eastern Samar, from 20.7% [13.9;27.4] and 11.9% [7.5;16.2] during the baseline to 45.2% [34;56.3] and 26.3% [18.7;34] during the end-line assessment.

Figure 9: Households using bottled water by data collection round



Valid n baseline: 3016 ; valid n end-line: 1794

Cost of drinking water

In the PhATS Haiyan project areas 59.2% [53.3;64.7] of households are paying for their drinking water. There was significant variation in this proportion per province, with Iloilo and Capiz having the lowest percentage of households paying for water and Leyte and Cebu having the highest proportions paying.

The cost of water is closely linked with the type of water sources used by the household. 96.8% [93.2;100] of households that use an unimproved water source are not paying for their water, compared to 38.4% [32.1;44.7] of those relying on an improved water. The main source of improved water source accessed for free by households are protected dug well 96.4% [93.2;99.6], protected spring 78.6% [62.2;94.9] and public tap 41.7% [30.3;53.1] of households. This result is important in the light of ensuring a sustainable supply of safe drinking water in

communities, since households payments to access the service are usually reinvested to support the maintenance cost of the infrastructure

Figure 10: Average monthly cost for drinking water by households accessing improved water source for drinking water

	Unimproved water source	Improved water source
0 PHP	92.1% (86.4, 97.8)	38.6% (32.2, 44.9)
1-100 PHP	2.1% (-1.1, 5.3)	15.3% (12.7, 17.9)
101-250 PHP	5.1% (0.1, 10.1)	32.6% (27.9, 37.3)
251-500 PHP	0.7% (-0.7, 2)	10.4% (7.5, 13.2)
501-750 PHP	0% (0, 0)	1.7% (0.7, 2.7)
751-1000 PHP	0% (0, 0)	0.6% (-0.1, 1.4)
More than 1000 PHP	0% (0, 0)	0.8% (-0.3, 1.9)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n end-line: 1788

Considering the investment by partners in the PhATS Haiyan project areas focused on water supply, the increase in the proportion of households using bottled water is unexpected. According to the PhATS project documentation, 152,000 additional individuals should now have access to an improved water source as a result of the PhATS Haiyan project. According to end-line survey findings, the vast majority, 91.8% [88.1;95.5], of households using bottled water as main source of drinking water had access to another improved water source. Lack of alternative improved water sources thus appears not to be the sole factor driving households to choose bottled water over other improved water sources. To explore what drives this decision, the topic was covered in end-line community discussions. Participants reported concerns over the quality of water coming from their improved water sources. The main reasons for concern reported were 1) Being unsure about water quality 2) Turbidity in water after tropical storm episodes; 3) Diarrhoea episodes in the community.

Figure 11: Average monthly cost for drinking water by households using bottled water

	Water bottle	Other source
0 PHP	0% (0, 0)	58.1% (50.7, 65.4)
1-100 PHP	23% (17.3, 28.7)	11.3% (8.2, 14.3)
101-250 PHP	55% (45.9, 64.1)	21.5% (16.3, 26.7)
251-500 PHP	17.1% (10.3, 23.9)	6.9% (4.1, 9.8)
501-750 PHP	4.6% (1.6, 7.6)	0.4% (-0.1, 0.9)
751-1000 PHP	0.3% (-0.3, 0.8)	0.7% (-0.3, 1.8)
More than 1000 PHP	0% (0, 0)	1.1% (-0.4, 2.5)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n end-line: 1788

Bottled water is more expensive for households than other sources of drinking water. Among households drinking bottled water, 77% pay more than 100 PHP per month. The cost of bottled / purified water generally ranges from PHP 2.50 to PHP 6.00 per litre. When looking at household income, there is no significant difference in consumption of bottled water when comparing households with low and high incomes, indicating that that household income is not the main factor driving the increase in use of bottled water.

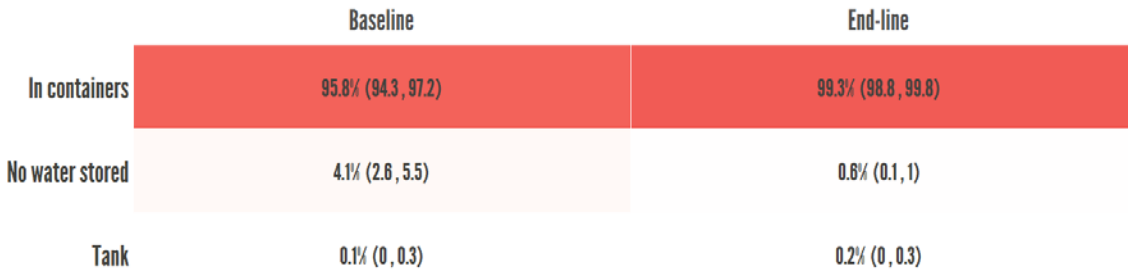
A study on water use in Philippines from 2014, found that the choice to purchase bottled water for drinking over the regular source of water was mainly driven by the perceived lack of quality or lack of evidence of adequate

quality of the household main water source[7]. In the PhATS area, water quality control checks are scheduled on a quarterly basis by the province Department of Health. Participants in FGDs in communities where bottled water was not relied on at all, reported that the quality of their drinking water sources was analysed on a regular basis and they trusted that the water from these sources was safe for drinking. The increase in bottled water consumption could thus be mainly explained by a lack of trust by households in their improved water source, rather than the availability of improved water sources.

Household water storage

The main way that households stored drinking water was in containers - such as bottles, jerry cans and drums - as reported by 99.3% [98.8; 99.8] of households in PhATS Haiyan project areas, up from 95.8% [94.3; 97.2] during the baseline.

Figure 12: Type of water storage by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 3016; valid n end-line: 1794

0.6% [0.1;1.0] reported that they do not store water at household level, and only 0.2% [0.0;0.3] reported using water tanks (see figure above).

It demonstrates that even when households have piped water (as do over a quarter of households in PhATS areas), many still choose to store water in containers. This phenomenon has been reported elsewhere in Asia, and typically occurs where water supplies are not reliable in terms of quantity, quality and consistency[8].

As part of the household survey, enumerators asked to observe the water containers of all households who reported having water stored in containers, to check whether they were covered. 84.9% [82.2;87.7] of households with water stored in containers had their containers covered at the time of the survey, with a further 14.6% [12.0;17.2] having some but not all water containers covered. Only 0.4% [0.0;1.0] of households with water stored in containers did not have any of these containers covered (see Figure 13 below). This pattern was consistent across the six provinces, with households with no containers covered representing less than 1% of households in PhATS Haiyan project areas. A significant decrease in households covering all water containers was found from 89.6% [87.9;91.3] during the base to 84.6% [82.2;87.7] during the end-line. This result is concerning since uncovered household water storage containers play a dominant role in aedes vector breeding in many areas, and can thus contribute to the spread of dengue[9]. In addition, unclean and uncovered containers can also contaminate water and cause diarrheal disease, with a 1995 study in the Philippines showing that water contamination at point of consumption through improper handling and storage of water was even greater than contamination at source.

[7] Francisco, J. P. S. (2014), Why households buy bottled water: a survey of household perceptions in the Philippines. International Journal of Consumer Studies, 38: 98–103. doi: 10.1111/ijcs.12069

[8] World Health Organization, Dengue haemorrhagic fever: diagnosis, treatment, prevention and control, 2nd ed, (Geneva: World Health Organization1997), p. 53,

Figure 13: Households that cover container for drinking water by data collection round

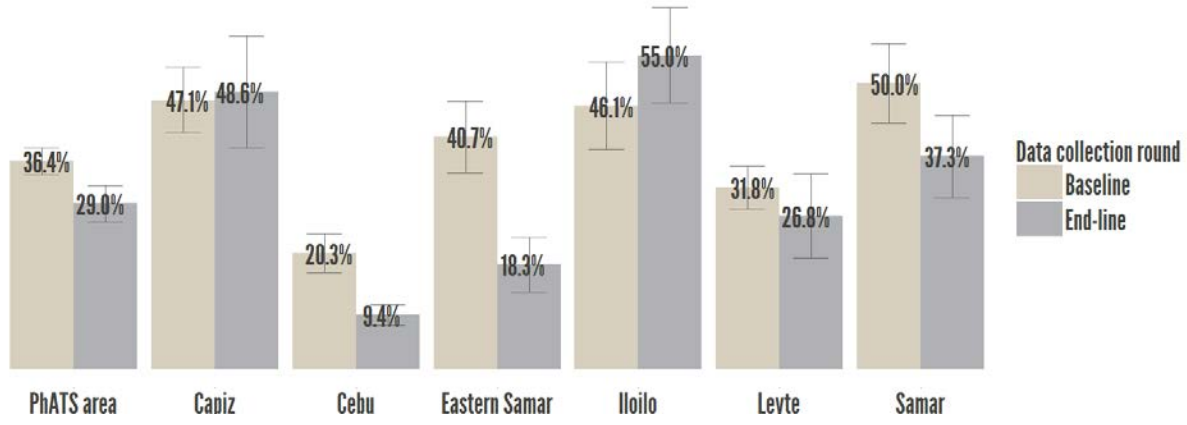
	Baseline	End-line
All covered	89.6% (87.9, 91.3)	84.9% (82.2, 87.7)
Some covered	10.1% (8.4, 11.8)	14.6% (12, 17.2)
None covered	0.3% (0.1, 0.5)	0.4% (-0.1, 1)

Pearson's X^2: Rao & Scott adjustment, p-value=0.002; Valid n baseline: 2931; valid n end-line: 1779

Household water treatment

71.0% [67.9;74.2] of households in PhATS Haiyan project areas did not treat their drinking water, while 29.0% [25.8;32.1] reported treating their drinking water (see Figure 14 below): 17.5% [15.2;19.7] of households report that they always treat their drinking water, with a further 11.5% [9.2;13.7] reporting that they sometimes do.

Figure 14: Households reporting to treat their drinking water by data collection round

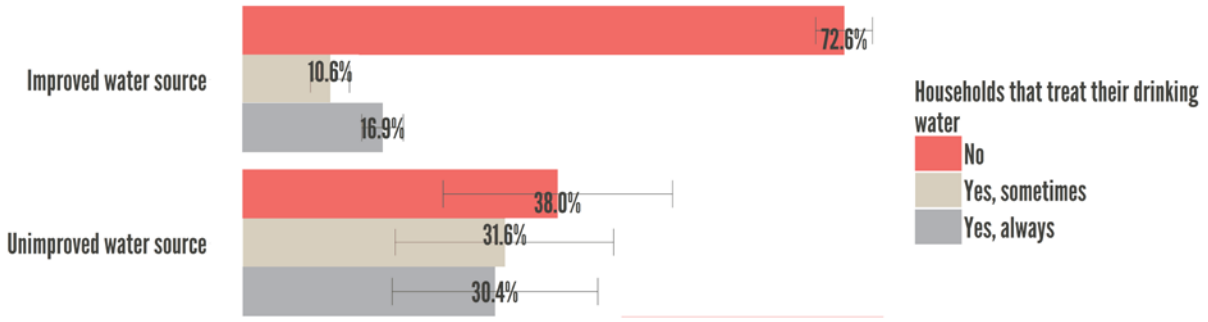


Valid n baseline: 3021 ; valid n end-line: 1794

There was a significant decrease in the proportion of households treating their drinking water in the PhATS area, from 36.4% [34.1;38.8] during the baseline to 29.0% [25.8;32.1] during the end-line. These results in the PhATS Haiyan project areas can be explained by the important decrease of treatment behaviour in Cebu 20.3% [16.9;23.6] at the time of the baseline, which dropped to 9.4% [7.7;11.2] during the end-line and in Eastern Samar 40.7% [34.4;47] during the baseline, which dropped to 18.3% [13.5;23.1] during the end-line data collection. There are no other significant differences between baseline and end-line in other provinces.

This reduction in use of drinking water treatment could be partly explained by the increase in proportion of households that relied on bottled drinking water observed (Figure 9). Households relying on improved water sources, such as bottled water, were indeed less likely to treat their drinking water, as seen in Figure 15 below.

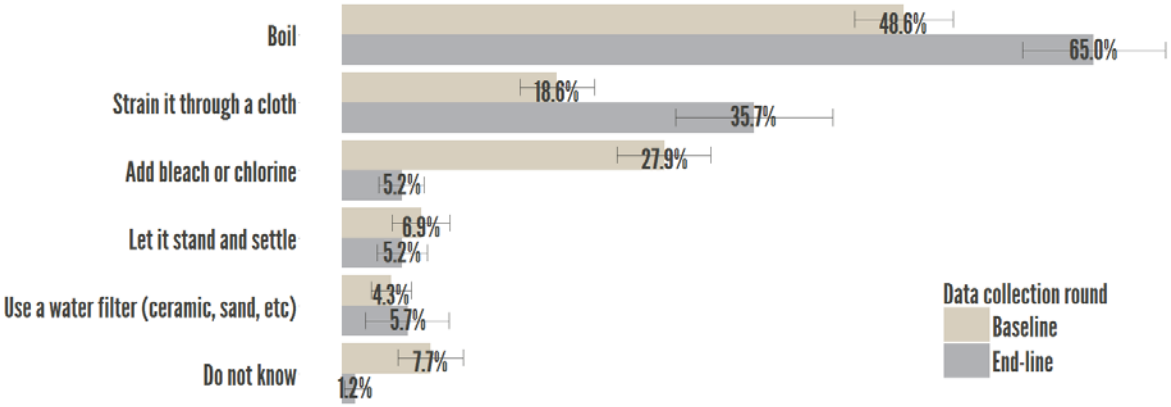
Figure 15: Households that treat their drinking water by access to an improved water source for drinking water



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n end-line: 1794

Only 27.5% of households using an improved water source reported treating their water at least occasionally before drinking, compared to 62.0% of households using an unimproved water source. However, this means that 38% [24.2;51.9] of households using an unimproved drinking water source are not treating their water before consumption and an additional 31.6% [18.4;44.7] of households are not always treating their unimproved water source.

Figure 16: Type of treatment used among households treating their drinking water by data collection round



Valid n baseline: 1167 ; valid n end-line: 606

There was a significant decrease in the proportion of households using chlorine to treat the water, from 27.9% [23.8;31.9] during the baseline to 5.2% [3.2;7.1] during the end-line. This decrease could be explained by the distribution of water treatment kits that took place in the PhATS project area after Haiyan. During the community discussions, most communities reported to have received treatment products like Hyposol or Aquatab from NGOs after Haiyan.

The main technique used by households to treat drinking water was boiling, used by 65.0% [58.9;71.2] of households. There was a significant increase in households using this method compared to the baseline, when only 48.6% [44.4;52.9] reported boiling their water before drinking. There was also a significant increase in households filtering water with a piece of cloth (see Figure 16 above).

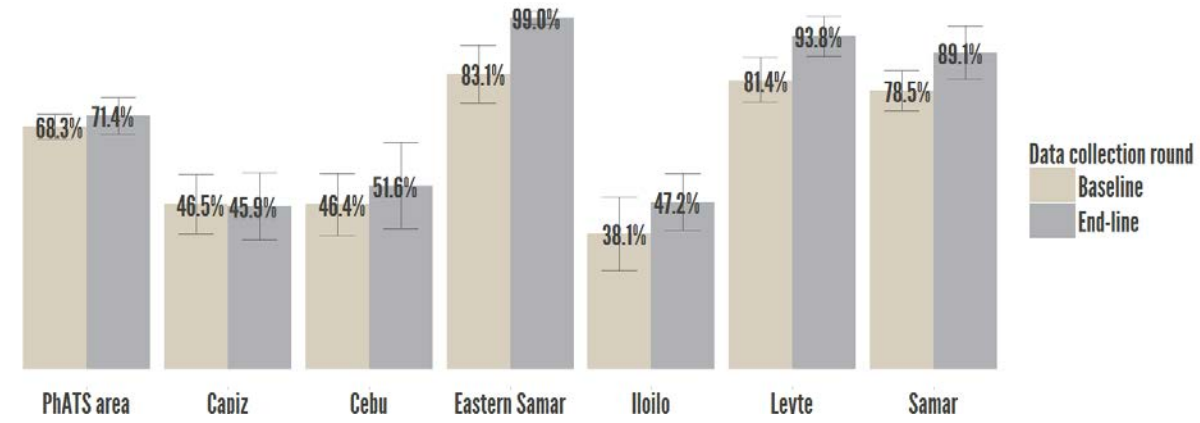
This finding is consistent with the decreased usage of chlorine based treatment products and the increase of water boiling as a disinfection method. This suggests a shift in households' treatment types that might have occurred after households used the chlorine supplies received after Haiyan. This finding is encouraging in the light of households understanding the need of treating water. However 88.7% [84.6;89.6] of households relying on filtration of water with a piece of cloth, use it without any disinfection method (boiling, chlorine / bleach or solar disinfection).

This result is a concern for the capacity of households to access safe drinking water. While filtration with a piece of fabric is a good method to reduce the turbidity of water, it needs to be combined with a disinfection method to ensure water quality and highlights the needs for campaigns to raise households' awareness on adequate treatment methods.

Looking at the adequacy of water treatment methods (use of efficient treatment methods: boiling; solar disinfection; chlorine; water filter), 71.4% [65.5;77.2] of households in the PhATS Haiyan project areas are using an adequate treatment method. There was high variation between the provinces. (see Figure 17 below), where Capiz, Cebu and Iloilo having the lowest proportion of households using adequate water treatment.

Comparing between baseline and end-line, no differences can be found between baseline and end-line at the PhATS Haiyan project areas level. However, an increase of the proportion of households using adequate water treatment can be found between baseline and end-line in Eastern-Samar and Leyte provinces. The sample size does not enable comparison of the adequacy of treatment with the type of water source.

