



WASH Cluster
Philippines



WASH BASELINE BARANGAY ASSESSMENT

TYPHOON HAIYAN, PHILIPPINES

Water and Sanitation Access pre and post Haiyan
and WASH Emergency Assistance

Technical Report
May 2014



REACH Informing
more effective
humanitarian action

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GEOGRAPHIC CLASSIFICATIONS

Region:	Highest form of governance below the national level
Province:	Composed of several municipalities and composite cities
City:	Maybe classified as composite or highly urbanized; also consisting of several barangays; population of not less than 150,000. Composite cities are under the Provincial Government while highly urbanized cities are reporting directly to the region.
Municipality:	Consisting of a group of Barangays, it serves primarily as a general purpose government for the coordination and delivery of basic, regular and direct services and effective governance of the inhabitants within its territorial jurisdiction.
Barangay:	A Barangay is the basic political unit of the Philippines and it serves as the primary planning and implementing unit of government policies, plans, programs, projects, and activities in the community, and as a forum wherein the collective views of the people may be expressed, crystallized and considered, and where disputes may be amicably settled. As provided by law, it should have a population of at least two thousand (2,000) inhabitants as certified by the National Statistics Office.

ACRONYMS AND ABBREVIATIONS

DPWH	Department of Public Works and Highways
DOH	Department of Health
DROMIC	Disaster Response Operations Monitoring and Information Centre
DRR	Disaster Risk Reduction
GIS	Geographical Information Systems
GoP	Government of Philippines
HH	Household
HLP	Housing Land and Property
KII	Key Informant Interview
LI	Level One Water Supply System (Point source systems)
LII	Level Two Water Supply System (Communal systems)
LIII	Level Three Water Supply System (Piped water systems)
LWUA	Local Water Utilities Administration
MGB	Mines and Geosciences Bureau
NBZ	No Build Zone
NDRRMC	National Disaster Risk Reduction and Management Council
NDZ	No Dwelling Zone
NEDA	National Economic and Development Authority
NSCB	National Statistical Coordination Board
NWRB	National Water Resources Board
ODK	Open Data Kit
PDO	Planning and Development Office (provincial/city/municipal)
PAR	Philippines Area of Responsibility
i-RAT	Inter Agency Rapid Assessment Team (Global WASH Cluster)
WASH	Water, Sanitation and Hygiene
WSS	Water Supply System

FOREWORD

On behalf of the Philippines National WASH cluster, I would like convey my sincere thanks and gratitude to everyone who facilitated and contributed to the completion of this survey.

Special thanks are offered to the Rapid Assessment Team (RAT) who led the conduct of this study in close coordination with WASH Cluster Coordinators and Information Managers. This was made possible by the immediate response of the Global WASH Cluster to our request for the deployment of the Inter-agency RAT team. Special thanks too to REACH for the deployment of their Assessment and GIS specialists, as well as their team of local survey enumerators and supporting staff for their enthusiasm and good work. Their professionalism and tireless efforts in provision of technical support particularly during the initial design phase, data collection and subsequent analytical stages of the report have been invaluable.

I also extend my appreciation to UNICEF and World Vision for facilitating the institutional and financial arrangements that made this project possible in record time. I would also like to express gratitude to the different cluster partners such as ACTED, OXFAM GB and IFRC for hosting the two RAT members and providing them with all necessary logistic and administration support during their stay in the field and for the others who contributed in the cluster's intention survey.

Finally, I would like to thank the Regional Director of Health, WASH Focal Points at the regional, provincial, city and municipal level and the Barangay Captains, for their warm welcome and cooperation in developing the questionnaire, facilitating the local arrangements and responding in the survey.

This baseline provides valuable data moving forward in the response for both coordination and programmatic design. This is the first time that the WASH Cluster engaged the RATs and the REACH team to help re-establish the new baseline post –Typhoon and past the initial phase of the humanitarian response. This is also the first time that the Philippine WASH Cluster managed to use technology to gather relatively good data over a large geographic expanse in a relatively short period of time.

The survey has demonstrated the potential to collect quality information in a timely method over an expansive geographic area and the WASH Cluster looks forward to building on this experience to inform future emergencies.

We hope that the cluster partners will find this report useful and relevant. This is part of our modest efforts to inform our partners of the current status, needs, responses and gaps that still remain to be addressed.

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INTRODUCTION

This document has been designed in conjunction with the Philippines WASH Cluster and the Inter-Agency Rapid Assessment Team (i-RAT) to provide a technical guide to better inform, assist and support WASH actors in the Central Philippines for current and future interventions using baseline data collected by REACH.

CONTEXT

At 10:00 on 6 November Typhoon Haiyan (named Yolanda locally) entered the Philippines Area of Responsibility (PAR). The typhoon intensified as it entered the Eastern Visayas region, first making landfall over Guiuan on 8 November at 04:40. By 08:00 on 8 November the typhoon had made landfall six times across the Central Philippines. Continuing to weaken over the West Philippine Sea, Typhoon Haiyan left the PAR on 9 November at 15:30.

On 5 December, the Government of the Philippines (GoP) through its Disaster Response Operations Monitoring and Information Centre (DROMIC) reported that a total of 13,067,342 individuals across 10,701 Barangays in the Central Philippines were affected by Typhoon Haiyan. Of the affected population, a total of 4,000,965 individuals were displaced by Haiyan; with 94,310 displaced to formal evacuation centres, and 3,906,654 displaced in other locations (26/11/2013). DROMIC currently reports 1,127,041 houses as having been damaged, of which 548,793 were totally destroyed by the typhoon (DSWD 17/12/13).