Figure 17: Adequate water treatment by data collection round

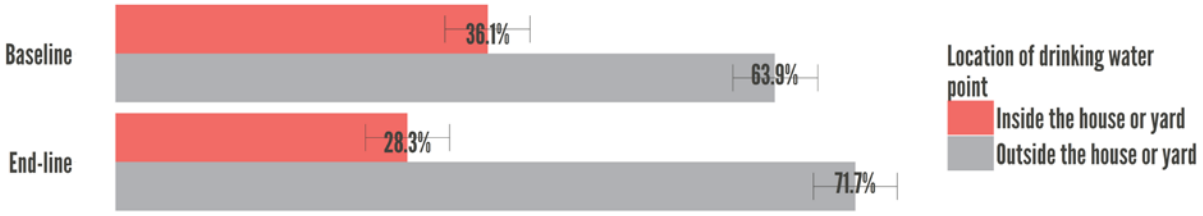


Valid n baseline: 1259 ; valid n end-line: 651

Fetching Water

86.2% [83.8;88.7] of households among the 71.7% [67.6;75.8] of households that fetch water from a source outside their plot (Figure 18) reported that it takes them less than 15 minutes to go to the water source, collect water and come back (excluding any time spent socializing).

Figure 18: Location of drinking water point by data collection round



Pearson's $X^{2:}$ Rao & Scott adjustment, p-value=0.009; Valid n baseline: 3009; valid n end-line: 1794

Across all Haiyan project areas, a remaining 12.9% [10.4;15.4] of households who fetch water take 15 minutes or more for this task. There was no significant difference between baseline and end-line, as seen in Figure 19 below.

Figure 19: Water collection time by data collection round

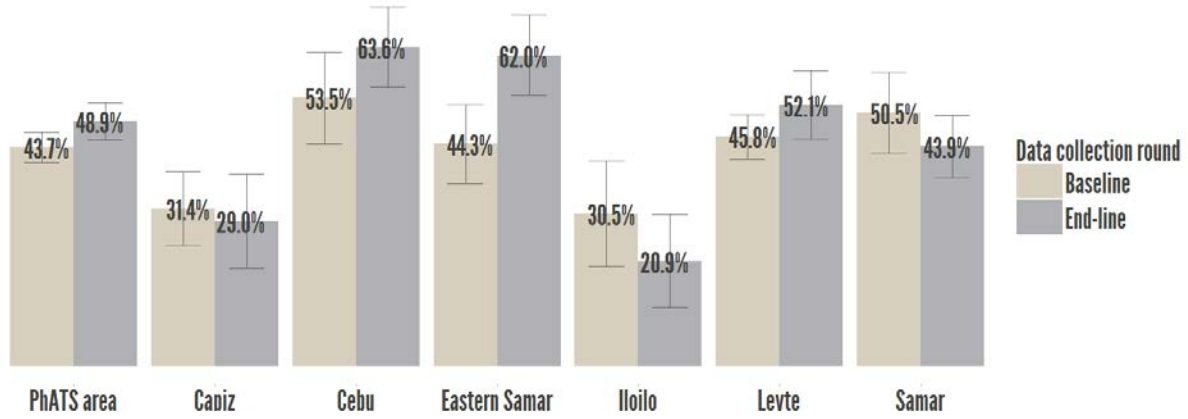
	Baseline	End-line
Less than 15 minutes	84.6% (82 , 87.2)	86.2% (83.8 , 88.7)
15 to 29 minutes	12.3% (10 , 14.5)	11.4% (9.2 , 13.6)
30 minutes to 1 hour	2.1% (1.2 , 3)	2.2% (0.9 , 3.4)
More than 1 hour	1% (0.4 , 1.6)	0.2% (0 , 0.4)

Pearson's $X^{2:}$ Rao & Scott adjustment, p-value=0.217; Valid n baseline: 1870; valid n end-line: 1207

Sources of water for other use than drinking

48.9% [44.7;53.0] of households in PhATS Haiyan project areas have a second source of water for other use than drinking. There was no significant change at the PhATS area level, however there was a significant increase in Eastern Samar governorate where 62.0% [54.0;70.1] of households now had a second source of water, a proportion that rose from 44.3% [36.4;52.2] during the baseline.

Figure 20: Households having a second source for non-drinking water by data collection round



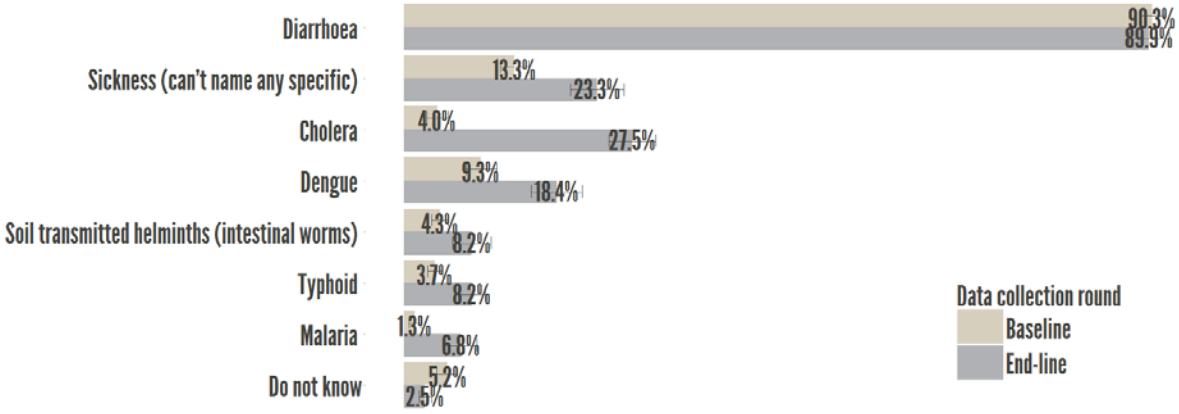
Valid n baseline: 3019 ; valid n end-line: 1794

This increase in Eastern Samar is consistent with the increase of bottled water and decrease of water treatment measured between baseline and end-line assessments.

Knowledge of the risks of unsafe water

93.3% [91.8;94.8] of all respondents could name at least one specific health risk of unsafe water, with diarrhea by far the most commonly identified, mentioned by 89.9% [87.5;92.3] of all households. The second most commonly mentioned was cholera, identified by 27.5% [24.7;30.4] of households. There was an increase of households reporting cholera as a risk of unsafe water compared to the baseline, when it was reported as a health risk by only 4.0% [2.7;5.3] of respondents. 23.3% [20.1;26.5] of respondents mentioned sickness as a risk of unsafe water without being able to identify a specific type.

Figure 21: Perception of respondents of the risk of unsafe water by data collection round



Valid n baseline: 3025 ; valid n end-line: 1794

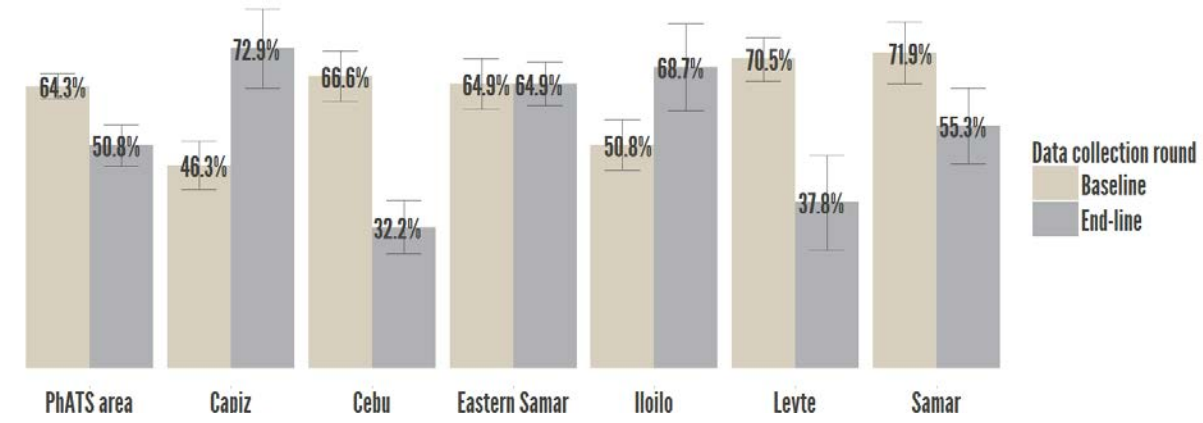
There is an increase in the understanding of the link between unsafe water and diarrhoea and sickness in general. In addition, since the baseline assessment, there is an increased awareness of respondents about the risk of dengue fever. This result might be a positive outcome of both humanitarian organisation PhATS programming and the Department of Health (DOH) efforts to intensify anti-dengue awareness campaign[10].

Hygiene and Health

WASH messaging

The proportion of households that recalled receiving WASH (water, sanitation and hygiene) messages during the last 6 months from the time of data collection reduced between the baseline (64.3% [61.4;67.2]) and the end-line (50.8% [46.1;55.5]). There was a significant difference between provinces, with the largest decrease in the proportion of respondents that recalled receiving a WASH message seen in Cebu (from 66.6% [60.9;72.3] during baseline to 32% [26.2;38.3] during end-line) and in Leyte (from 70.5% [65.5;75.4] to 37.8% [27;48.6]). On the contrary, Capiz and Iloilo saw an increase in the proportion of respondents that had received a WASH message, from 46.3% [40.8;51.8] to 72.9% [63.9;81.8] and from 50.8% [45;56.5] to 68.7% [58.7;78.6] respectively (see Figure 22 below).

Figure 22: Respondents that received a WASH message during the last 6 months by data collection round



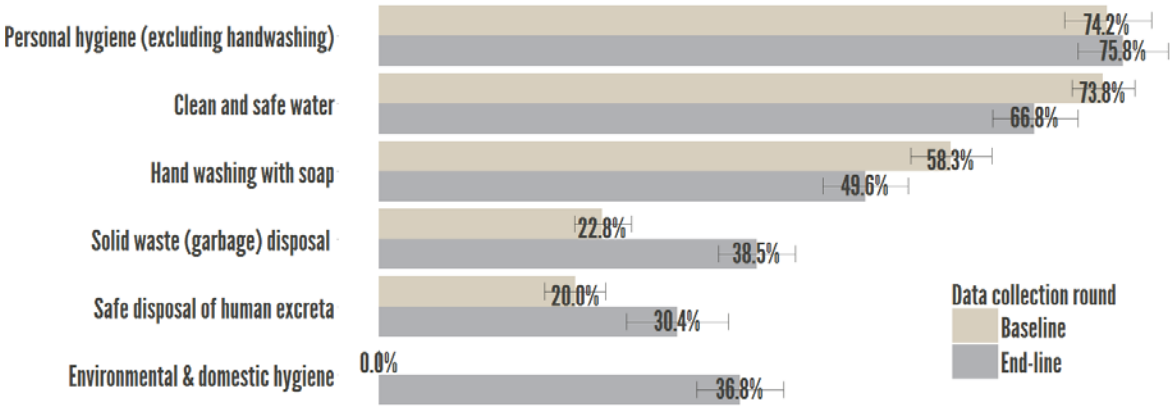
Valid n baseline: 3004 ; valid n end-line: 1781

Among respondents that remembered receiving a WASH message, 75.8% [71.2;80.4] had received a message about personal hygiene (excluding handwashing). There was overall a decrease in messages received about

[10] DOH: Don't just remember, practice 4S to prevent Dengue, October 2015; http://www.doh.gov.ph/node/2571

handwashing with soap and an increase in messages about solid garbage management; safe disposal of excreta; and most dramatically, from 0.0% [0.0;0.0] to 36.8% [32.4;41.3], environmental and domestic hygiene (see Figure 23 below). The increase of messaging about solid garbage management and safe disposal of excreta corresponds to recommendations of the PhATS baseline report to increase the hygiene promotion campaign efforts of the PhATS implementing partners on those specifics themes.

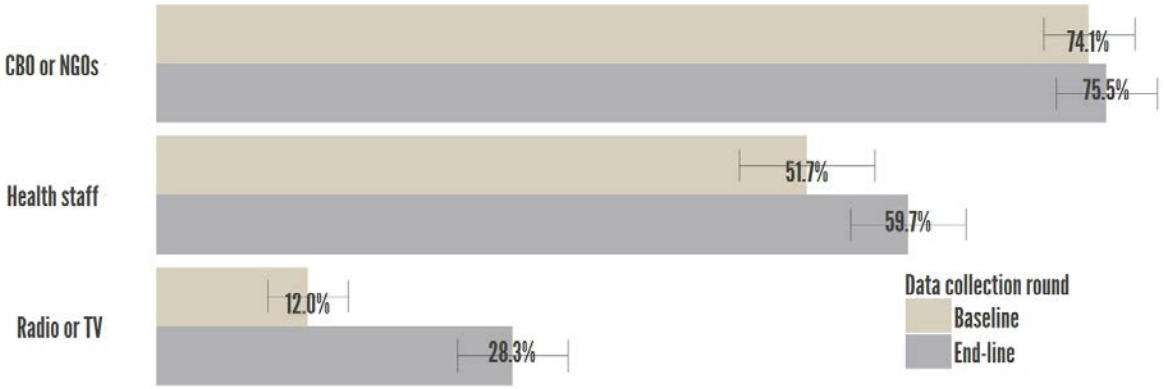
Figure 23: Type of WASH message received by respondents by data collection round



Valid n baseline: 1863 ; valid n end-line: 1010

Community-based organisations (CBO) and Non-governmental organisations (NGOs) were found to be the most common sources of WASH messages during both baseline and end-line survey, with no significant change observed compared to the baseline. However, there was a significant increase in the proportion of respondents that received WASH messages through TV and Radio. It is important to note that there was simultaneously an increase in households that reported owning a TV compared to the baseline, hence the increase in messages received via TV may be attributable to increased access to TVs as well as increased broadcasting of messages via TV.

Figure 24: Origin of the WASH message received by respondents by data collection round



Valid n baseline: 1863 ; valid n end-line: 1010

Handwashing

Handwashing facilities at household level

As part of the household survey, respondents were asked if their household had a designated place for handwashing. Enumerators then asked to observe these handwashing facilities, to verify the response and check for soap and water. Overall, 93.2% [91.8;94.6] of households had a designated place for handwashing (verified by the enumerator), and where handwashing facilities (HWF) were present they usually had both soap and water, with 84.7% [82.1;87.2] of all households observed to have a handwashing facility with soap and water present at

the time of visit. 4.3% [2.4;6.3] of households had no handwashing facilities at the time of observation. There was no significant change in proportions compared to the baseline.

Figure 25: Households having a handwashing facility with water and soap, by data collection round

	Baseline	End-line
Handwashing facility with Water & Soap	79.9% (77.4, 82.3)	84.7% (82.1, 87.2)
Handwashing facility with Water without Soap	5.4% (4.3, 6.4)	4.3% (2.4, 6.3)
No functionning handwashing facility	4.6% (3.6, 5.6)	4.2% (3, 5.4)
No Handwashing facility	10.2% (8.1, 12.3)	6.8% (5.2, 8.4)

Pearson's X^2: Rao & Scott adjustment, p-value=0.039; Valid n baseline: 3025; valid n end-line: 1794

Availability of soap in households

74.9% [71.7;78.1] of the respondents reported to always have soap in the household, while 23.7% [20.9;26.6] reported sometimes having soap in the household. There was no significant difference compared to the baseline.

Figure 26: Availability of soap by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0.132; Valid n baseline: 3025; valid n end-line: 1794

It is important to note that the same soap is often used for washing clothes and dishes as well as hands, so the observed availability of soap does not necessarily mean it is available and used for handwashing. However, we rely on self-reporting here due to the difficulty of gathering comprehensive observational data on handwashing behaviour.

Handwashing behaviour

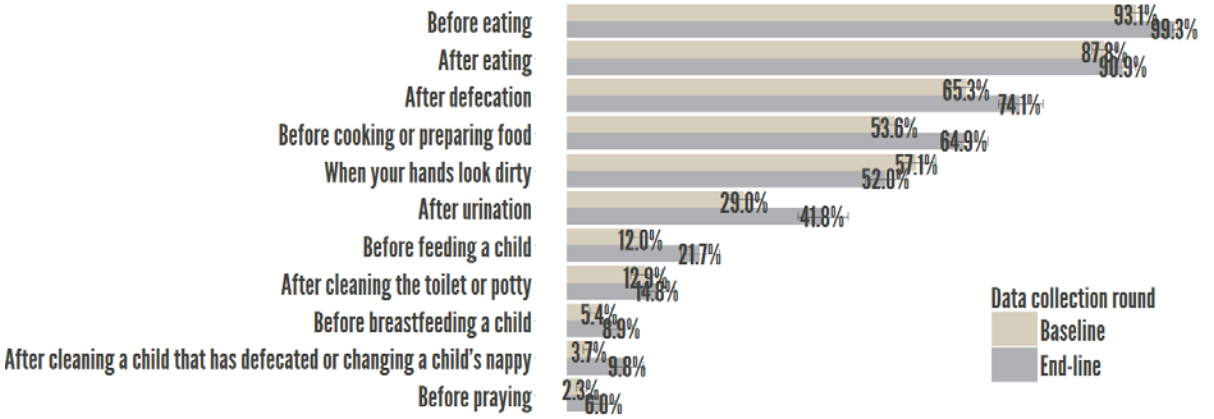
Self-reported frequency of handwashing was seen to have increased since the baseline. While 36.1% [33.1;39] reported washing their hands 7 times or more per day during the baseline this rose to 44.3% [40.1;48.6] by the end-line (see Figure 27 below). It is important to note that the frequency could not be verified and in consequence is likely to be overestimated in both assessments (baseline and end-line).

Figure 27: Respondents handwashing frequency by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 3025; valid n end-line: 1794

The proportion of respondents that reported washing their hands on different types of occasion had generally increased compared to the baseline, except for 'when hands look dirty' which had dropped from 57.1% [54;60.2] to 52.0% [48.7;55.3]. In addition, 0.3% of respondents reported washing their hands ONLY when their hands look dirty during the end-line compared to 2.8% during the baseline assessment. These results are encouraging since they show an increase in understanding on hygiene.

Figure 28: Reported handwashing practices by data collection round

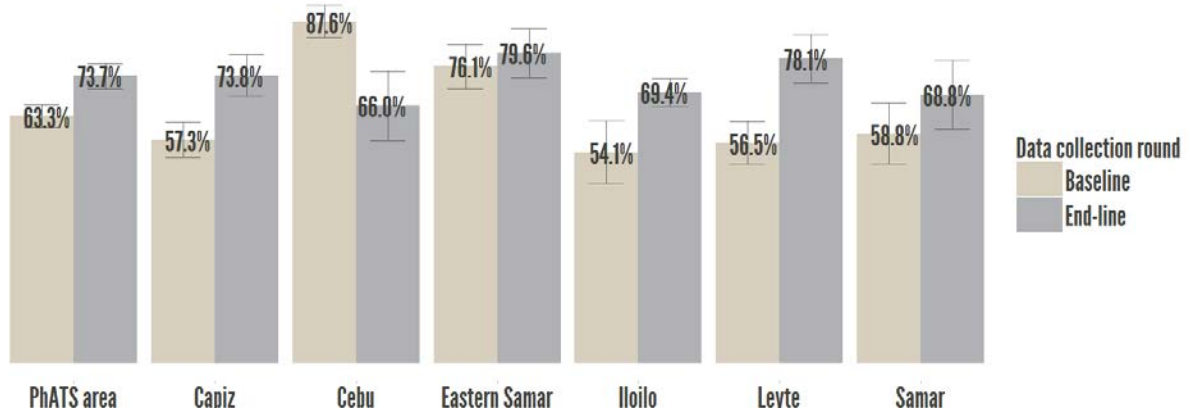


Valid n baseline: 3022 ; valid n end-line: 1792

Looking at the key handwashing moments, significant differences in change were seen between provinces when comparing respondents that reported washing hands both before eating and after defecating. The proportion had increased in Capiz, Iloilo and Leyte, while it had remained the same in Eastern Samar and Samar. In Cebu, it had dropped from 87.6% [83.4;91.8] during the baseline to 66.0% [57.1;74.9] during the end-line (see

Figure 29 below). This result is consistent with the decrease in the proportion of respondent that recalled receiving a WASH message about handwashing in Cebu that decreased from 62.4% [53.4;71.4] to 37.8% [25.5;50.1]. However no link can be made between these two indicators since in other provinces like Leyte a decrease of handwashing messages goes along with an increase of respondents reporting washing their hands before eating and after defecating.

Figure 29: Respondents that mentioned handwashing both before eating and after defecating by data collection round



Valid n baseline: 3022 ; valid n end-line: 1792

Perception of handwashing by respondents

The proportion of respondents that strongly agreed that hands should be washed before feeding children had increased from 59.4% [56.4;62.4] to 66.6% [62.6;70.7] by the end-line.

Figure 30: Responses to the statement "It is important to wash hands with soap before feeding children" by data collection round

	Baseline	End-line
1 - Strongly disagree	1% (0.5 , 1.4)	0.3% (-0.2 , 0.8)
2 - Disagree	3.5% (2.3 , 4.6)	0.1% (0 , 0.2)
3 - Neutral	2.6% (1.5 , 3.7)	0.8% (0.3 , 1.2)
4 - Agreee	33.6% (30.5 , 36.7)	32.2% (28.4 , 36.1)
5 - Strongly agree	59.4% (56.4 , 62.4)	66.6% (62.6 , 70.7)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 3025; valid n end-line: 1794

Perception of handwashing habits in the wider community had also slightly changed, with the proportion that did not believe people in general washed their hands before feeding children increasing from 0.5% during the baseline to 5.0% during the end-line (see Figure 31 below).

Figure 31: Responses to the statement "I believe most people in my community wash their hands with soap before feeding their children" by data collection round

	Baseline	End-line
1 - Strongly disagree	0.5% (0.2 , 0.8)	0.1% (0 , 0.1)
2 - Disagree	4.5% (3.2 , 5.8)	0.4% (0 , 0.8)
3 - Neutral	26.5% (23.3 , 29.8)	20% (16.6 , 23.4)
4 - Agreee	33.5% (30.6 , 36.4)	37.9% (33.6 , 42.2)
5 - Strongly agree	35% (31.3 , 38.8)	41.6% (38.5 , 44.8)

Pearson's X2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 3024; valid n end-line: 1794

Perceived importance of washing hands after using the toilet was generally high: 74.3% [71.2;77.4] of respondents strongly agreed that it was important. No significant difference was seen between baseline and end-line. The increased perceived importance of handwashing before feeding children is in line with the increase of this handwashing behaviour.

Figure 32: Responses to the statement "It is important to wash hands with soap after using the toilet" by data collection round

	Baseline	End-line
1 - Strongly disagree	0.5% (0.2, 0.8)	0.1% (0, 0.1)
2 - Disagree	0% (0, 0)	0.1% (-0.1, 0.2)
3 - Neutral	0.1% (0, 0.1)	0.3% (0, 0.5)
4 - Agreee	30.3% (27.2, 33.5)	25.3% (22.2, 28.4)
5 - Strongly agree	69.1% (66, 72.3)	74.3% (71.2, 77.4)

Pearson's X^2: Rao & Scott adjustment, p-value=0.001; Valid n baseline: 3024; valid n end-line: 1794

Perceptions of handwashing by other people after using the toilet also remained the same during baseline and end-line with no significant difference between provinces. 74.3% [71.2;77.4] of respondents strongly agreed that handwashing after toilet use was important.

Figure 33: Responses to the statement "I believe most people in my community wash their hands with soap after using the toilet" by data collection round

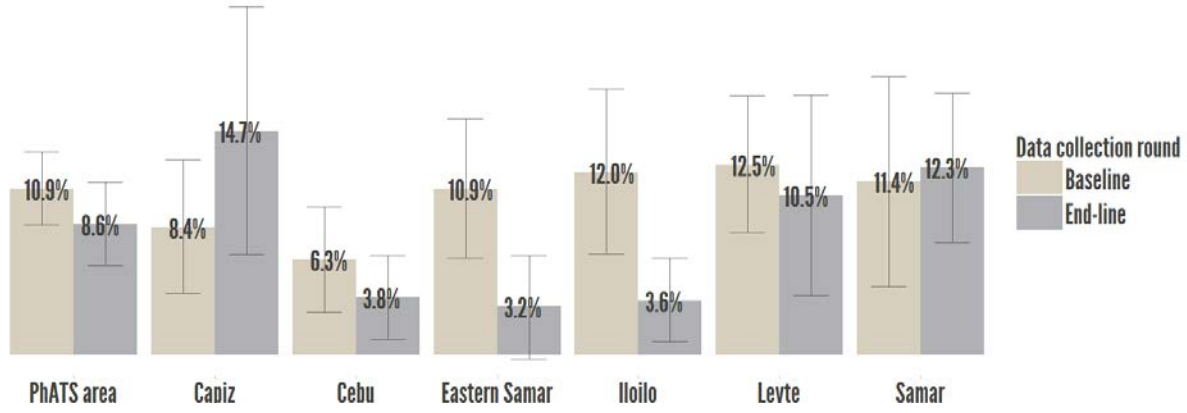
	Baseline	End-line
1 - Strongly disagree	0.2% (0.1, 0.4)	0.3% (-0.2, 0.8)
2 - Disagree	0.8% (0.5, 1.1)	0.7% (0.1, 1.3)
3 - Neutral	24.8% (21.7, 27.8)	19.8% (16.8, 22.8)
4 - Agreee	35.9% (33.2, 38.6)	35.2% (31.1, 39.3)
5 - Strongly agree	38.3% (34.3, 42.3)	44% (40.5, 47.6)

Pearson's X^2: Rao & Scott adjustment, p-value=0.096; Valid n baseline: 3024; valid n end-line: 1793

Children under 5 suffering from diarrhoea

The prevalence of households with children under 5 falling ill with diarrhoea could also not be seen to have changed significantly between baseline and end-line. Variation could be seen in the sample in some provinces, the proportion had dropped in both Eastern Samar and Iloilo, while it had risen in Capiz, but it was not possible to conclude that this difference was true in the population of interest since the confidence intervals for the baseline and end-line findings overlapped in all cases.

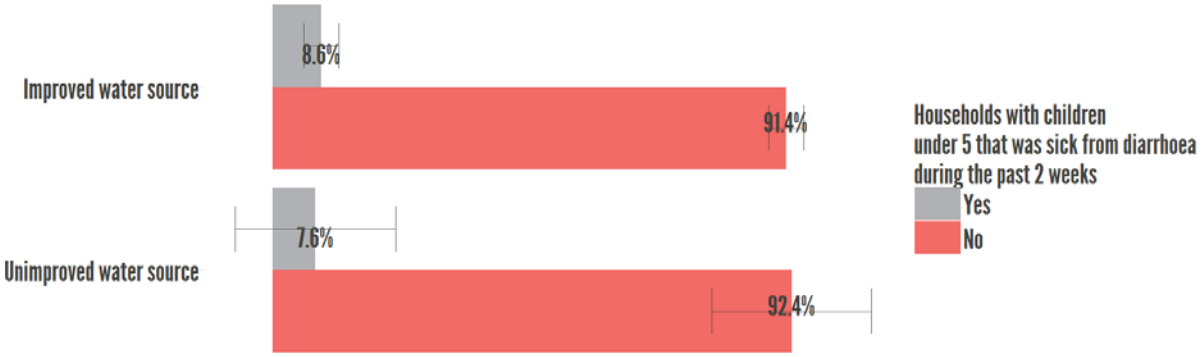
Figure 34: Households with children under 5 that were sick from diarrhoea during the past 2 weeks by data collection round



Valid n baseline: 1242 ; valid n end-line: 753

There was also no significant difference detected in prevalence of children under 5 sick from diarrhoea when comparing households that relied on improved water sources compared to unimproved water sources (see Figure 35 below).

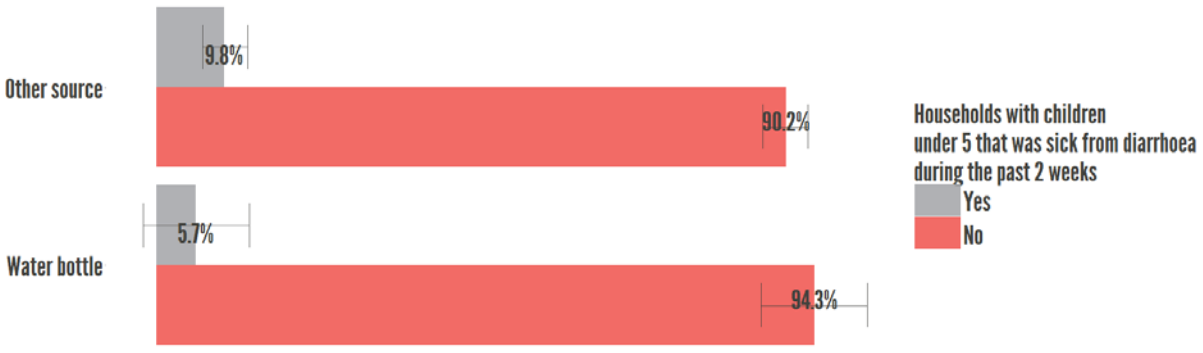
Figure 35: Households with children under 5 that was sick from diarrhea during the past 2 weeks by households accessing improved or unimproved water source for drinking water



Pearson's $X^{2:}$ Rao & Scott adjustment, p-value=0.89; Valid n end-line: 753

In the focus group discussions participants reported using bottled water over other improved water sources to ensure that children would not suffer from diarrhoea. Looking into it, there was also no significant difference detected in prevalence of children under 5 sick from diarrhoea when comparing households that relied on bottled water compared to other sources (see Figure 36 below). However, poor water quality is not the only factor that contribute to diarrhoea, contaminated food or contact can also cause those symptoms.

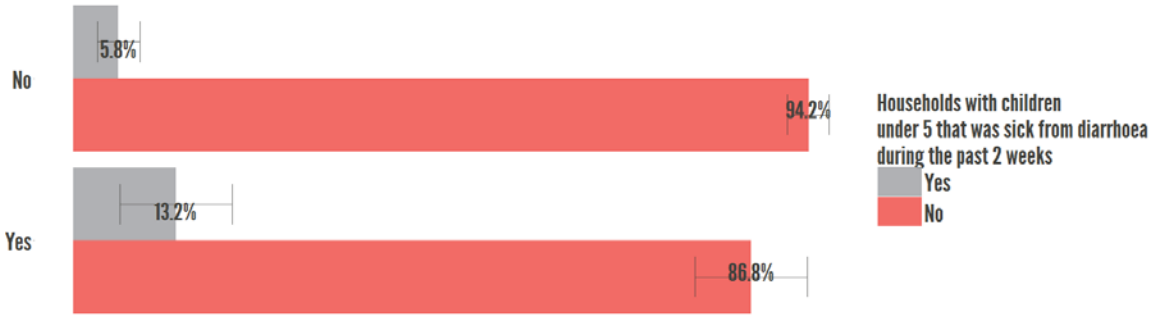
Figure 36: Households with children under 5 that were sick from diarrhoea during the past 2 weeks by households using bottled water or other water sources



Pearson's X2: Rao & Scott adjustment, p-value=0.432; Valid n end-line: 753

No significant difference could be found in the prevalence of children sick from diarrhoea depending on whether or not the respondent mentioned washing hands before feeding children.

Figure 37: Households with children under 5 that were sick from diarrhoea during the past 2 weeks by respondents that mentioned handwashing before feeding children or not



Pearson's X^2: Rao & Scott adjustment, p-value=0.032; Valid n end-line: 753

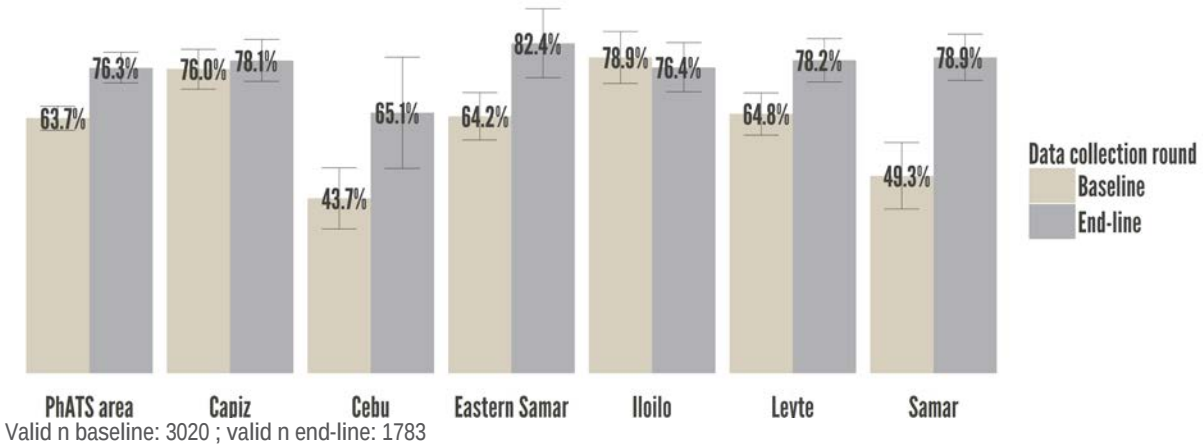
No link was found between the prevalence of sick children and bottle water consumption or handwashing behaviour. Despite that the link between diarrhoea and handwashing and drinking water is well known, there are other factors like contamination of food that would need to be taken into account in this study.

Sanitation

Toilet facilities

This assessment found that an estimated 91.1% [88.1;94.2] of households in PhATS Haiyan project areas are currently using an improved sanitation facility. This figure relates to facilities that hygienically separate human excreta from human contact, regardless of whether the facility is shared or not. This includes Flush to sewer system, Flush to septic tank, Flush to pit latrine, VIP latrine, Pit latrine with slab, and Composting toilet. However there are several definitions of an "improved" sanitation facilities. Where facilities were considered 'improved' only if they are shared by less than 20 people[11] or were considered "improved" if not shared between households at all[12], the proportion of households in PhATS Haiyan project areas that used an improved sanitation facility dropped to 90.8% [87.6;93.9] and 76.3% [72.5;80.2] respectively. In this report, "improved" sanitation facility refers only to a sanitation facility that hygienically separate human excreta from human contact, regardless of whether the facility is shared or not.

Figure 38: Households that usually use an improved non-shared toilet facility by data collection round



Valid n baseline: 3020 ; valid n end-line: 1783

[11] PhATS framework, UNICEF.

[12] WHO / UNICEF joint monitoring project, WatSan ladder, http://www.wssinfo.org/definitions-methods/watsan-ladder/

In comparison to the baseline, there was an increase in the proportion of households that used an improved non-shared sanitation facility, from 63.7% [60.6;66.7] during the baseline to 76.3% [72.5;80.2] during the end-line.