Through standing partnerships within the WASH cluster, REACH and the WASH Rapid Assessment Team (RAT) jointly conducted a 2 phases WASH baseline survey across 81 municipalities by collecting and mapping data across Central Philippines. The first phase covered 30 municipalities in Leyte, Samar and Cebu (10 days data collection) and key findings have been disseminated among partners in April under the name of “WASH Baseline Barangay Assessment, Typhoon Haiyan – Philippines. Phase I, Interim Technical Report”. The second phase covered the remaining 51 municipalities in Leyte and Cebu plus Eastern Samar, Iloilo and Capiz (20 days data collection). This assessment took place in April and May 2014.

The present report and related annexes will provide an overview of the assessment undertaken in all 81 municipalities, explain the technical terminology, and how best to utilise and build upon the WASH sector findings. This baseline data will now be linked with the Cluster 3W data to facilitate a more in depth gap analysis.

ASSESSMENT OBJECTIVES

The overall objective of the assessment

To conduct a WASH baseline assessment across 81 municipalities affected by Typhoon Haiyan in order to inform response planning and the allocation of resources.

The specific objectives are:

1. The completion of an assessment that provides information for WASH infrastructure, sanitation, assistance and updated demographic information for the Central Philippines in the aftermath of Typhoon Haiyan;
2. The dissemination of WASH related data in a digestible format (raw data, aggregated data and maps) for both field and international level to support a planned and coordinated early recovery response orientated for WASH needs in the Central Philippines.

METHODOLOGY

The assessment methodology below outlines (a) the "blanket" strategy designed specifically for the assessment; (b) the data collection process, including an overview of data collection methods and tools; and (c) the representativeness and limitations of the data collected.

BLANKET ASSESSMENT METHODOLOGY

In order to give a complete picture of the WASH situation in the Philippines affected regions 5 months after typhoon Haiyan, a key informant network was developed to conduct blanket coverage assessment of all 2,497 barangays in 81. Obtaining full coverage creates a complete and representative picture of the WASH situation (needs/gaps) per municipality or individually at barangay level. Rather than using a statistically significant sampled approach where results are displayed solely as percentages, full coverage across all barangays makes it possible to use both relative numbers and percentages, therefore aiding later planning and interventions.

The blanket approach ensures that different municipalities and barangays can be identified individually as there is an independent data set for all target areas. All data will be analysed as an aggregate to municipality level¹ in section 3, however all barangay data can be found in annex 1.

Selection of Municipalities for Assessment

The selection of the municipalities was based on affected population, presence of WASH partners involved in the WASH emergency response and existing assessment data. Table 1 below provides a list of the 81 municipalities selected for the assessment and the corresponding number of barangays assessed.

Selection of Barangays within Municipalities

In all selected municipalities, every barangay was assessed producing a complete dataset per municipality. In total 2,497 barangays were collected over a 4 weeks period with 100% coverage as agreed upon by the WASH Cluster and RAT team.

Geographic Information Systems and Mapping

Maps were critical in conducting the field assessments. Each team was given a set of maps for the targeted municipality for each day's data collection with the individual barangays highlighted in addition to a printed list of the barangay names that the team were to assess per day. For larger municipalities, such as Tacloban and Ormoc, 138 and 110 barangays respectively, the municipalities were broken down geographically, east, west and "downtown" in order to make collection more efficient for enumerator teams.

Questionnaire Tool Design

The questionnaire was developed by the RAT team in cooperation with the WASH Cluster team. It was revised after consultation with the Leyte sanitary inspectors and municipal health officers during the consultation workshops organized by the cluster and approved by National WASH Cluster (in Manila, Tacloban, Cebu and Samar) and the Department of Health (DOH). The questionnaire can be found in annex 2.

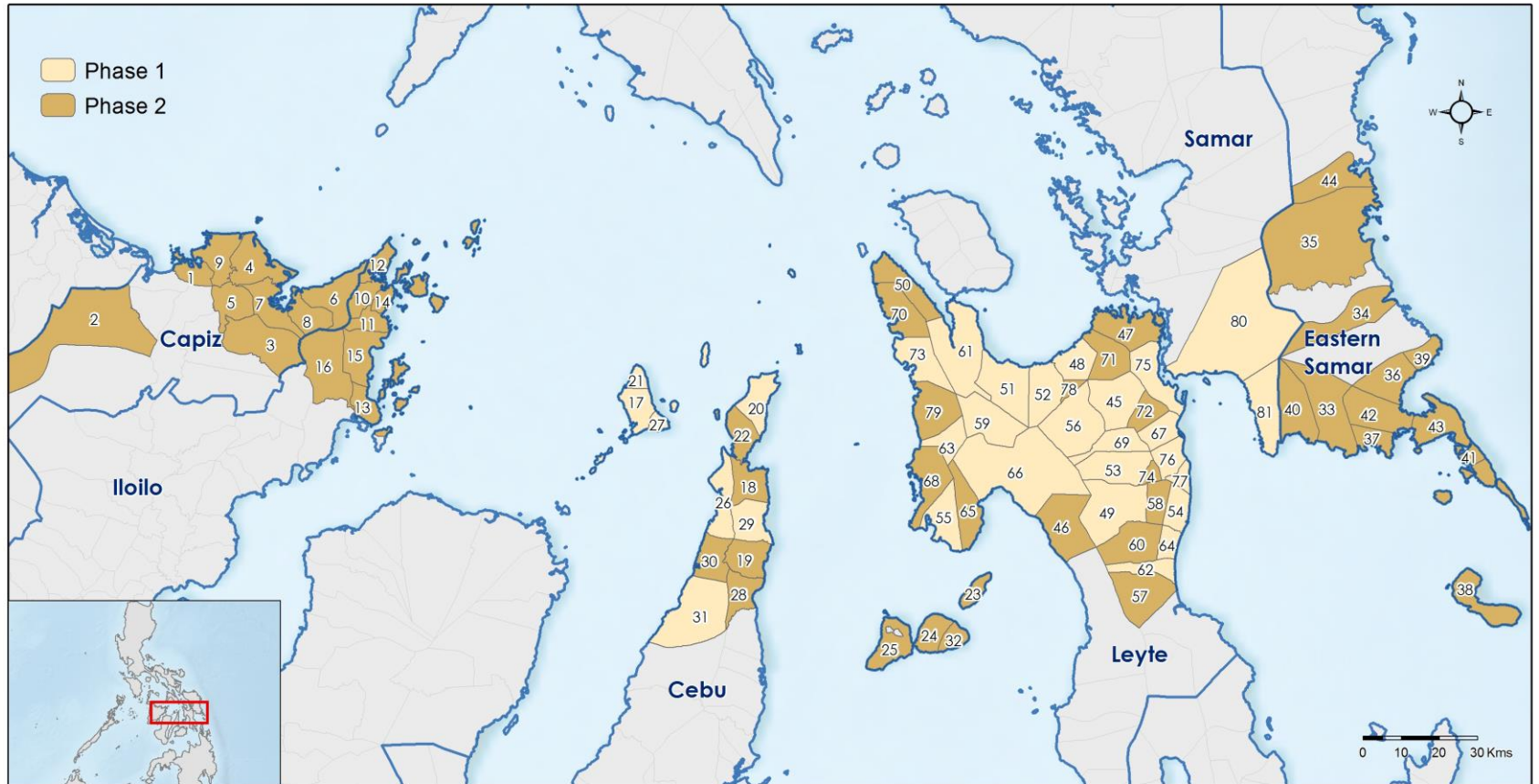
¹ In addition to barangay level, and the provision of the raw dataset