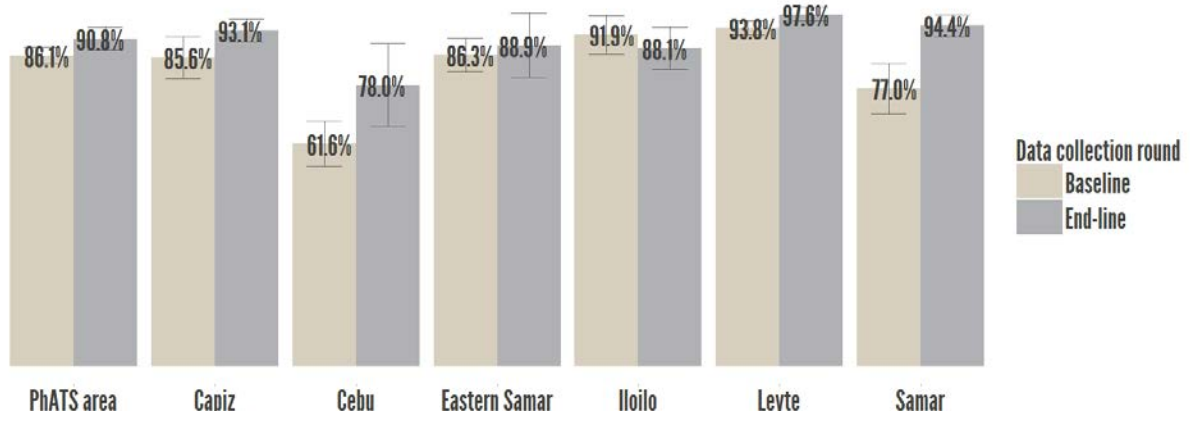
Figure 39: Type of toilet facilities used by households that share their toilet facility

		Shared	Not shared
Improved sanitation	Flush or pour flush to septic tank	85.6% (79.7 , 91.5)	79.4% (76 , 82.8)
	Flush or pour flush to pit latrine	8.5% (3.9 , 13)	12% (9.7 , 14.3)
	Ventilated Improved Pit (VIP) Latrine	0.8% (-0.1 , 1.7)	2% (1.1 , 2.9)
	Composting toilet	0% (0 , 0)	0.3% (0 , 0.7)
	Pit latrine with slab	2.2% (0.2 , 4.2)	2.3% (1.2 , 3.4)
Unimproved sanitation	Pit latrine without slab or open pit	0.5% (-0.2 , 1.2)	1.3% (0.5 , 2.1)
	Hanging toilet or hanging latrine	0.7% (-0.3 , 1.8)	1.7% (-0.3 , 3.6)
	Bucket (excreta collected from floor in bucket)	0% (0 , 0)	0.2% (-0.2 , 0.6)
	Flush or pour flush to elsewhere	1.7% (-1 , 4.5)	0.7% (0 , 1.3)
	· No facilities bush or field or river or open	0% (0 , 0)	0.1% (0 , 0.2)

Valid n end-line: 1774

However, there was no difference in proportion of households that used an improved sanitation facility shared by less than 20 households (one of the core indicator of the PhATS framework to reach G1 status in Barangays).

Figure 40: Households using an improved sanitation facility shared by less by 20 people, by data collection round



Valid n baseline: 2846 ; valid n end-line: 1741

The use of shared facilities can be problematic, as shared facilities (particularly when shared by more than 20 people) are less likely to be kept clean and may not be regarded as sufficiently private. These issues can discourage the use of the facilities and may lead to open defecation. Lack of cleanliness is the second most common reason reported for open defecation (see Figure 48).

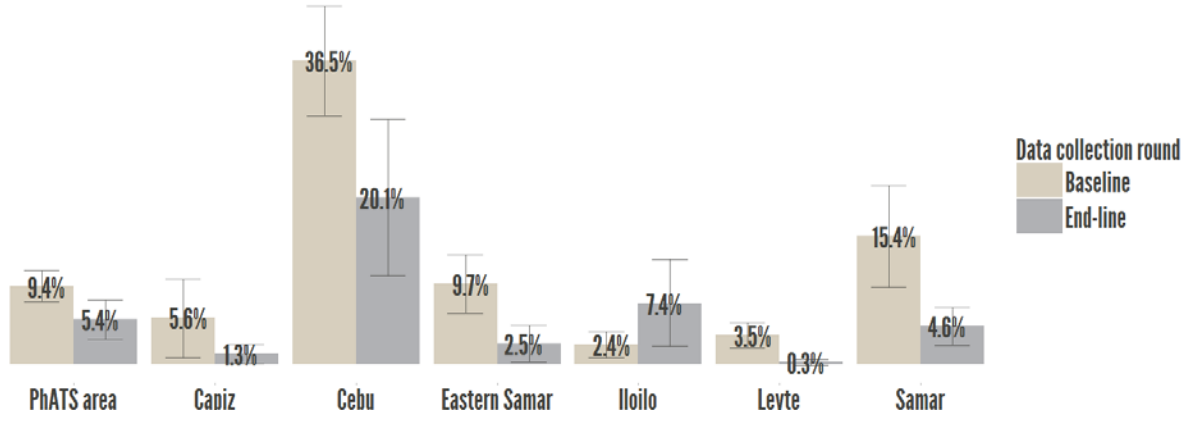
Figure 41: Type of toilet facility usually used by household by data collection round

		Baseline	End-line
Improved sanitation	Flush or pour flush to septic tank	62.6% (59 , 66.3)	76.1% (71.9 , 80.3)
	Flush or pour flush to pit latrine	17.2% (14.8 , 19.5)	10.8% (8.8 , 12.8)
	Ventilated Improved Pit (VIP) Latrine	2.4% (1.6 , 3.1)	1.7% (1 , 2.4)
	Composting toilet	0.5% (-0.2 , 1.2)	0.3% (0 , 0.5)
	Pit latrine with slab	4.5% (3.4 , 5.6)	2.2% (1.3 , 3.1)
Unimproved sanitation	Pit latrine without slab or open pit	2% (1.2 , 2.8)	1.1% (0.4 , 1.7)
	Hanging toilet or hanging latrine	0.6% (0.2 , 1.1)	1.4% (-0.1 , 3)
	Bucket (excreta collected from floor in bucket)	0.1% (0 , 0.3)	0.2% (-0.1 , 0.4)
	Flush or pour flush to elsewhere	0.6% (0.3 , 1)	0.8% (0.1 , 1.5)
	No facilities bush or field or river or open	9.4% (7.3 , 11.5)	5.4% (2.8 , 8.1)

Pearson's X^2: Rao & Scott adjustment, p-value=0.000; Valid n baseline: 2985; valid n end-line: 1785

Looking at the toilet facility type, there was a decrease in households that used flush toilets, pit latrines and pit latrines without slab (see Figure 41 above). Beside a difference in the sample proportion, nog significant difference was found in the proportion of households reported not having access to any toilet facility between baseline and end-line.

Figure 42: Households not using sanitation facilities, by data collection round

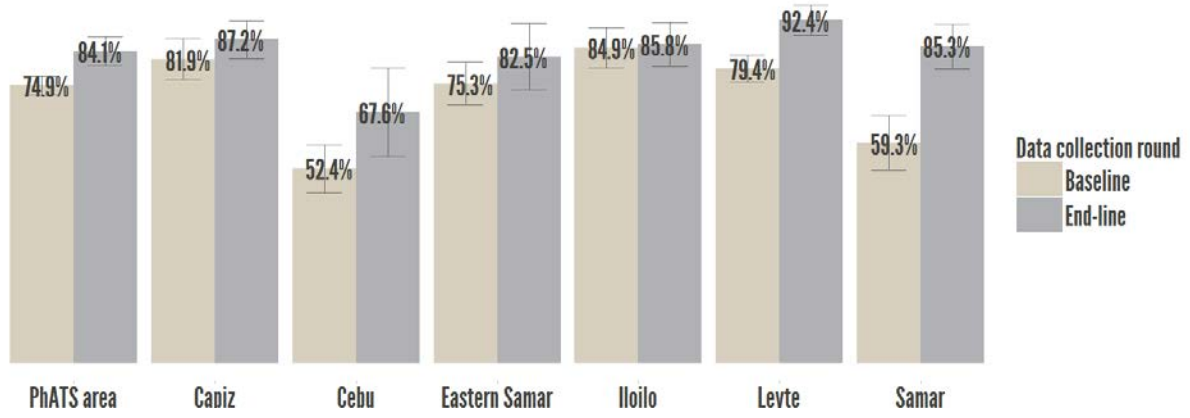


Valid n baseline: 2985 ; valid n end-line: 1785

However, significant difference could be detected between provinces in the change in proportion of households that reported having no toilets, compared to the baseline. During the baseline, Cebu had the highest proportion of households without access to latrines (36.5% [29.9;43.0]), which dropped to 20.1% [10.7;29.4] in this assessment. The same trend was found in Samar with a decrease from 15.4% [9.2;21.5] to 4.6% [2.3;6.9] and to a lesser degree in Eastern Samar where the proportion without toilet facility had dropped from 9.7% [6.2;13.2] to 2.5% [0.3;4.8] (see Figure 42 above). This decrease in three of the six provinces, can be seen as a positive outcome of the PhATS programme in the area where UNICEF partners have been promoting the use and the construction of latrines in the area.

In addition, it is important to note that this data shows the self-reported usual use of toilets, which means that even if households have a toilet facility, some factors could prevent them to use it. For example, a full septic tank and the lack of money to dislodge would make latrine unusable and might lead people to practice open defecation again.

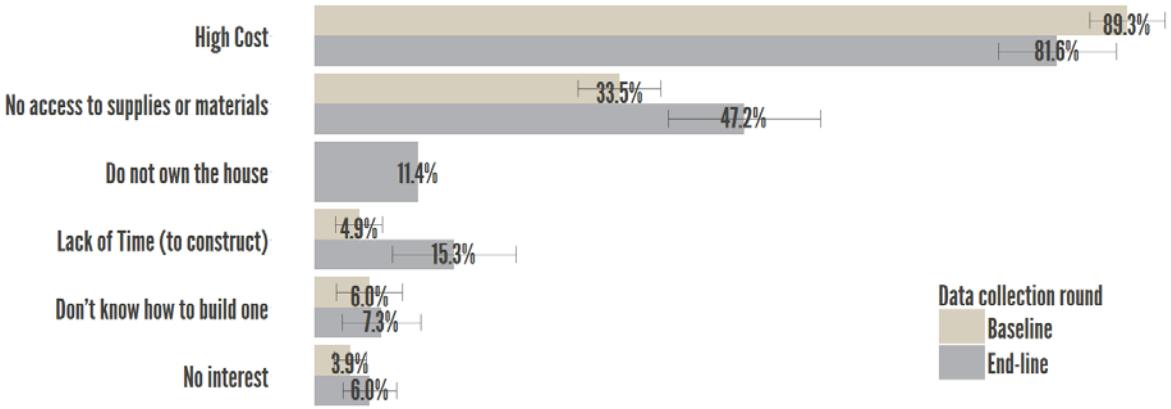
Figure 43: Households that own the improved sanitation facility they use, by data collection round



Valid n baseline: 3017 ; valid n end-line: 1793

There was an increase in households that own an improved toilet facility between baseline and end-line from 74.9% [72.4;77.4] to 84.1% [80.3;87.8], with a significant increase also in Samar and Leyte. This finding is important since a relation was identified between households owning an improved sanitation facility and a lower rate of households practicing open defecation (see Figure 49 later in report).

Figure 44: Main barriers for household toilet ownership among households not owning a toilet, by data collection round

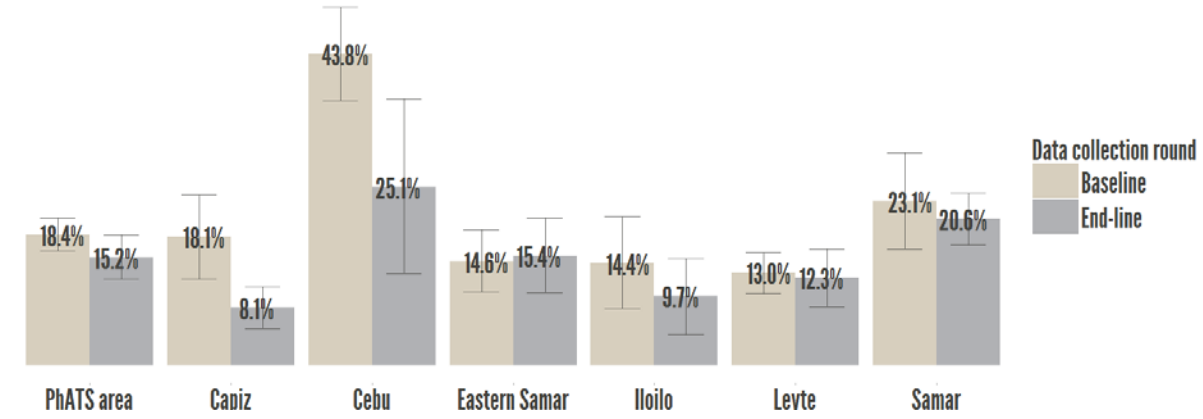


Valid n baseline: 712 ; valid n end-line: 289

The main barrier to own a toilet facility for households that do not have their own toilets is the high cost of toilet construction, which was mentioned by 81.6% [75.2;88.1] of the households not having their own toilets. 47.2% [38.8;55.6] of households reported that the access to materials was one of the main barriers, which was significantly higher than the proportion during the baseline (33.5% [28.9;38]). Compared to baseline there was also an increase in the proportion of households that reported lack of time as one of the main reasons. Interestingly, 11.4% of households reported that not owning the house was a key barrier to building a toilet facility, which could be related to the reluctance of landlords to see "permanent" structures built on their land, or of tenants to build structures that would be difficult to move if needed. It is important to note that since this option ("do not own the house") was not asked during the baseline, it is in consequence not possible to measure change between baseline and end-line.

Open defecation

Figure 45: Households practicing open defecation,[13] by data collection round and by province

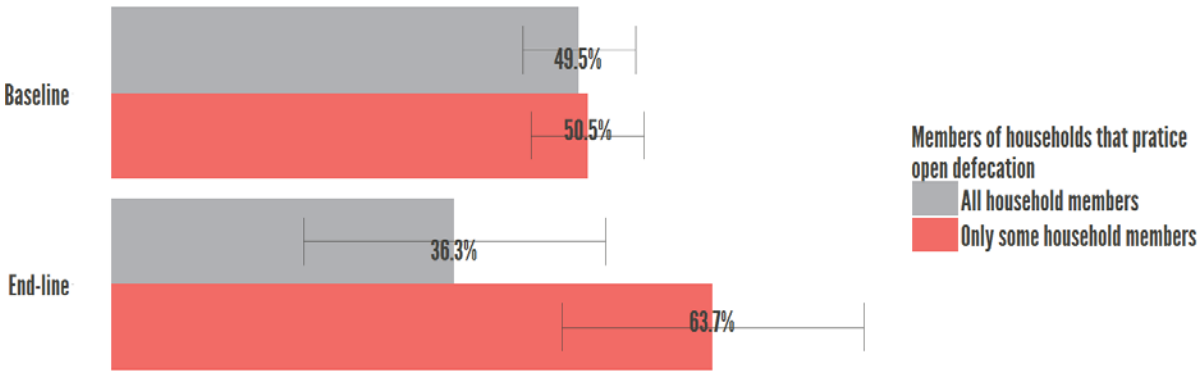


Valid n baseline: 3000 ; valid n end-line: 1788

In the PhATS Haiyan project areas no significant difference could be detected in the proportion of households practicing open defecation between baseline and end-line. This indicator is constituted both of households that self-reported practicing open defecation and of those that reported having no access to toilet facilities at all.

Overall, 15.2% [11.7;18.7] of households still had at least one member who practices open defecation at least sometimes. If we consider the unsafe disposal of stool of children under 3, the proportion of households reaches 17.2% [13.7;20.8].

Figure 46: Members of households that practice open defecation by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0.144; Valid n baseline: 547; valid n end-line: 244

There was no significant difference between baseline and end-line when comparing household members that practice open defecation. However, as seen in Figure 46 above, differences in proportions could be observed in the sample but could not be generalized to the population overall as confidence intervals overlap. This is simply due to the relatively small number of households and thus the small sample size available when exploring this disaggregation.

Looking at open defecation, there was no significant difference between the provinces in the PhATS Haiyan project areas. Compared to the baseline, there was a decrease in proportion of households practicing open defecation in Cebu and Capiz.

Based on the confidence intervals, no significant difference could be detected in the proportion of households practicing open defecation when comparing Zero Open Defection (ZOD) certified areas with uncertified areas,

[13] Open defecation is determined based on: 1) households that report not having access to toilet 2) Households where at least one-member practices open defecation.

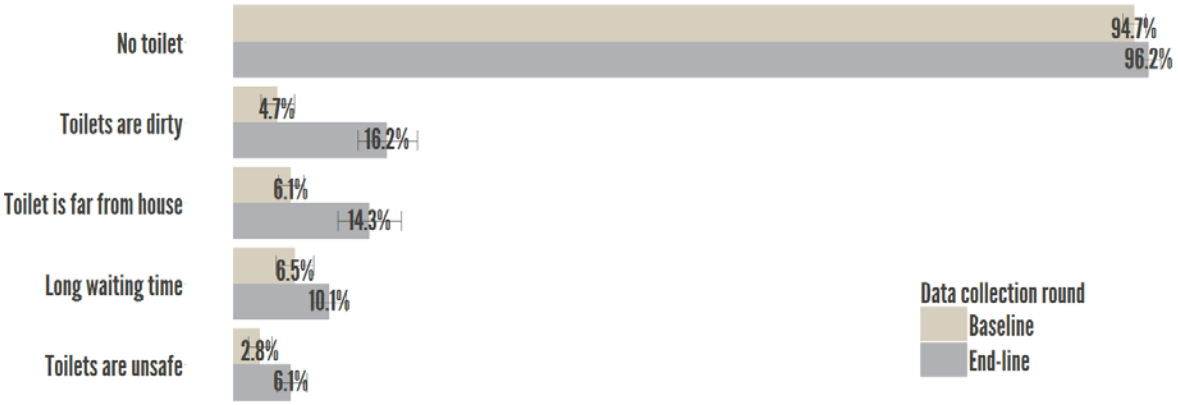
however the Pearson X^2 shows that there is a difference in occurrence of open defecation between the ZOD certified areas and areas not certified. (see Figure 47 below). This finding suggest that even if open defecation is still happening in ZOD certified communities, the prevalence of this practice is significantly different.

Figure 47: Households practicing open defecation by households living in ZOD certified barangays

Pearson's X^2: Rao & Scott adjustment, p-value=0.012; Valid n end-line: 1788

The main reason for open defecation reported by all respondents (whether practicing or not open defecation) was the lack of toilet availability, mentioned by 96.2% [95.0;97.4], a proportion which had not changed significantly since the baseline. Other reasons, which were more commonly reported during the end-line, can be seen to be related to sharing of toilet facilities. This included 16.2% [13.1;19.4] of respondents that reported toilets being dirty, an increase from 4.7% [2.9;6.4] during the baseline, followed by 14.3% [10.9;17.6] reporting that toilets are far from the house, compared to 6.1% [4.7;7.4] during the baseline and 10.1% [8.2;11.9] that said the waiting time for the toilet was too long. Lack of safety was also raised by 6.1% [4.5;7.7] of respondents, up from 2.8% [1.6;4.0] during the baseline.