Table 1: Target municipalities with the number of Barangays assessed

Province	Municipality	Count of Barangays (#)	Pop (#)	HH (#)	Assessment phase (Phase 1 = April 2014; Phase 2 = May 2014)
LEYTE	ALANGALANG	54	57941	12835	1
	ALBUERA	16	47208	11802	1
	BABATNGON	25	29831	6367	2
	BARUGO	37	36754	7101	1
	BURAUEN	77	55609	12704	1
	CALUBIAN	53	36954	9122	2
	CAPOOCAN	21	33330	7757	1
	CARIGARA	49	54276	11683	1
	DAGAMI	65	37444	8461	1
	DULAG	45	51181	11276	1
	ISABEL	24	47125	13778	1
	JARO	46	45582	9833	1
	JAVIER (BUGHO)	28	25228	6217	2
	JULITA	26	18029	3837	2
	KANANGA	23	60722	13921	1
	LA PAZ	35	22435	5118	2
	LEYTE	30	44266	9481	1
	MACARTHUR	31	22233	5173	1
	MATAG-OB	21	28980	4649	1
	MAYORGA	16	17674	4066	1
	MERIDA	22	31772	8382	2
	ORMOC CITY	110	216439	56331	1
	PALO	33	76689	17845	1
	PALOMPON	50	64346	15093	2
	PASTRANA	29	17332	4145	1
	SAN ISIDRO	19	31035	8500	2
	SAN MIGUEL	21	20036	4447	2
	SANTA FE	20	20683	5367	2
	TABANGO	13	36219	9013	1
	TABONTABON	16	10665	2800	2
	TACLOBAN CITY	138	257766	61869	1
	TANAUAN	54	57028	14513	1
TOLOSA	15	20847	5069	1	
TUNGA	8	8766	1985	2	
VILLABA	35	44743	12117	2	
	TOTAL LEYTE	1305	1687168	402657	
WESTERN SAMAR	BASEY	51	58997	12897	1
	MARABUT	24	19232	4380	1
	TOTAL WESTERN SAMAR	75	78229	17277	

CEBU	BANTAYAN	25	82546	18397	1
	BORBON	19	44643	8395	2
	CITY OF BOGO	29	79968	20480	2
	DAANBANTAYAN	20	85262	20620	1
	MADRIDEJOS	14	38155	8151	1
	MEDELLIN	19	56634	11893	2
	PILAR	13	12895	3202	2
	PORO	17	27039	6394	2
	SAN FRANCISCO	15	48602	10825	2
	SAN REMIGIO	27	57394	13867	1
	SANTA FE	10	28885	6312	1
	SOGOD	18	35357	8295	2
	TABOGON	25	46644	9004	1
	TABUELAN	12	33699	6676	2
	TUBURAN	54	76233	15933	1
TUDELA	11	11413	2677	2	
	TOTAL CEBU	328	765369	171121	
CAPIZ	IVISAN	15	30157	6751	2
	JAMINDAN	30	49586	8491	2
	MA-AYON	32	39793	8238	2
	PANAY	42	54744	12060	2
	PANITAN	26	45815	9597	2
	PILAR	24	40666	10107	2
	PONTEVEDRA	26	51082	10130	2
	PRESIDENT ROXAS	22	36098	7288	2
	ROXAS CITY (CAPITAL)	47	180054	40352	2
	TOTAL CAPIZ	264	527995	113014	
ILOILO	BALASAN	23	31877	7836	2
	BATAD	24	20643	5047	2
	CARLES	33	74642	16516	2
	CONCEPCION	25	39894	9490	2
	ESTANCIA	25	51508	11353	2
	SAN DIONISIO	29	41616	8646	2
	SARA	42	57764	13261	2
	TOTAL ILOILO	201	317944	72149	
EAST SAMAR	BALANGIGA	13	15266	3313	2
	BALANGKAYAN	15	10541	2235	2
	CITY OF BORONGAN	61	80120	15316	2
	GENERAL MACARTHUR	30	17630	3275	2
	GIPORLOS	18	15493	3218	2
	GUIUAN	60	56360	12625	2
	HERNANI	13	11080	2019	2
	LAWAAN	16	13105	3027	2
	MERCEDES	16	7248	1466	2
	QUINAPONDAN	25	17094	3439	2
	SALCEDO	41	25225	5207	2
	SAN JULIAN	16	14397	3316	2
	TOTAL EAST SAMAR	324	283559	58456	