Figure 48: Main reason perceived for open defecation in the community by data collection round

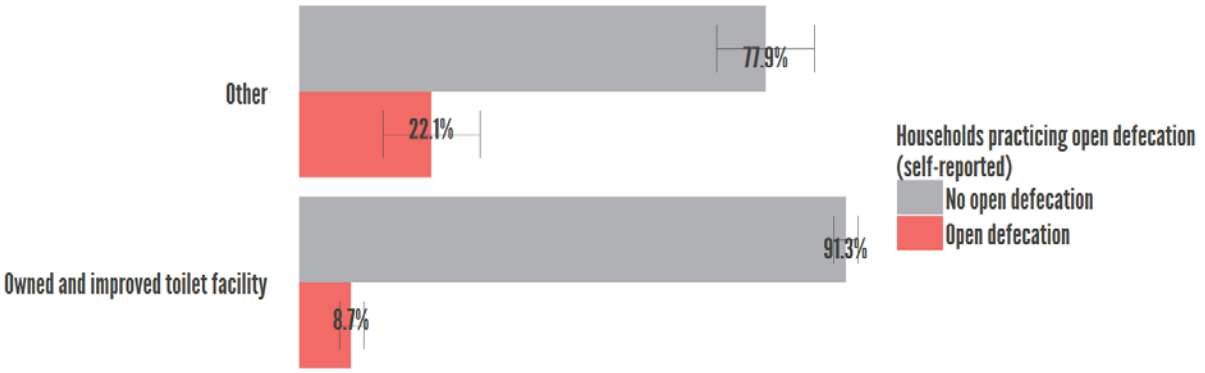


Valid n baseline: 3025 ; valid n end-line: 1794

In parallel to the household interviews this thematic have been explored in the focus group discussions conducted in the communities to understand why there is no change in the proportion of open defecation in the PhATS Haiyan project areas. In the FGDs the mean reasons reported for open defecation where: 1) No toilet at home; 2) It is acceptable to have children defecating in the open; 3) No toilet at work; 4) Water availability to flush toilets.

The availability of toilets was thus the main reason reported by households and in communities for open defecation. Indeed, a significant difference was found in the proportion of households reporting practicing open defecation depending if they own an improved toilet facility or not: only 8.7% [6.7;10.8] of households that own an improved toilet facility practiced open defecation while 22.1% [14;30.2] of households with other toilet facilities were practicing open defecation (see Figure 49 below). This findings confirms communities' perceptions of reasons for open defecation.

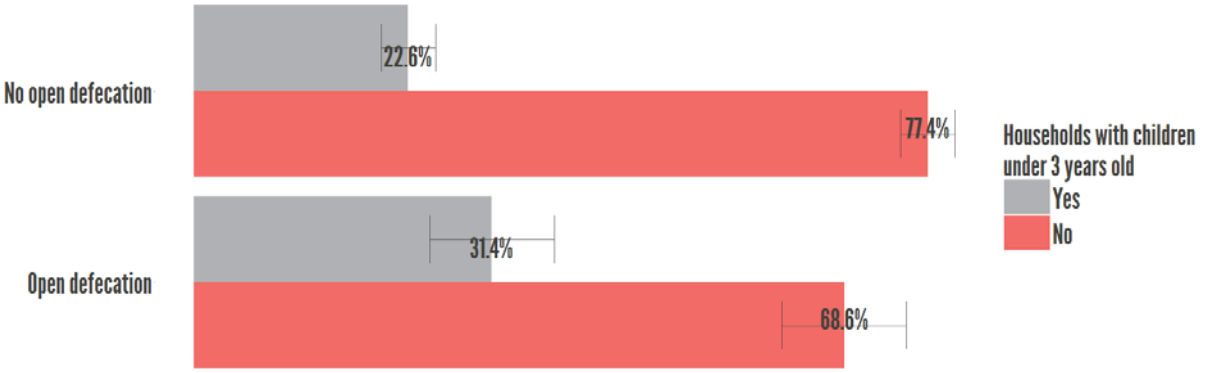
Figure 49: Households practicing open defecation (self-reported) by ownership of an improved toilet facility (households reporting not using any facilities are excluded).



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n end-line: 1655

The second reason for open defecation mentioned in the focus group discussion was the acceptability of open defecation behaviour of children. A significant difference in the proportion of households practising open defecation can be found in the household survey depending if they have at least one child under 3 (see Figure 50 below). However, it is important to note that if, like stated in the focus group discussion, children defecating in the open is more acceptable in the community, this is very likely to have been under reported during household interviews (for both baseline and end-line) since it might not have been considered as open defecation by the respondent.

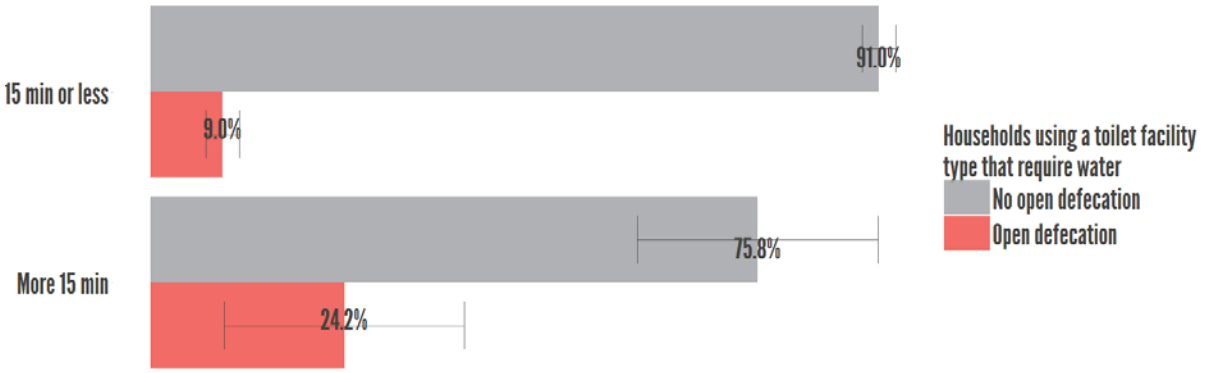
Figure 50: Households with at least a child under 3 years old by households practicing open defecation



Pearson's X^2: Rao & Scott adjustment, p-value=0.009; Valid n end-line: 1788

In the focus group discussion some participants mentioned that availability of water was a reason for some people to practice open defecation, as "people are too lazy to fetch water". A significant difference was found in the proportion of households that were practicing open defecation depending on the water collection time (see Figure 51 below).

Figure 51: Among households that use a toilet facility that require water (flush toilets), households practicing open defecation by water collection time



Pearson's X^2: Rao & Scott adjustment, p-value=0.010; Valid n end-line: 1301

While this difference is consistent in both household questionnaires and focus group discussions, it is however important to keep in mind that this result might be the consequence of other factors influencing both outcomes, for example a household living in the outskirt of a community and in consequence far from the water point might be less subject to peer pressure toward open defecation.

Figure 52: Most people in my community believe that defecating in the open is acceptable / I believe that defecating in the open is acceptable by water collection time.

OD acceptable in household: t = 2.932, df = 507, p-value = 0.003; OD acceptable in community t = 3.7399, df = 507, p-value = 0.000;

This hypothesis is supported by Figure 52 above. The figure shows the average from Likert scale measurement converted to scores from strongly agree = 5 to strongly disagree = 1. The higher the score the more open defecation is acceptable in the household or in the community. There are significant differences between the average social norms of respondents toward open defecation depending on the distance of the water point. Respondent that need 15 minutes or more to reach the water point found open defecation more acceptable than respondents living at less than 15 minutes of a water point.

Figure 53: Most people in my community believe that defecating in the open is acceptable / I believe that defecating in the open is acceptable

Average from Likert scale measurement (strongly agree = 5 to strongly disagree = 1); OD acceptable in household; t = -1.0769, df = 507, p-value = 0.282 / OD acceptable in community; t = -2.3426, df = 507, p-value = 0.020

There is no difference in acceptance of open defecation between baseline and end-line when respondents are asked if open defecation is acceptable in their households. However, there is a significant difference between baseline and end-line in the perception that other households in the community find open defecation acceptable.

In the same line, the perceived rate of open defecation in communities decreased since the baseline. There was a significant increase in the proportion of respondents that believed that no one in their community practiced open defecation, from 9.7% during the baseline to 27.7% during the end-line (see Figure 54 below).

Figure 54: Perceived rate of open defecation in the community, by data collection round

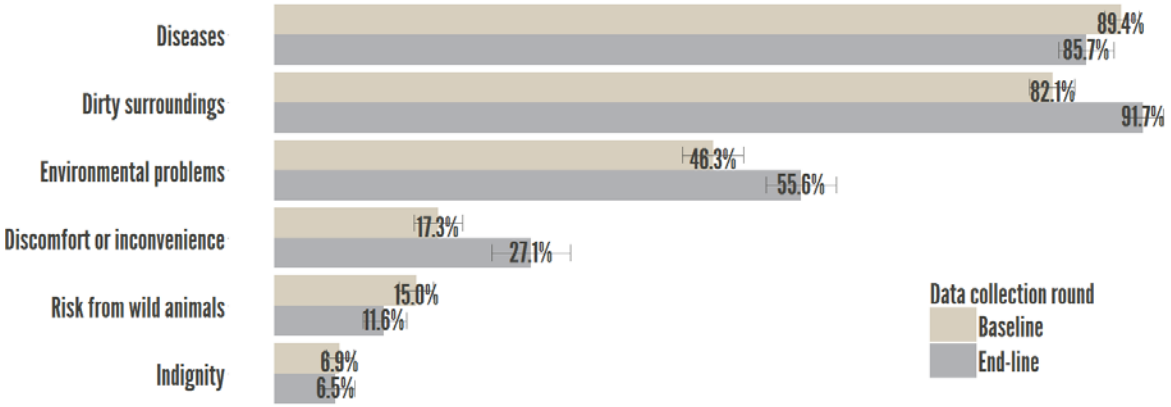
	Baseline	End-line
0%	9.7% (7.6, 11.9)	27.2% (22.7, 31.6)
1 - 20%	55.5% (52, 59.1)	47.6% (43.1, 52)
21-40%	15.8% (13.6, 18)	9.1% (6.6, 11.6)
41-60%	10.2% (8.6, 11.8)	6.7% (4.7, 8.8)
61-80%	7.5% (5, 10.1)	6.7% (4.5, 8.9)
81-100%	1.2% (0.6, 1.9)	2.7% (0.5, 4.9)

Pearson's X^2: Rao & Scott adjustment, p-value=0.000; Valid n baseline: 2862; valid n end-line: 1682

Perceived risks and problems of open defecation

When asked what they saw as the risks and problems of open defecation, 85.7% [82.8;88.6] of all respondents mentioned disease indicating a widespread understanding of the link between open defecation and disease. There is no significant difference between baseline and endline. The most commonly mentioned risk/problem of open defecation was dirty surroundings, including concerns about visual pollution, bad smells, attracting flies, and the risk of stepping in faeces. Compared to the baseline, there is an increase of respondents identifying dirty surroundings as a problem of open defecation, from 82.1% [79.6;84.5] during the baseline to 91.7% [89.6;93.8] during the end-line. Similary, there is an increase in the proportions of respondents mentionning environmental problems and discomfort / inconvenience since the baseline asessment. These increases in understanding of the risk of open defecation could be linked with the trigering process implemented by NGOs at the beginning of the PhATS programming in each communities.

Figure 55: Households' perceptions of the risks of open defecation, by data collection round

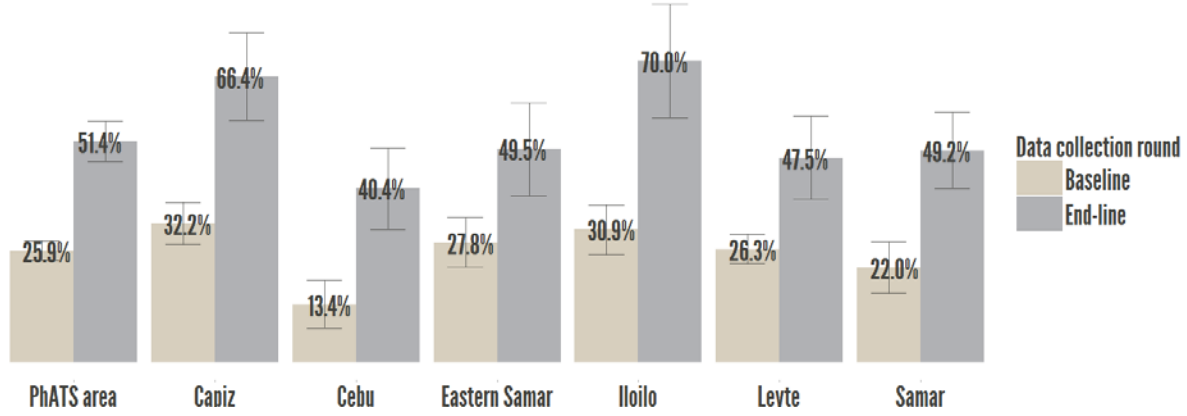


Valid n baseline: 3025 ; valid n end-line: 1794

ZOD program

A significant increase in the proportion of respondents that received information about a ZOD program was found, with the proportion receiving information doubling from 25.9% [23.8;28.1] during the baseline to 51.4% [46.6;56.1] during the end-line. Significant increases were seen in each of the provinces (see Figure 56 below).

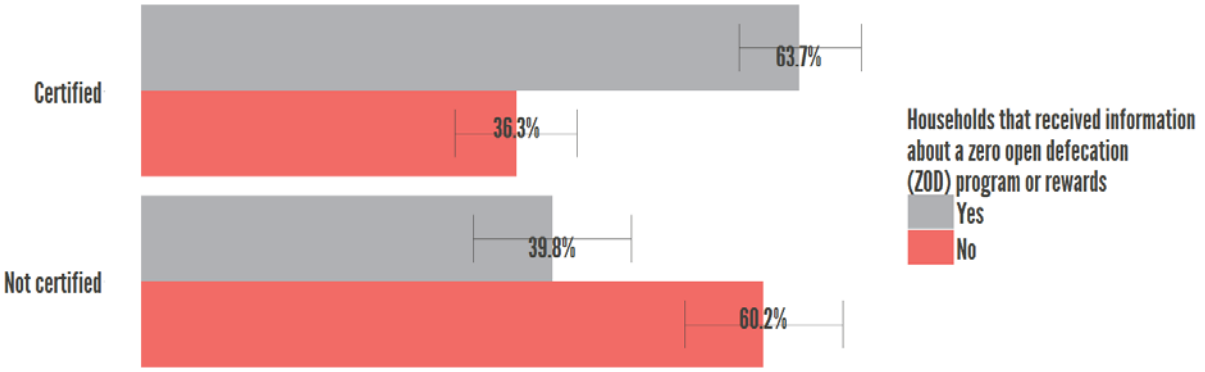
Figure 56: Households that received information about a zero open defecation (ZOD) program or rewards by data collection round



Valid n baseline: 3025 ; valid n end-line: 1794

This result indeed goes along with the increase of ZOD certified barangays in the PhATS Haiyan program area. However, the knowledge of the ZOD program by the community is not limited to the ZOD certified barangays, 39.2% [32.1;47.4] of households living in non-certified barangays have heard about the ZOD program. Although, in this assessment, no relation has been found between the proportion of households practicing open defecation and the awareness of the ZOD program, awareness of households, recognition at community level and competition between barangays to achieve recognitions could be a positive force to achieve changes of behaviours.

Figure 57: Households that received information about a zero open defecation (ZOD) program or rewards by households living in ZOD certified barangays



Pearson's $X^{2:}$ Rao & Scott adjustment, p-value=0.000; Valid n end-line: 1794

Children stool disposal

No significant change could be detected for practices relating to disposal of child stools between the baseline and the end-line. During the end-line, 38.2% [30.3;46.1] of households reported throwing the stool directly into the garbage, the most commonly stated mode of disposal, followed by 20.2% [15.4;25] where children were reported to be using the toilet and 16.8% [12.1;21.5] that reported burying the stools (see Figure 58 below). Overall, only 46.1% [38.3;53.9] of households were reporting using a sanitary disposal of the children stools, while 53.9% [46.1;61.7] were using unsanitary disposal.

Figure 58: Stool disposal practices of children under 3 by data collection round

		Baseline	End-line
Sanitary disposal	Child used toilet	22.1% (18.3 , 25.9)	20.2% (15.4 , 25)
	Put or rinsed into toilet	8.1% (5.7 , 10.5)	9% (3.7 , 14.3)
	Buried	17.1% (13.5 , 20.6)	16.8% (12.1 , 21.5)
Unsanitary disposal	Put or rinsed into drain or ditch	4.8% (2.8 , 6.7)	4.7% (2.3 , 7.1)
	Thrown into garbage	37.7% (31.8 , 43.6)	38.2% (30.3 , 46.1)
	Diaper left on ground	7.3% (5.1 , 9.5)	7.5% (4.5 , 10.6)
	Not disposed or left on the ground	2.9% (1.4 , 4.3)	3.3% (-0.3 , 6.9)

Pearson's X^{2}: Rao & Scott adjustment, p-value=0.999; Valid n baseline: 848; valid n end-line: 445

This finding highlights the need to sensitize communities to the risks that both child and adult stools pose when not properly disposed of. There is a clear need for targeted awareness campaigns about safe and unsafe methods of child stool disposal.

WASH in Schools

This section outlines the main assessment findings on WASH governance in schools, group hygiene practices, handwashing facilities, water supply and sanitation. It is based on direct observation and interviews with key informants (school principals or head teachers) in 180 schools across PhATS Haiyan project areas, as well as student focus group discussions in 8 selected schools.

In the PhATS Haiyan project areas, UNICEF and NGOs partners are operating in the framework of the Three Star Approach[14]. The three start approach for WASH in Schools is designed to improve the effectiveness of hygiene behaviour change programmes. The approach ensures that healthy habits are taught, practised and integrated into daily school routines. The programme follows a set of steps designed to ensure that all students wash their hands with soap, have access to drinking water, and are provided with clean, gender-segregated toilets at school every day. Group activities drive this incremental approach, beginning with daily, supervised group handwashing sessions. Once minimum standards are achieved, schools can move from one to three stars by expanding hygiene promotion activities and improving infrastructures, especially for girls, and will ultimately achieve the national standards for WASH in Schools. The Three Star Approach involves changing the way WASH in Schools programming is perceived by schools, communities, and decision makers in government and support agencies. By prioritizing the most essential actions for achieving goals, the Three Star Approach helps schools focus on meeting children's needs through key interventions. At the same time, it provides a clear pathway for all schools throughout a country to meet national standards, and for all children to have hygiene-promoting and healthy schools. It encourages local action and support from communities and does not depend on expensive hardware inputs from the education system or external support agencies. 'Keep it simple, scalable and sustainable' is the guiding concept for interventions at all stages, so that the approach can be sustainably expanded countrywide at low cost.

WASH Governance

Good governance is a critical component of sustainable progress in WASH. This sub-section covers elements of WASH governance in schools, including the incorporation of WASH in school level planning, the allocation and availability of funds for WASH, the existence of committees promoting and overseeing WASH, and the frequency and type of WASH activities led by schools and the Department of Education.

General

91.1% [87.3;94.8] of schools reported that WASH was currently incorporated into their Annual Investment Plan (AIP) or School Improvement Plan (SIP). This is an increase since the baseline where 67.1% [61.8;72.4] of schools had incorporated SIP and AIP (see Figure 59 below).

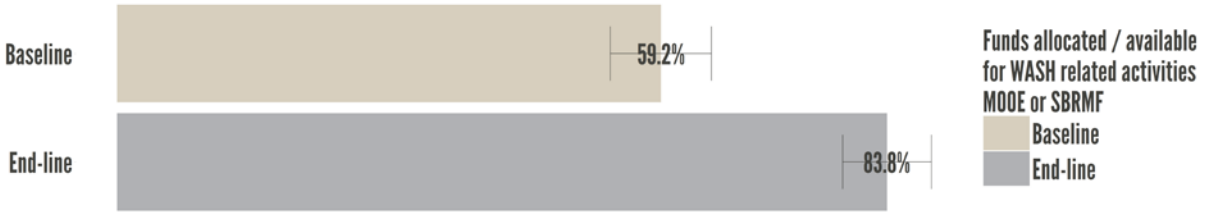
Figure 59: WASH currently incorporated in the Annual Investment Plan (AIP) / School Improvement Plan (SIP) by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 240; valid n end-line: 179

In addition, 83.8% [79;88.6] of the schools in PhATS Haiyan project areas reported having funds allocated or available for WASH in the Maintenance and Other Operation Expenses (MOOE) or the School Building Repair and Maintenance Fund (SBRMF), as illustrated in Figure 6060 below. That is an increase compared to the baseline where 59.2% [53.7;64.7] of the schools had specific WASH funds.

[14] Field Guide: The three-star approach for WASH in schools, http://www.unicef.org/wash/schools/files/UNICEF_Field_Guide-3_Star-Guide.pdf

Figure 60: Funds allocated/available for water, sanitation and hygiene related activities in the Maintenance and Other Operations Expenses (MOOE) or School Building Repair and Maintenance Fund (SBRMF) by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 179

78.3% [72.9;83.7] of schools in PhATS Haiyan project areas reported having a student club or committee promoting water, sanitation and hygiene awareness (see Figure 61 below). This was generally the Student Body Organization (SBO), rather than a separate club or committee established specifically for WASH promotion. That is an increase compared to the baseline where there was a club promoting WASH in only 23.7% [18.9;28.4] of schools.

Figure 61: Presence of student club or committee promoting WASH by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

A similar proportion 68.3% [62.2;74.4] of schools reported having an active non-student committee overseeing water, sanitation and hygiene at the school (see Figure 62 below).

Figure 62: Other sort of active committee at the school that oversees WASH activities by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

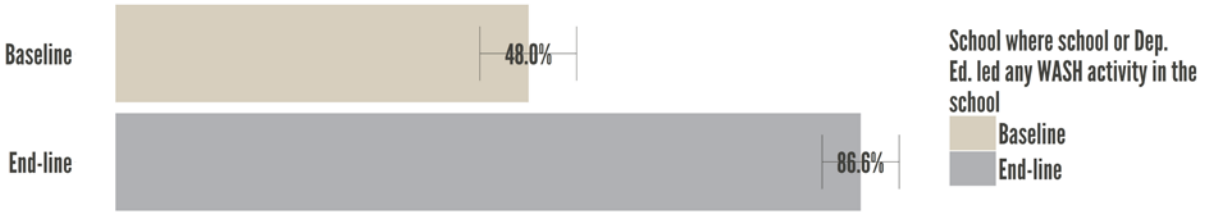
This role was usually performed by the General Parent Teachers Association (GPTA). These findings indicate that only a majority of schools in PhATS Haiyan project areas currently have committees actively involved in promoting or overseeing WASH in schools.

The findings in this section show a net increase in the proportion of schools having the structures in place to improve the school's water and sanitation situation during the end-line compared to the baseline.

WASH activity in schools

In 86.6% [82.1;91.1] of schools in PhATS Haiyan project areas, the school or the Department of Education had led at least one WASH activity in the school in the last six months (see Figure 63 below). This indicates a strong increase of leadership on WASH on the part of individual schools and the Department of Education (DepEd) since the baseline.

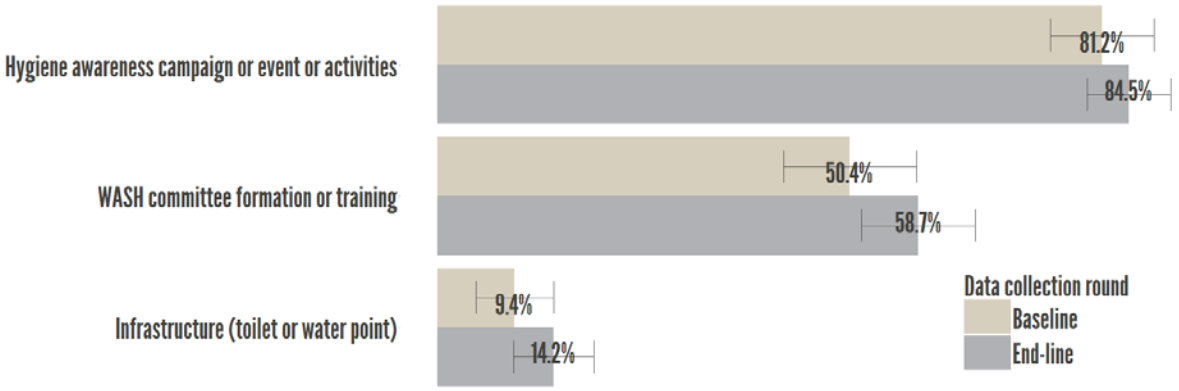
Figure 63: Schools where school or Dep. Ed. led any water, sanitation or hygiene activity in the school in the last 6 months by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 244; valid n end-line: 179

The most common type of WASH activity led by schools or the Department of Education was hygiene awareness (in 84.5% [79.4;89.6] of schools where activities where conducted). The next most common WASH activity led by schools or the Department of Education was WASH committee formation (58.7% [51.8;65.7]). Infrastructure projects were the least common, reported by 14.2% [9.3;19.1] of schools who led a WASH activity in the last six months.

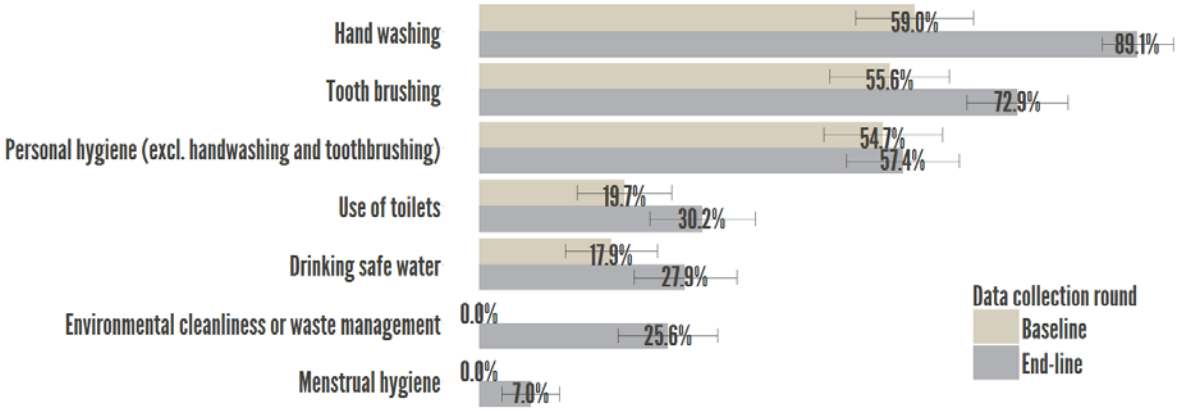
Figure 64: Reported theme of WASH campaign by data collection round



Valid n baseline: 117 ; valid n end-line: 129

The most common themes of hygiene awareness campaigns in the last six months were handwashing, tooth brushing and personal hygiene (see Figure 65 below) in respectively 89.1% [84.3;94], 72.9% [66;79.7] and 57.4% [49.7;65] of schools that receive WASH campaign. Campaigns on drinking safe water and use of toilets were far less commonly reported, respectively by 27.9% [21;34.8] and 30.2% [23.1;37.3] of schools that received WASH campaign in PhATS Haiyan project areas. Compare to the baseline, awareness campaign about Environmental cleanliness and waste management has appeared in 25.6% [18.8;32.3] of the schools, and Menstrual hygiene in 7.0% [3;10.9] of the schools.

Figure 65: Theme of WASH campaign by data collection round



Valid n baseline: 117; valid n end-line: 129

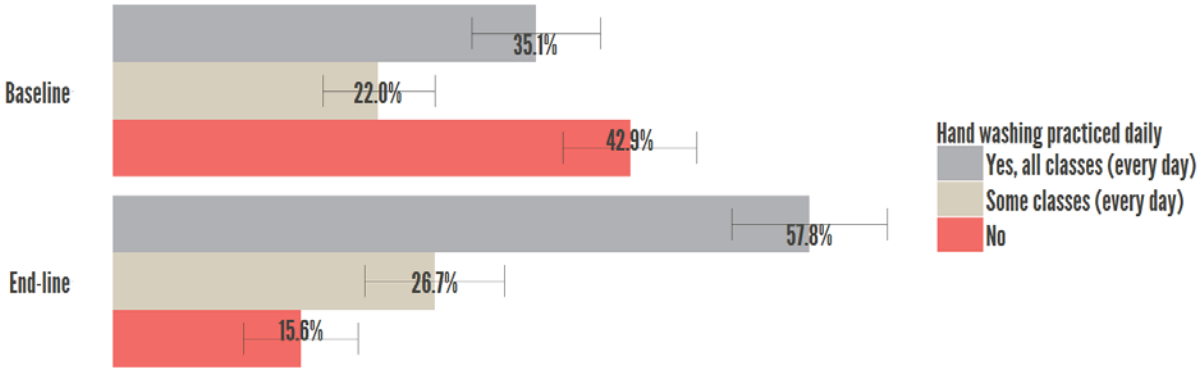
Group Hygiene Activities

Group handwashing with soap and group tooth-brushing reinforce positive hygiene habits for students.

Daily group handwashing with soap

In 57.8% [51.3;64.2] of schools in PhATS Haiyan project areas, all classes are practicing daily group handwashing with soap, with a further 26.7% [20.9;32.5] of schools practicing this in some classes only. Compared to the baseline where 42.9% [37.3;48.4] of schools were not practicing daily group handwashing with soap at all (see Figure 66 below) during the end-line only 15.6% [10.8;20.3] of schools are not conducting this activity daily.

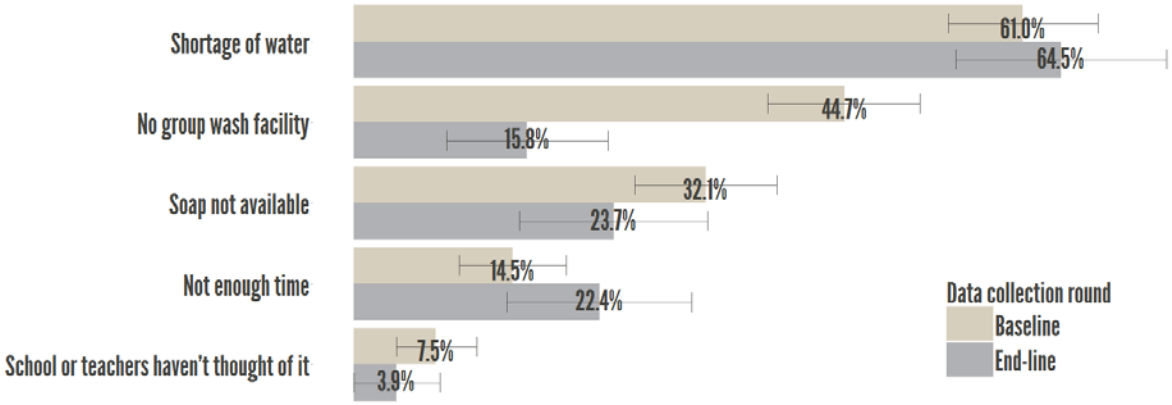
Figure 66: Reported practice of daily handwashing practice in school by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

Where daily group handwashing with soap was not practiced in all classes, key informants were asked about the barriers to practicing daily group handwashing. The top four most frequently reported challenges were water shortages 64.5% [54.8;74.1], not having soap available 23.7% [15.1;32.2], not having a functioning group WASH facility 15.8% [8.4;23.1] and not enough time during the day 22.4% [14;30.8]. A significant decrease of key informants reporting the lack of handwashing facility as a barrier for handwashing (in school that does not practice handwashing daily in all classes) was found, from 44.7% [37.7;51.6] during the baseline to 15.8% [8.4;23.1] during the end-line. These findings indicate that the barriers to practicing group handwashing in schools are largely resource-based (see Figure 67 below).

Figure 67: Barriers to practice group handwashing with soap daily by data collection round



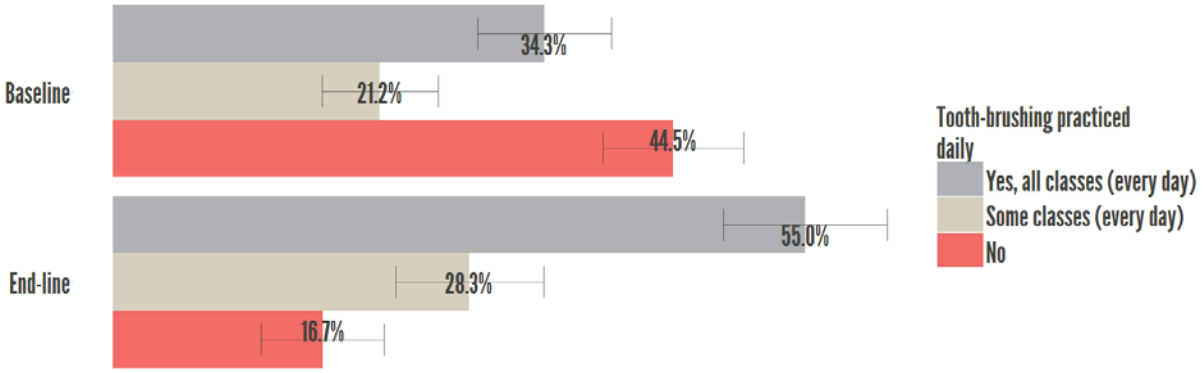
Valid n baseline: 159; valid n end-line: 76

Daily group tooth brushing

55.0% [48.5;61.5] of schools in PhATS Haiyan project areas were practicing daily group tooth brushing activities in all classes, with an additional 28.3% [22.4;34.2] practicing it in some classes only. A significant decrease of schools not practicing daily group tooth-brushing was found from 44.5% [38.9;50.1] during the baseline to 16.7%

[11.8;21.5] during the end-line (see Figure 68 below). Therefore, the proportion of schools practicing group tooth-brushing was very similar to the proportion of schools practicing group handwashing, with 87.8% [83.5;92.1] for schools practicing in conjunction these two activities daily at least in some classes.

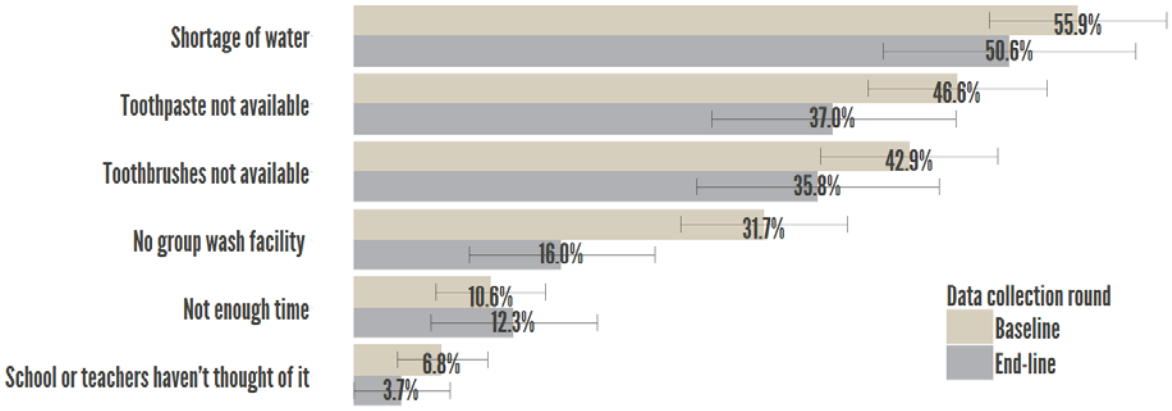
Figure 68: Reported frequency of tooth-brushing daily practice by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

Such as with group handwashing, the main issues preventing group tooth-brushing activities in school were resource-based. Among schools who did not practice group tooth-brushing in all classes, the most commonly reported barrier was water shortages (reported by 50.6% [40.9;60.4] of schools that did not practice it in all classes), followed by lack of toothpaste (37.0% [27.6;46.5]) and lack of toothbrushes (35.8% [26.5;45.2]). A significant decrease of key informant reporting the lack of group facility was found, from 31.7% [25.2;38.1] during the baseline to 16.0% [8.9;23.2] during the end-line. The similar decrease in key informants reporting this barrier for handwashing and tooth brushing is explained by the use of the same facilities from both activities.