Map 1: 81 targeted municipalities included in the baseline assessment



Capiz	Iloilo	Cebu	Eastern Samar	Leyte	Western Samar
1. Ivisan	10. Balasan	17. Bantayan	25. San Francisco	33. Balangiga	39. Hernani
2. Jamindan	11. Batad	18. Bogo City	26. San Remigio	34. Balangkayan	40. Lawaan
3. Maayon	12. Carles	19. Borbon	27. Santa Fe	35. Borongan City	41. Mercedes
4. Panay	13. Concepcion	20. Daanbantayan	28. Sogod	36. General McArthur	42. Quinapondan
5. Panitan	14. Estancia	21. Madridejos	29. Tabogon	37. Giporlos	43. Salcedo
6. Pilar	15. San Dionisio	22. Medellin	30. Tabuelan	38. Guiuan	44. San Julian
7. Pontevedra	16. Sara	23. Pilar	31. Tuburan		
8. President Roxas		24. Poro	32. Tudela		
9. Roxas City					

MIXED-METHOD DATA COLLECTION

The WASH baseline assessment included three components of data collection and analysis: (a) review of secondary data made available by national and regional government bodies and humanitarian agencies regarding WASH activities led by the RAT team; (b) Key Informant Interviews led by the REACH team; (c) Geographic Information Systems (GIS) and mapping of all collected and analysed data. In some cases, validation of data has been supported also by the Sanitary Inspectors (DOH).

Key Informant Interview

The primary method of data collection was a key informant interview with the barangay captain when possible. When the barangay captain was not available the barangay councillor was commonly the interviewee². The general methodology was that the teams would first visit the individual municipalities to obtain a list of the barangay captains per that given municipality. A team of REACH telecommunication officers would individually contact the barangay captains to arrange a meeting in a centralised location (commonly the municipal hall) where all the barangay captains would be asked to attend. The enumerators would conduct face-to-face interviews individually with each of the barangay captains, one enumerator per one key informant. Therefore if 20 captains/key informants attended the meeting, then 20 individual interviews would have been conducted.

The attendance of the barangay captains varied, with sometimes there being an 85% attendance rate, and sometimes there being a 20% attendance rate. Therefore, when all attendees of the pre-arranged meeting had been interviewed, then using the maps and barangay lists, the team leader would delegate a number of barangays to each enumerator. The team would then individually disperse and travel individually to the given barangay(s) in order to conduct the remaining interviews for that municipality. When access/time constraints occurred then the REACH telecommunication team would phone the remaining key informants from the provided municipal list. Face-to-face interviews were the preferred platform for the interview as the enumerators each possessed visual aids of the different water supply systems, therefore facilitating the understanding of the key informant and thus minimising the misunderstanding of the key informant when giving their response (as figure 1 shows).

Photo 1: REACH enumerators (bottom left & top left) conducting their interviews with visual aids to display the different water supply systems to the key informants



² Barangay Captains are duly elected local executives of the Barangay government. A barangay councillor is also an elected official who is a member of the Barangay Council, which is the Legislative body of the Barangay Government.

The KIIs were conducted using an assessment tool prepared ad hoc by the RAT Team and built on the Android smartphone using the Open Data Kit (ODK) platform which significantly improves data quality as a result of: (a) reducing human error as a result of loss of forms, data collection mistakes, and data entry mistakes thus improving the accuracy of collected data; (b) increasing the speed at which mapping products and analytical reports can be produced through reducing data cleaning time and removing the time for data entry; and (c) ensuring the protection of data as a result of completed forms being removed from the data collection tool upon upload to the centralised database.

ODK constraints were added to the questionnaire in order to ensure better data integrity. For example, the number of households was asked both before and after Haiyan, therefore all corresponding household related questions were dependent upon the number of households either before or after Haiyan. i.e. if a Barangay had a reported 10 households before Haiyan, then the ODK platform would only allow the answer of 10 or less for the number of households with a private toilet before Haiyan. The only question where this was not constrained was regarding the number of households with access to a level III water supply system as it is reported that households commute to different barangays to use a certain WSS. As a result the number of households using level III can be greater than the total number of households per that given barangay since the question asked was regarding "access".

All data was re-checked where "check thresholds" were exceeded in any given record. These thresholds were determined by the RAT team and REACH after analysis of data from the initial days of data collection, and are listed below:

- # tubewells (either, total before Haiyan, functional before or functional now) > 40, or
- # un piped springs (before or after Haiyan) > 10, or
- # LII WSS (before or after Haiyan) > 10

Using the collected telephone numbers from the key informants representing the barangay in question, the REACH telecommunication team called back to check whether the data was correct. If correct, the database remained unchanged, if different (data entry mistake, poor knowledge of question, misunderstanding of question) then the database was updated.

Data Representativeness, Extrapolation and Limitations

The dataset was designed to provide the WASH Cluster and other humanitarian actors responding to the needs with a complete and representative picture of the April-May 2014 WASH situation to better support intervention and programming.