Figure 69: Barriers to daily tooth brushing by data collection round

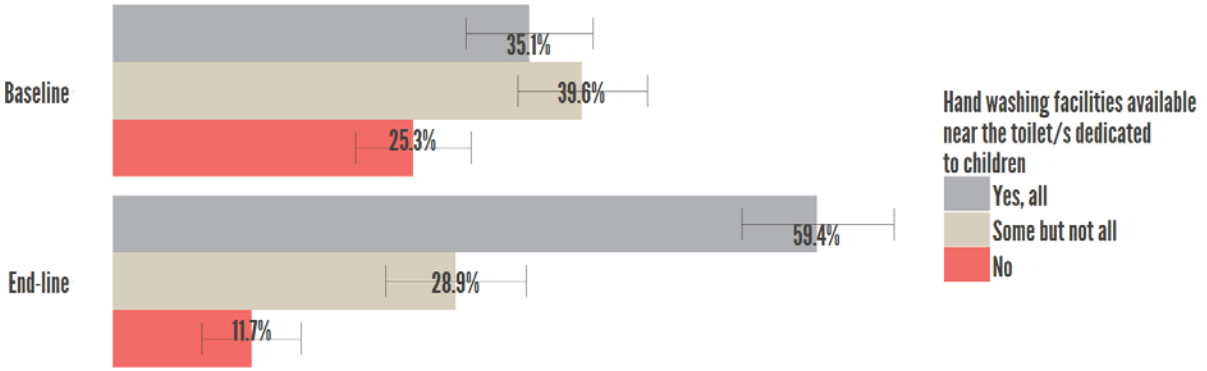


Valid n baseline: 161; valid n end-line: 81

Handwashing Facilities

Based on direct observation at the schools, an estimated 11.7% [7.5;15.9] of schools in PhATS Haiyan project areas do not have any handwashing facilities (HWFs) near the toilets. A further 28.9% [23;34.8] have handwashing facilities near some but not all toilets. A significant decrease in the proportion of schools not having any handwashing facilities was found between baseline and end-line, dropping from 25.3% [20.4;30.2] to 11.7% [7.5;15.9].

Figure 70: Observed handwashing facilities available near the toilets dedicated to children by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

Where schools did have handwashing facilities, the two main types were taps connected to piped water (56.8% [50.4,63.3] of schools with HWFs) and buckets or containers (22% [16.2;27.8]). A significant increase in the proportion of schools that use a locally made facility was found, from 1.6% [0.0;3.3] during the baseline to 8.8% [4.9;12.8] during the end-line, this finding might be a positive outcome of the three-star approach promoting the use of locally made / available solution as Figure 71 below illustrates.

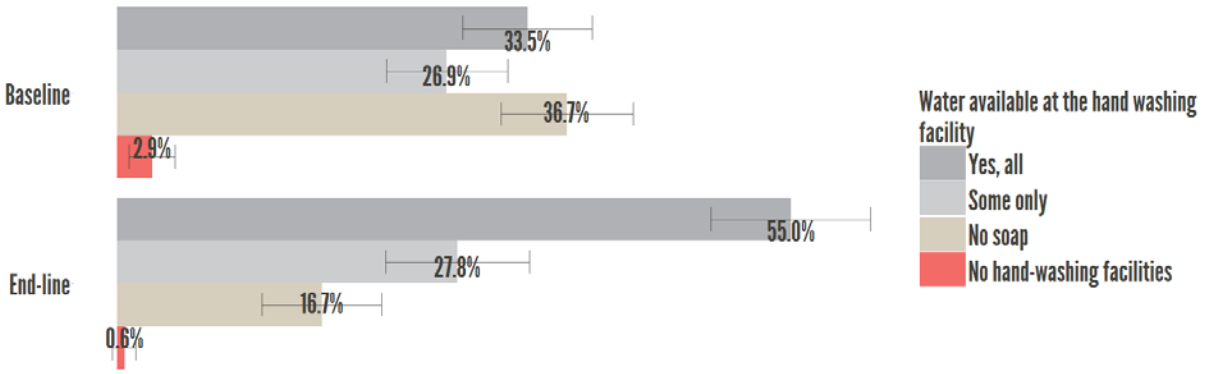
Figure 71: Type of handwashing facility by data collection round

	Baseline	End-line
Tap connected to piped water	56.8% (50.4 , 63.3)	65.4% (58.8 , 72)
Bucket or container	37.7% (31.4 , 44)	22% (16.2 , 27.8)
Other locally made facility	1.6% (0 , 3.3)	8.8% (4.9 , 12.8)
Other	3.3% (1 , 5.6)	0% (0 , 0)
Water bottles	0.5% (-0.4 , 1.5)	2.5% (0.3 , 4.7)
Tippy tap	0% (0 , 0)	1.3% (-0.3 , 2.8)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 183; valid n end-line: 159

Lack of water was a major barrier to properly functioning handwashing facilities (see Figure 72). At the time of visit, 16.7% [11.8;21.5] of schools with handwashing facilities were observed not to have water at some or all of the HWFs. However, between baseline and end-line, a significant increase in the proportion of schools where the presence of water has been observed in all the handwashing facilities was found, from 33.5% [28.2;38.8] during the baseline to 55.0% [48.5;61.5] during the end-line.

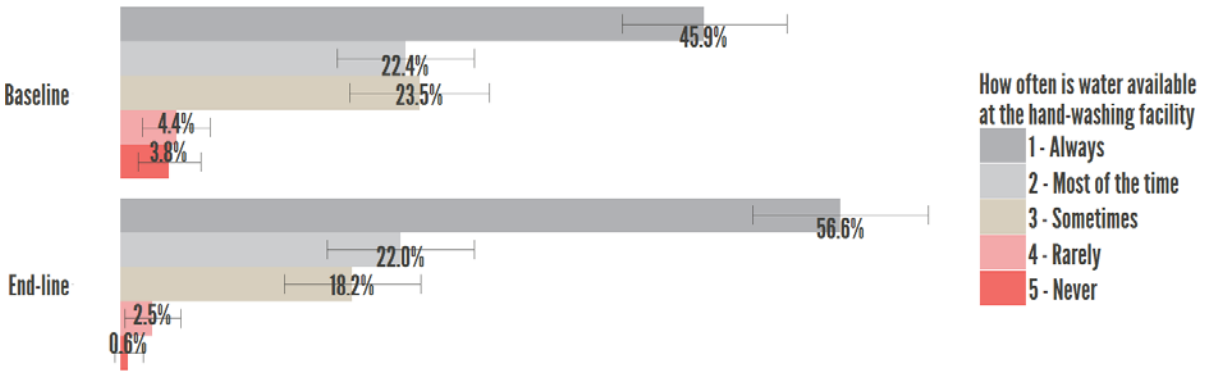
Figure 72: Observed water availability at the handwashing facility by data collection round



Pearson's X2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

The scale of the problem was confirmed by key informants, with just under half of the schools (43.4%) reporting that they did not always have water at the HWFs.

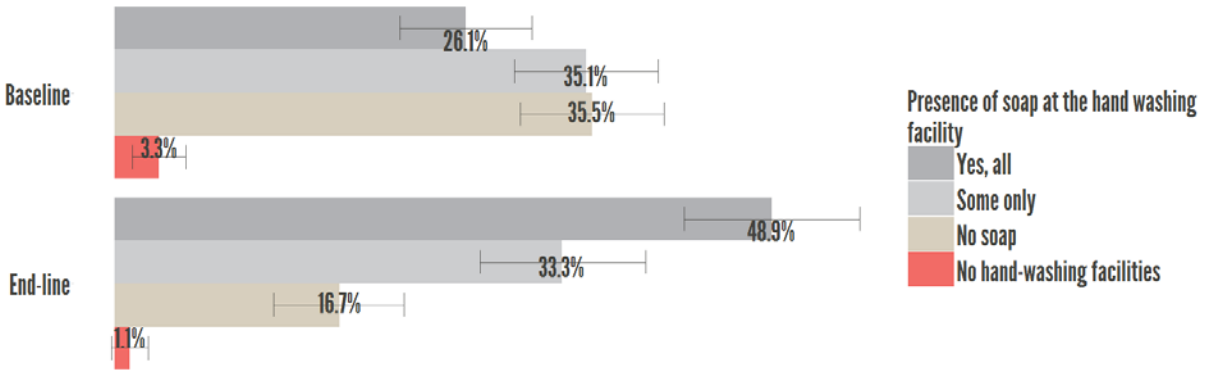
Figure 73: Reported water availability at the handwashing facility by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0.109; Valid n baseline: 183; valid n end-line: 159

Direct observation indicated that 16.7% [11.8;21.5] of schools with HWFs near toilets did not have soap at any HWFs at the time of visit, with a further 33.3% [27.2;39.5] having soap at some but not all HWFs (see Figure 74 below). Compared to the baseline, there is a significant difference in proportion of schools where soap in at least some facilities was observed, from 65.5% during the baseline to 83.3% during the end-line.

Figure 74: Observed presence of soap at the handwashing facility by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

According to key informants, children use a range of coping mechanisms when handwashing facilities are not functioning. A significant decrease in the proportion of key informants reporting that children do not wash their hands when the facility is broken have been found, from 52.7% [47.1;58.2] during the baseline to 25.3% [19.6;31.0] during the end-line. There was also an increase of the schools where children bring water from home or communities that provide water for the school. These increases indicate an improved commitment to handwashing on the part of students, schools and communities in PhATS Haiyan project areas.

Figure 75: Reported coping strategy used by children when handwashing facility is not working by data collection round

	Baseline	End-line
Don't clean hands	52.7% (47.1, 58.2)	25.3% (19.6, 31)
Bring water from home	14.3% (10.4, 18.2)	29.2% (23.2, 35.2)
Community provides water for whole school	5.3% (2.8, 7.8)	20.2% (14.9, 25.5)
Use other water source	16.7% (12.6, 20.9)	5.6% (2.6, 8.6)
Hand sanitizer or alcohol provided by students	0.8% (-0.2, 1.8)	10.1% (6.1, 14.1)
Buy bottled water or iced water to wash hands with	3.3% (1.3, 5.3)	2.8% (0.6, 5)
No problem	1.6% (0.2, 3.1)	3.9% (1.4, 6.5)
Hand sanitizer or alcohol provided by school or teacher	1.6% (0.2, 3.1)	2.8% (0.6, 5)
Other	2% (0.5, 3.6)	0% (0, 0)
Don't know	1.6% (0.2, 3.1)	0% (0, 0)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 178

Interestingly, despite most schools having some practice of group handwashing, most members of each student FGD reported that they wash their hands more often at home than at school. According to the students, the three main reasons that they wash their hand more often at home are the following: 1) Availability of water; 2) The fact that they eat at home; 3) That there is always soap at home.

In the focus group discussions, children were asked the main reason for not washing their hands. The main reason reported during the focus group for not washing their hands with soap where: 1) That they forget because they were playing; 2) The lack of water 3) The lack of soap.

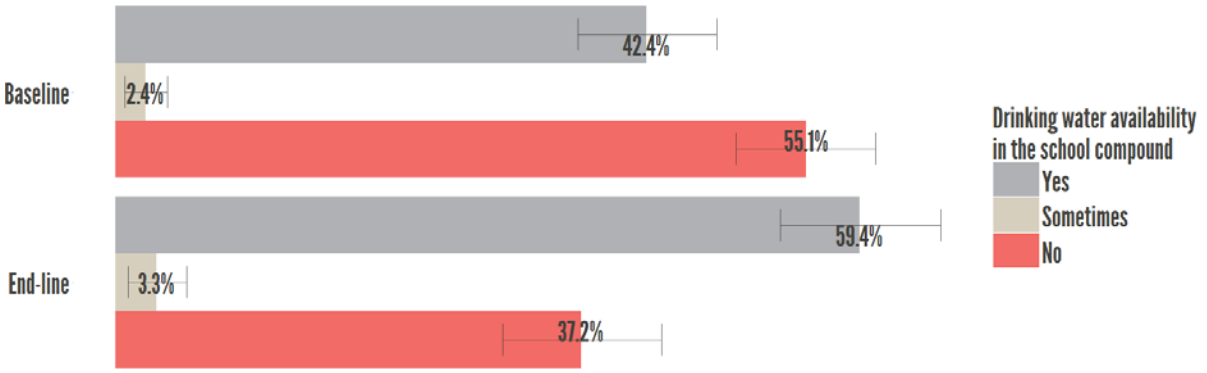
Water Supply

Issues with water supply emerged as a major barrier to maintaining functional handwashing facilities and practicing daily group hygiene activities. The following section covers the main sources of water used for drinking and other purposes in schools, and the barriers to accessing water.

Drinking water

In 37.2% [30.1;43.5] of schools in PhATS areas, drinking water was reportedly not available in the school compound. A significant decrease in the proportion of schools that do not have a drinking water point was found, from 55.1% [49.5;60.7] during the baseline to 37.2% [30.1;43.5] during the end-line.

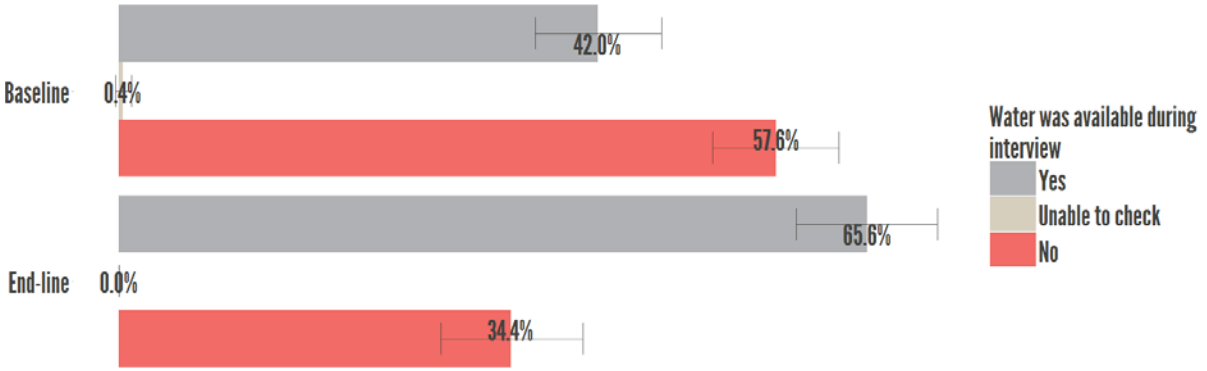
Figure 76: Reported drinking water availability in the school compound by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0.001; Valid n baseline: 245; valid n end-line: 180

In schools without drinking water point, any drinking water available was brought in from external sources, such as children bringing in water from home or teachers fetching water for school use from a communal source outside the school compound.

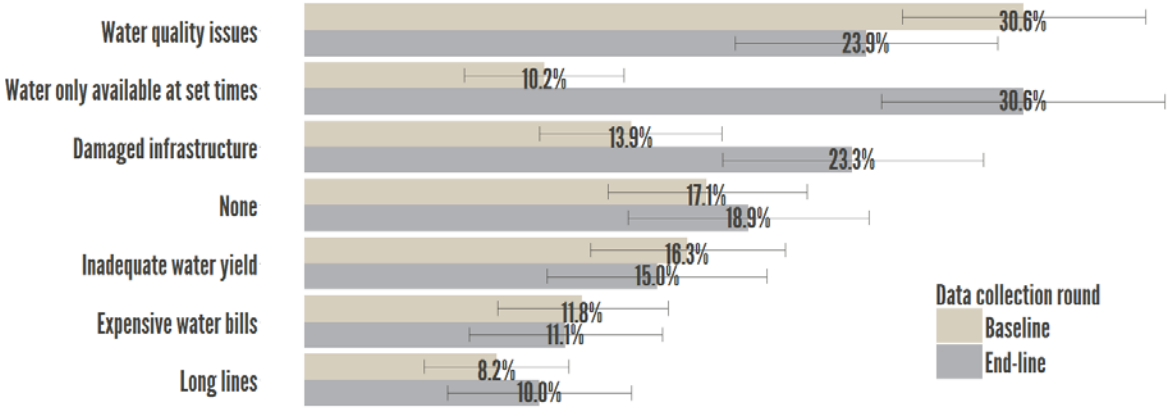
Figure 77: Observed availability of water during the assessment by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

When key informants at each school were asked about the problems encountered in accessing drinking water, the most common problem identified was water inconsistent availability (mentioned by 30.6% [24.5;36.6] of schools). A significant increase of this issue reported by the key informant has been found between baseline and end-line that might indicate that since the proportion of schools with access to water increased, water availability in schools became an issue. 23.3% [17.8;28.9] identified damaged infrastructure and 23.9% [18.3;29.5] identified water quality issues as a problem. A significant increase of this issue reported by the key informant have been found between baseline and end-line (see Figure 78). That might indicate an increase of infrastructure in the school that need maintenance.

Figure 78: Reported issue with accessing drinking water by data collection round



Valid n baseline: 245 ; valid n end-line: 180

When water points are not functioning, 85.1% [80.3;89.8] of key informants reported that the most common coping strategy for students is to bring water from home. No significant difference was found between baseline and end-line.

Sanitation

This sub-section outlines key findings related to school toilets, open defecation and solid waste disposal.

Solid waste disposal and stagnant water

78.3% [72.9;83.7] of schools in PhATS Haiyan project areas reported that they were disposing of garbage every day with only 2.8% [0.6;4.9] reporting irregular garbage disposal.

Figure 79: Frequency of garbage disposal by data collection round

	Baseline	End-line
Daily	75.1% (70.3 , 79.9)	78.3% (72.9 , 83.7)
Weekly	9% (5.8 , 12.2)	11.1% (7 , 15.2)
Several times a week	6.5% (3.8 , 9.3)	5.6% (2.6 , 8.6)
Irregular	9% (5.8 , 12.2)	2.8% (0.6 , 4.9)
Other	0% (0 , 0)	1.1% (-0.3 , 2.5)
No disposal	0% (0 , 0)	1.1% (-0.3 , 2.5)
Several times a month	0.4% (-0.3 , 1.1)	0% (0 , 0)

Pearson's X2: Rao & Scott adjustment, p-value=0.04; Valid n baseline: 245; valid n end-line: 180

The most common method of garbage disposal was incineration, followed by piling solid waste inside the school compound. Piling garbage inside the school copmound was practiced by 34.4% [28.2;40.7] of schools, with an additional 13.3% [8.9;17.8] piling it outside the school compound. These garbage disposal methods pose a health risk as they are likely to facilitate students' easy contact with this solid waste.

Figure 80: Disposal of garbage by data collection round

	Baseline	End-line
Thrown or Piled inside school premises	29.4% (24.3 , 34.5)	34.4% (28.2 , 40.7)
Incinerate	32.2% (27 , 37.5)	16.7% (11.8 , 21.5)
Buried	22.4% (17.8 , 27.1)	20.6% (15.3 , 25.8)
Thrown or Piled outside of school premises	6.9% (4.1 , 9.8)	13.3% (8.9 , 17.8)
Collection Service	7.3% (4.4 , 10.3)	12.2% (7.9 , 16.5)
Other	1.6% (0.2 , 3.1)	2.2% (0.3 , 4.2)
No disposal	0% (0 , 0)	0.6% (-0.4 , 1.5)

Pearson's X^2: Rao & Scott adjustment, p-value=0.004; Valid n baseline: 245; valid n end-line: 180

School toilets and open defecation

An estimated 99.4% of schools in PhATS Haiyan project areas have improved sanitation facilities, while only 0.6% [-0.4;1.5] of schools have no sanitation facilities at all. None of the schools has an unimproved water facility. The vast majority of toilets were flush or pour flush toilets connected to septic tanks (used by 86.1% [81.6;90.6] of all schools). While these toilets allow for the hygienic separation of excreta, they also require large quantities of water, which is likely to be problematic given the difficulties in accessing water reported by many schools. Indeed, a lack of water available for flushing was discussed as a problem in some student focus groups.

Figure 81: Main toilet facility type by data collection round

		Baseline	End-line
Improved toilet facility	Flush or pour flush to piped sewer system	0% (0 , 0)	8.9% (5.2 , 12.6)
	Flush or pour flush to septic tank	91.4% (88.3 , 94.6)	86.1% (81.6 , 90.6)
	Flush or pour flush to pit latrine	3.3% (1.3 , 5.3)	3.9% (1.4 , 6.4)
	Ventilated Improved Pit (VIP) Latrine	1.6% (0.2 , 3.1)	0.6% (-0.4 , 1.5)
	Pit Latrine With Slab	0.8% (-0.2 , 1.8)	0% (0 , 0)
	No facilities bush or field or river or open	2.9% (1 , 4.7)	0.6% (-0.4 , 1.5)

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 245; valid n end-line: 180

A significant decrease in the ratio of students by functioning toilets between the two data collection rounds was found from 39.95 [36.74;43.14] students by functioning toilets to 31.90 [29.65;34.13] by toilets (see Figure 82 below).

Figure 82: Number of students per functioning toilet by data collection round

Design-based t-test p-value=0,000; Valid n baseline: 237; valid n end-line: 178

A key issue identified during the baseline was the relative rarity of single sex toilets in schools in PhATS Haiyan project areas. The vast majority of existing toilets in schools are unisex, which can present problems with privacy, particularly for older girls in relation to menstrual hygiene. However a significant increase in schools having sex-separated toilets between baseline and end-line has been found, with 53.1% [46.5;59.6] of schools having at least one sex-separated toilets during end-line compared to 23.6% [18.8;28.5] during baseline (Figure 83).

Figure 83: Proportion of school having at least one sex-separated toilet by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0,000; Valid n baseline: 237; valid n end-line: 179

In 95.0% [92.1;97.8] of schools, toilets were less than 2 minutes walk from classrooms or in the class room. There is no difference between baseline and end-line for this indicator. FGD data indicated that having toilets too close to (and particularly adjacent to) classrooms was actually disincentive to their use for defecation in some cases. Many focus group participants expressed embarrassment and concerns (particularly about the smell reaching the classroom) about defecating in toilets so close to their classrooms.

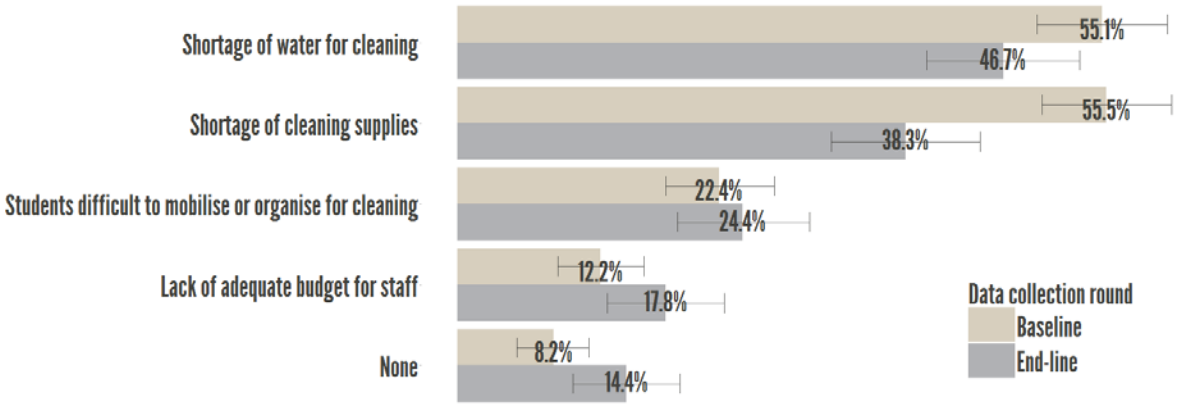
The cleanliness of toilets was a problem in some schools. While 87.7% of toilets were observed to be very clean or mostly clean, 2.2% [0.3;4.2] of school were observed to have very unclean toilets at the time of the school visit (see Figure 84 below). No significant differences were found between baseline and end-line.

Figure 84: Cleanliness of toilets by data collection round

Pearson's X^2: Rao & Scott adjustment, p-value=0.201; Valid n baseline: 237; valid n end-line: 179

Key informants at each school were asked about the challenges of keeping toilets clean. The main challenges reported were a shortage of water (46.7% [40.1;53.2]) and a shortage of cleaning supplies (38.3% [32;44.7]). A significant decrease of key informants reporting the lack a cleaning supplies was found, from 55.5% [49.9;61.1] during the baseline to 38.3% [32;44.7] during the end-line, which could be an effect of the incorporation of WASH in school budget. The third most common challenge identified was students being difficult to mobilize for cleaning (24.4% [18.8;30.1]) as shown in Figure 85.

Figure 85: Main challenges reported to keep toilets clean by data collection round



Valid n baseline: 245; valid n end-line: 180

This third challenge is explained by the widespread reliance on students for cleaning school toilets. While 99.4% of schools had some system in place for the regular cleaning of toilets, only 7.8% [4.3;11.3] reported that toilets were cleaned by a janitor, with toilet cleaning performed by students in 65.0% [58.8;71.2] of schools, and by teachers in 25.0% [19.3;30.7] (see Figure 86 below). 1.7% [0.0;3.3] of schools reported that toilets were cleaned by parent volunteers, which may offer a possible model for schools that lack the resources to pay for cleaning services. No significant differences were found between baseline and end-line.

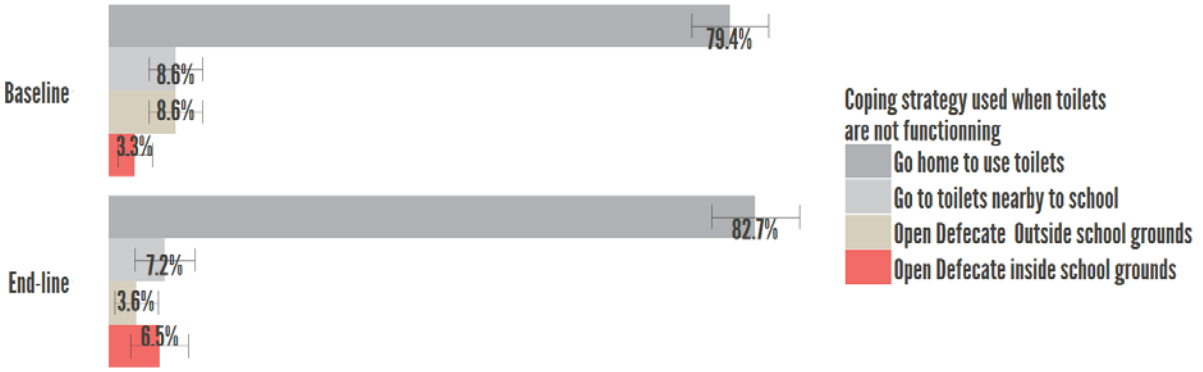
Figure 86: Toilets facilities cleaned frequently by data collection round

	Baseline	End-line
Yes, by students	65.7% (60.4, 71)	65% (58.8, 71.2)
Yes, by teachers	24.1% (19.3, 28.9)	25% (19.3, 30.7)
Yes, by janitor or cleaning staff	4.1% (1.9, 6.3)	7.8% (4.3, 11.3)
Yes, by parent or community volunteers	2.9% (1, 4.7)	1.7% (0, 3.3)
No, no current system in place.	2.9% (1, 4.7)	0.6% (-0.4, 1.5)
Don't know	0.4% (-0.3, 1.1)	0% (0, 0)

Pearson's X^2: Rao & Scott adjustment, p-value=0.235; Valid n baseline: 245; valid n end-line: 180

Key informants at each school were asked what students do when school toilets are not functioning. In 82.7% [77.1;88.4] of schools, students' main coping mechanism was to go home to use the toilet. This disrupts learning, particularly where students' homes are far away. In 10.1% of schools, it was reported that the main coping mechanism was to defecate openly inside or outside the school compound (see Figure 87). These negative coping mechanisms emphasise the importance of ensuring that school toilets are functioning and sufficiently comfortable for students to use them. No significant differences were found between baseline and end-line for this indicator.

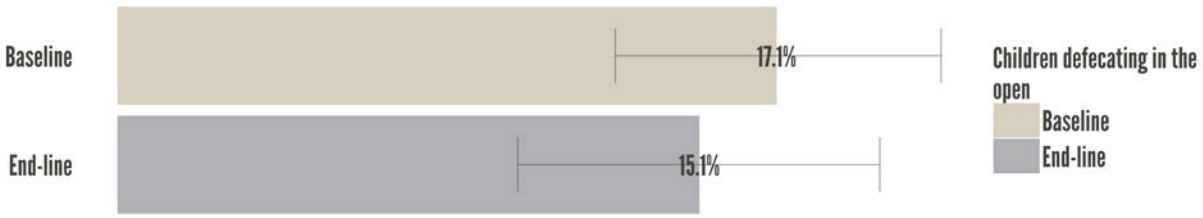
Figure 87: Reported coping strategy used by children when toilet broken by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0.155; Valid n baseline: 209; valid n end-line: 139

Open defecation was reported in 15.1% [10.4;19.8] of schools in PhATS Haiyan project areas, while open urination was reported in 64.4% [58.1;70.7]. No significant differences were found between baseline and end-line. Focus group data emphasized the significant role teachers play in enabling or discouraging open defecation, mainly by allowing children to go home, or to other classrooms when the toilets are not working.

Figure 88: Key informants reporting children defecating in the open by data collection round



Pearson's X^2: Rao & Scott adjustment, p-value=0.571; Valid n baseline: 245; valid n end-line: 179

Conclusion

Two years after Typhoon Haiyan, as the focus shifts from emergency reconstruction to sustainable development, there is a critical opportunity to address long-term sanitation challenges such as open defecation, which remains a major problem in the Philippines. The Philippine Approach to Total Sanitation (PhATS) program was launched by UNICEF to build on the momentum of the emergency response and reinvigorate progress towards the national goals of eliminating open defecation (with 60% of barangays being declared Zero Open Defecation by 2016) and achieving universal access to safe and adequate sanitation facilities (by 2028).

The PhATS approach recognizes that sustainable improvements in sanitation and hygiene behaviour come through the gradual changing of social norms, and thus requires detailed data on WASH knowledge, attitudes and practices. Consequently, prior to the launch of the PhATS programme in December 2014, UNICEF funded REACH to conduct a baseline assessment at household and school level to inform programme planning and implementation. On completion of the programme, REACH conducted an end-line to measure the change in knowledge, attitudes and practices, the results of which were presented in this report.

This assessment found a general improvement in the sector of PhATS project intervention compared with the baseline: an increase of in the proportion of households that use an improved water source, improved health and improved hygiene and sanitation.

In particular, improved not shared sanitation facilities have become more common, with a significant increase in the proportion of households having one, from 63.7% to 76.3%. This is important as the use of shared facilities can be problematic: they are less likely to be kept clean and may not be regarded as sufficiently private, which may lead to open defecation, lack of cleanliness being the second most common reason reported for open defecation. Significant differences in the proportions of households that reported having no toilets could be detected between provinces, with a significant decrease in three of the six provinces. It can be seen as a positive outcome of the PhATS programme in the area where UNICEF partners have been promoting the use and the construction of latrines in the area.

The results concerning the use of different water treatment methods suggest a shift in households' treatment types towards boiling that might have occurred after households used the chlorine supplies received after Haiyan. This finding is encouraging in the light of households understanding the need of treating water. However, 88.7% of households relying on filtration of water with a piece of cloth use it without any disinfection method, highlighting the needs for campaigns to raise households' awareness on adequate treatment methods.

The frequency of handwashing was also seen to have increased since the baseline, including of children when the school facility is broken. These results are encouraging since they show an increase of understanding on hygiene. There was also an increase in the proportion of schools where children bring water from home or of communities that provide water for the school. These increases indicate an improved commitment to handwashing on the part of students, schools and communities in PhATS Haiyan project areas.

When looking at awareness campaigns, several results suggest that they have been successful. For instance, there is an increased understanding of the link between unsafe water and diarrhoea and sickness in general, and of the risk of dengue fever. These results might be a positive outcome of both humanitarian organisation PhATS programming and the Department of Health (DOH) efforts. However further needs of household awareness campaign have been identified. Indeed, although there has been an increase of messaging about solid garbage management and safe disposal of excreta corresponding to recommendations of the PhATS baseline report, further hygiene promotion campaigns on those specific themes are required, in particular concerning the risks that both child and adult stools pose when not properly disposed of.

The end-line data on WASH in schools also highlighted a number of improvements. The findings in this sections showed a net increase in the proportion of schools having the structures in place to improve the water and sanitation situation of schools, as well as a strong increase of leadership in WASH on the part of individual schools and the Department of Education (DepEd). For instance 86.6% of schools in PhATS Haiyan project areas had at least one WASH activity in the last six months, compared to 48.0% during the baseline.

Furthermore, a significant decrease in the proportion of schools not having any handwashing facilities was found, from 25.3% during the baseline to 11.7% during the end-line. This was coupled with a significant increase in the

proportion of schools that use a locally made facility, from 1.6% to 8.8%. This finding might be a positive outcome of the three-star approach used that promoted the use of locally made / available solution. Although there has been a significant increase in the proportion of schools with access to water (from 33.5% to 55.0%), water inconsistent availability was a major barrier to properly functioning handwashing facilities and to accessing drinking water in schools. A significant increase of this issue has been found between baseline and end-line, which might indicate that since the proportion of schools with access to water increased, water availability in schools became an issue.

Nevertheless, some of the results are slightly surprising and show no difference significant differences between the two assessments, highlighting opportunities for improvement. Notably, no significant change in the proportion of households that practice open defecation has been found, with 15.2% of the households that are still practicing open defecation in the PhATS Haiyan project areas. Similar to the baseline assessment the main factor reported was related to availability of toilets or the ownership of household toilets. However, some households that have access to improved not shared toilet facilities are still practicing open defecation. This suggest that other factors, such as water availability, or the lack of change to social norms toward open defecation at household level, might explain the assessment findings. Ensuring that school toilets are functioning and sufficiently comfortable for students to use them is also an important factor to reduce open defecation. Indeed, when school toilets are not functioning, key informants in 10.1% of schools reported that the main coping mechanism was to defecate openly inside or outside of the school compound. The significant role played by teachers in enabling or discouraging open defecation was highlighted.

Moreover a significant increase in households using bottled water as main source of drinking water was found, from 16.5% during the baseline to 29.8% during the end-line. Considering the investment by partners in the PhATS Haiyan project areas focused on water supply, this increase is unexpected, especially since the vast majority (91.8%) of households using bottled water as main source of drinking water had access to another improved water source. During focus group discussions, participants reported concerns over the quality of water coming from their improved water sources, despite the fact that water quality control checks in the PhATS Haiyan project areas are scheduled on a quarterly basis by the province Department of Health. The increase in bottled water consumption can thus be mainly explained by a lack of trust by households in their improved water source, rather than the availability of improved water sources.

These baseline and end-line assessments seek to contribute to the development of best practices for sustainable change in sanitation and hygiene behaviour in the Philippines context, as the country works towards achieving universal access to safe and adequate sanitation facilities by 2028. It is hoped that this data will enable a careful design and target of future programs based on the different priorities, needs and existing capacities, maximizing their effect and effectiveness.

Annexes