The methodology was designed for the extrapolation of findings at either barangay level or aggregation to municipality/provincial level as all barangays within a municipality have been surveyed. For instance, the level and types of assistance reported to be received will be displayed as a % for the municipality, based on the number of barangays that said either yes/ongoing or no to a certain assistance type. Once the reader has identified a municipality of interest, then all raw data for individual barangays can be further explored in annex 1. For the purposes of this study Tacloban City and Ormoc City have been grouped with the provincial aggregates of Leyte. This way the report is aimed at acting as a guide to better understand the current needs and gaps for potential future WASH responses across the different administration levels.

A limitation for this assessment is that it is dependent upon the level of knowledge of the key informant interviewed. As previously mentioned, the barangay captain was the favoured interviewee for the assessment, however it was noticed that the degree of the captains knowledge varied, therefore influencing the quality of the data. Since the knowledge and understanding of the captains/councillors will dictate the margin of error in the data, a follow up assessment should be undertaken by implementing agencies when considering an intervention. It must be noted, that all data over a certain threshold was later double checked using a phone call follow up as previously mentioned.

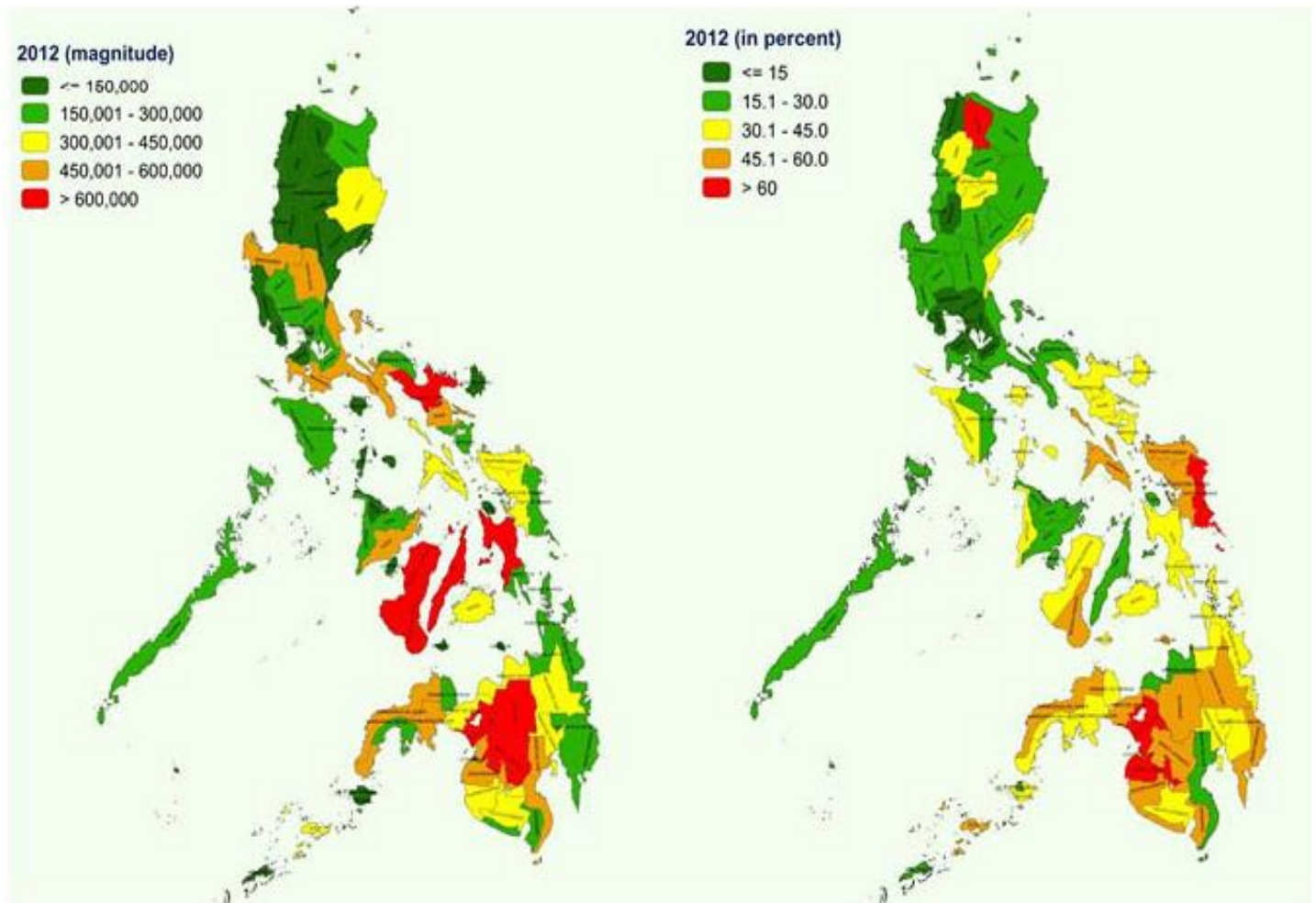
FINDINGS

The figures provided via key informant interviews (KIIs) needs to be contextualized within the pre-Haiyan WASH services coverage in regions VI, VII and VIII.

Considering the poverty incidence³ among the Filipino population, Cebu, Iloilo and Capiz fall within the interval of 15.1%-30% whilst Western Samar and Leyte are included within the range of 30.1%-45%. Eastern Samar has the highest poverty incidence among the assessed provinces (>60%). It is noted that poverty incidence is reported at a provincial level, which does not account for variation across the province.

Considering the magnitude of the poverty threshold⁴ in real population terms, Cebu and Leyte exceed 600,000 individuals below the poverty threshold whilst Western Samar ranks between 300,001 and 450,000 individuals. Eastern Samar ranks between 150,001 and 300,000 while Capiz and Iloilo varies between 160,000 and 600,000 as displayed in map 2. Historically, the limited national and local WASH governance and the limited financial capacity of the population to access reliable WASH services, results in chronic qualitative and quantitative gaps in the service provision and access.

Map 2: Map Number of People Living Below Poverty Threshold (right) & map of Poverty Incidence in 2012, Povince Level (left), (NSCB 2012)



³ Percentage of population with annual income below the poverty level defined at government level

⁴ the minimum income required to meet the food needs and other non-food basic needs

Despite the local availability of skilled technicians, the existing water infrastructure lack in regular and extraordinary maintenance due to limited financial resources; the construction and management of sanitation facilities are left to household initiative, in spite of existing – but often contradictory – standards and regulations (source: WHO/UNICEF Joint monitoring Programme; UNICEF Statistics - Philippines 1990-2015; USAID, Philippines: Country Development Cooperation Strategy 2012-2016). Consequently, lack of adequate and appropriate WASH access can, together with non-existing infrastructures for solid and liquid waste management, lead to chronic public health challenges which can be further exacerbated during environmental and public health emergencies.

WATER ACCESS

In the Philippines, access to improved water services are categorized between Levels I,II and III. Level I water systems are typically point source systems, shallow wells or hand pumps. Level II water systems are communal systems, usually shared by 10-15 households thru a common faucet. Level III water systems refer to piped water supplies. Many piped water systems are not always available 24-7 with continuous reliable flow and pressure. A typical rural or peri-urban barangay would have a combination of these systems. See Section 5.2 for further technical descriptions. Table 2 reports the key findings in the water sector before Haiyan and at present at provincial level (see annex 1 for data at municipal and barangay level); the figures represent a picture of the present water access situation in 2,497 barangays. A number of important considerations when considering the findings:

- Improvement in the water services by the humanitarian assistance (hardware and software activities) carried out from November 2013 to May 2014 are included in the reported figures.
- Losses in number of tubewells with hand pumps for drinking purpose, losses in LII and LIII WSS coverage do not necessarily correspond to the present gap in water facilities to meet the present water needs as gaps in water coverage vs water requirements were present before the typhoon.
- Losses in LII WSS access do not necessarily correspond in an increased use of LI WSS as people turn also to water purchase (water sellers or LIII WSS).
- LIII WSS users (HHs or population) could not be quantified within a specific barangay covered by this service through KIIs: quite often, a single service connection (house connection) does not correspond necessarily to one single HH user (one connection is shared among several HHs at the cost of 2-5 PHP/20 L). Moreover, one single house connection is also shared among HHs from different barangays (usually in peri-urban and rural areas).

Table 2: Key findings for water access

Province	Tubewells with hand pump working before Yolanda (#)	Tubewells with hand pump working now (#)	Total tubewells with hand pump lost (#)	Total tubewells with hand pump lost (%)	LII wss working before Yolanda (#)	LII wss working now (#)	Total LII wss lost (#)	Total LII wss lost (%)	Barangay served by LIII wss before Yolanda (#)	Barangay served by LIII wss now (#)	Barangay that lost LIII wss coverage at present (#)	Barangay that lost LIII wss coverage at present (%)
Cebu	568	515	53	9.3	267	241	26	9.7	253	253	0	0.00
Leyte	4695	3971	724	15.4	1026	853	173	16.9	656	633	23	3.51
Samar	205	145	60	29.3	70	65	5	7.1	21	20	1	4.76
Eastern Samar	1109	965	144	12.98	213	188	25	11.7	144	130	14	9.72
Capiz	1799	1659	140	7.78	145	122	23	15.9	124	121	3	2.42
Iloilo	1244	1097	147	11.82	107	93	14	13.1	26	24	2	7.69

KIIs in Northern Cebu reported 9.3% loss in tubewells utilized for drinking water and 9.7% loss in operational LII WSS. Among all the surveyed municipalities, LIII WSS coverage doesn't seem affected (0% loss). Most of the LII WSS are not functioning due to infrastructural reasons (i.e. damages to water mains, water storage facilities, pumping equipment and catchment systems). The non-functioning rate before Haiyan between existing and working water infrastructure was 12.2% for tubewells and 3% for LII WSS. The lost coverage of LI WSS affected 3,893 HHs while the access to LII WSS increased by 1,235 HHs.

Leyte shows 15.4% loss in tubewell utilized for drinking water and 16.9% loss in LII WSS (mainly due to infrastructural damages). The non-functioning rate before Haiyan between existing and working water infrastructure was 12.2% for tubewells and 7.9% for LII WSS. Indicatively, 2,544 HHs lost access to LI WSS and 6,421 HHs LII WSS coverage. LIII WSS has been interrupted in 3.2% of the barangays among the 35 municipalities surveyed in Leyte Province.

In Samar, KIIs reported higher loss in percentage in tubewells utilized for drinking water (29.3%) while LII WSS seems less affected by Haiyan (7.1%). 1,414 HHs claimed loss of coverage in LI and 726 HHs in LII. 4.7% of the barangays investigated in Samar reported LIII WSS interrupted since Haiyan. The non-functioning rate before Haiyan between existing and working infrastructures was 18.3% for tubewells and 0% for LII WSS.

Eastern Samar shows the water access decreased by the 12.9%, 11.7% and in 9.2% of the barangays respectively for LI, LII and LIII WSSs. The estimated population which has been affected amounts to 735 HHs for LI WSS and to 1,601 HHs for LII. The non-functioning rate before Haiyan between existing and working infrastructures was 5.2% for tubewells and 1.8% for LII WSS.

KIIs in Capiz reported 7.8% loss in tubewells utilized for drinking water and 15.8% loss in operational LII WSS. Among all the surveyed municipalities, LIII WSS coverage is decrease in 2.4% of the surveyed barangays. The non-functioning rate before Haiyan between existing and working water infrastructure was 10% for tubewells and 8% for LII WSS. The lost coverage of LI WSS affected 271 HHs while the access to LII WSS decrease by 200 HHs.

In Iloilo, KII reported 11.8% decreased access in tubewells utilized for drinking water and 13.1% in LII WSS coverage (respectively equivalent to a reduced water access for 605 HHs and 1,946 HHs). 7.7% of the barangays investigated in Iloilo reported LIII WSS interrupted since Haiyan. The non-functioning rate before Haiyan between existing and working infrastructures was 7.8% for tubewells and 10% for LII WSS.

These figures correlate with the Shelter – WASH assessment conducted last December 2013 by the Shelter Cluster and WASH Cluster (*"Typhoon Haiyan Shelter and WASH Assessment – Philippines – January 2013. REACH-WASH Cluster"*): at that time, respectively 8.6% and 6.9% of the population in rural and urban areas declared to have changed source of drinking water. In the same period, overall 91.2% reported no changes in use of drinking water source.

Details of the drinking water access by municipality pre and post Haiyan is given in the following tables.

Table 3: Cebu - Water access pre and post Haiyan

Municipality	Drinking water access LI, LII, LII WSS and unprotected drinking water sources									
	% HH using Tubewell before	% HH using Tubewell Now	% variation in HH using tubewells for drinking water	% HH using LII Before	% HH using LII now	% variation in HH using LII WSS for drinking water	% HH using LIII WSS before	% HH served by LIII WSS Now	% variation in HH using LIII WSS for drinking water	% of HH using unprotected water source (dug well/unpipel spring), now
Bantayan	7.6	4.5	-3.1	6.4	6.4	0.0	45.8	51.0	5.2	12.1
City of Bogo	8.4	6.1	-6.2	2.0	1.7	-0.3	47.5	49.7	2.2	9.6
Borbon	2.0	2.1	0.1	8.6	8.4	-0.3	55.3	63.0	7.7	14.3
Daanbantayan	8.5	3.1	-2.3	1.2	0.7	-0.5	43.7	53.3	9.7	17.9
Madridejos	7.2	6.9	-0.3	6.3	9.9	3.5	63.3	61.8	-1.5	10.4
Medellin	14.5	8.7	-5.8	3.9	3.9	0.0	57.5	60.5	3.1	10.9
Pilar_Cebu	0.0	0.0	0.0	0.0	0.0	0.0	95.6	96.2	0.7	0.0
Poro	0.5	0.6	0.1	13.7	13.9	0.2	77.8	78.7	0.8	4.6
San Francisco	2.9	2.9	0.0	16.3	11.3	-4.9	65.3	65.5	0.2	1.0
San_Remigio	3.6	4.0	0.3	2.3	13.2	10.9	55.8	52.8	-3.0	15.5
Santa_Fe	22.5	22.2	-0.4	19.5	19.2	-0.3	15.6	15.2	-0.3	19.1
Sogod	10.0	5.9	-4.2	10.9	10.8	-0.1	44.5	46.0	1.4	14.1
Tabogon	14.7	3.6	-11.9	1.1	1.2	0.1	47.5	60.8	13.3	20.7
Tabuelan	0.0	0.0	0.0	0.0	0.0	0.0	80.8	74.3	-6.5	8.0
Tuburan	15.3	14.1	-1.2	7.8	7.3	-0.5	29.1	30.3	1.2	29.7
Tudela	0.4	0.4	0.0	21.7	22.0	0.3	63.7	63.4	-0.2	12.6

Table 4: Samar - Water access pre and post Haiyan

Municipality	Drinking water access LI, LII, LII WSS and unprotected drinking water sources									
	% HH using Tubewell before	% HH using Tubewell Now	% variation in HH using tubewells for drinking water	% HH using LII Before	% HH using LII now	% variation in HH using LII WSS for drinking water	% HH using LIII WSS before	% HH served by LIII WSS Now	% variation in HH using LIII WSS for drinking water	% of HH using unprotected water source (dug well/unpipel spring), now
Basey	31.16	23.04	-8.12	21.66	18.52	-3.15	13.70	15.32	1.63	30.90
Marabut	17.61	9.68	-7.93	27.89	21.03	-6.86	3.58	3.79	0.21	53.56

Table 5: Leyte - Water access pre and post Haiyan

Municipality	Drinking water access LI, LII, LII WSS and unprotected drinking water sources									
	% HH using Tubewell before	% HH using Tubewell Now	% variation in HH using tubewells for drinking water	% HH using LII Before	% HH using LII now	% variation in HH using LII WSS for drinking water	% HH using LIII WSS before	% HH served by LIII WSS Now	% variation in HH using LIII WSS for drinking water	% of HH using unprotected water source (dug well/unpiped spring), now
Alangalang	43.31	43.44	0.13	8.06	6.72	-1.34	3.83	0.86	-2.97	12.14
Albuera	22.53	19.78	-2.75	16.58	14.71	-1.87	21.58	21.59	0.01	11.35
Babatngon	45.97	46.00	0.03	38.95	34.10	-4.85	8.16	9.35	1.19	16.63
Barugo	26.20	25.46	-0.74	8.81	5.46	-3.34	31.42	30.74	-0.67	11.60
Burauen	6.53	3.90	-2.63	22.43	21.37	-1.06	48.33	47.76	-0.57	26.35
Calubian	16.74	15.14	-1.60	36.67	32.77	-3.91	6.59	6.35	-0.25	26.00
Capoocan	0.59	0.36	-0.23	44.99	36.28	-8.71	12.34	11.64	-0.70	57.28
Carigara	1.98	1.96	-0.02	9.76	8.47	-1.29	46.28	46.38	0.09	31.32
Dagami	13.94	11.87	-2.08	8.14	5.76	-2.39	30.13	29.31	-0.82	12.88
Dulag	63.97	58.68	-5.29	3.00	2.94	-0.07	12.62	10.95	-1.67	2.23
Isabel	0.65	0.18	-0.47	32.59	27.27	-5.32	67.26	61.77	-5.49	7.95
Jaro	21.18	20.32	-0.86	23.27	20.88	-2.39	16.55	16.30	-0.25	41.32
Javier_Bugho	38.70	33.78	-4.92	46.01	46.12	0.11	0.00	3.22	3.22	15.81
Julita	64.17	64.92	0.76	1.88	1.43	-0.44	16.30	17.70	1.40	4.98
Kananga	16.71	13.40	-3.30	28.92	25.69	-3.23	29.42	26.84	-2.58	16.08
La_Paz	40.22	39.92	-0.30	32.21	30.01	-2.20	13.61	13.15	-0.46	15.59
Leyte	7.03	6.81	-0.22	38.05	32.52	-5.53	12.20	11.13	-1.07	45.86
Macarthur	35.77	32.67	-3.10	12.51	7.50	-5.01	20.01	20.94	0.92	22.19
Matag_Ob	1.24	0.00	-1.24	36.96	35.58	-1.39	21.78	22.48	0.69	21.08
Mayorga	51.39	70.76	19.37	6.49	6.00	-0.49	0.00	0.00	0.00	16.43
Merida	6.49	5.73	-0.76	43.59	43.27	-0.32	45.32	40.25	-5.06	19.21
Ormoc_City	3.05	2.79	-0.26	16.50	16.09	-0.41	54.39	53.89	-0.49	15.60
Palo	0.17	0.17	0.00	0.01	0.33	0.32	70.02	71.87	1.86	3.20
Palompon	17.94	13.71	-4.22	30.69	29.56	-1.14	35.74	34.43	-1.31	10.59
Pastrana	13.12	10.11	-3.01	0.00	0.00	0.00	55.88	37.95	-17.93	15.17
San_Isidro	18.96	17.28	-1.68	7.30	6.38	-0.92	5.72	4.82	-0.90	58.82
San_Miguel	19.92	15.74	-4.18	7.83	5.78	-2.05	40.37	41.87	1.50	24.24
Santa Fe	36.23	31.86	-4.36	12.18	5.63	-6.55	25.59	24.58	-1.01	30.93
Tabango	40.83	44.65	3.81	29.13	19.27	-9.86	32.25	29.67	-2.58	32.89
Tabontabon	18.22	17.54	-0.68	0.00	0.00	0.00	51.69	48.96	-2.72	4.50
Tacloban_City	3.57	2.15	-1.42	7.16	4.85	-2.31	57.89	52.67	-5.22	5.82
Tanauan	21.17	16.92	-4.25	5.91	0.75	-5.16	49.87	46.21	-3.65	7.32
Tolosa	58.59	52.85	-5.74	23.70	9.71	-13.99	19.43	19.23	-0.19	6.81
Tunga	24.97	23.02	-1.95	0.00	0.00	0.00	63.06	61.51	-1.55	7.41
Villaba	3.76	3.23	-0.53	48.71	45.53	-3.18	12.43	14.41	1.98	14.77

Table 6: Eastern Samar - Water access pre and post Haiyan

Municipality	Drinking water access LI, LII, LII WSS and unprotected drinking water sources									
	% HH using Tubewell before	% HH using Tubewell Now	% variation in HH using tubewells for drinking water	% HH using LII Before	% HH using LII now	% variation in HH using LII WSS for drinking water	% HH using LIII WSS before	% HH served by LIII WSS Now	% variation in HH using LIII WSS for drinking water	% of HH using unprotected water source (dug well/unpipelined spring), now
Balangiga	28.34	20.56	-7.78	35.15	29.94	-5.20	36.23	42.23	6.00	0.94
Balangkayan	20.30	11.41	-8.89	21.50	19.55	-1.95	43.62	43.27	-0.35	0.00
Borongan City	42.27	39.70	-2.57	24.34	21.84	-2.50	14.18	11.60	-2.59	3.36
Gen.McArthur	1.75	1.98	0.24	38.91	39.91	0.99	22.90	25.13	2.23	20.00
Giporlos	54.57	57.30	2.73	23.28	23.24	-0.03	15.36	10.19	-5.17	14.95
Guiuan	35.17	33.12	-2.05	25.13	20.70	-4.43	24.31	24.66	0.35	9.49
Hernani	20.30	22.04	1.74	15.20	15.06	-0.14	21.65	11.79	-9.86	45.12
Lawaan	59.34	52.56	-6.78	36.87	27.06	-9.81	21.95	20.45	-1.50	2.28
Mercedes	47.04	46.18	-0.86	41.95	19.92	-22.03	11.57	12.21	0.64	6.75
Quinapondan	17.24	8.99	-8.25	22.53	29.14	6.60	14.09	14.19	0.10	42.66
Salcedo	21.26	28.23	6.97	40.58	32.25	-8.34	18.54	18.57	0.03	6.22
San Julian	46.20	43.24	-2.96	12.74	12.45	-0.29	31.94	34.68	2.74	7.81

Table 7: Capiz - Water access pre and post Haiyan

Municipality	Drinking water access LI, LII, LII WSS and unprotected drinking water sources									
	% HH using Tubewell before	% HH using Tubewell Now	% variation in HH using tubewells for drinking water	% HH using LII Before	% HH using LII now	% variation in HH using LII WSS for drinking water	% HH using LIII WSS before	% HH served by LIII WSS Now	% variation in HH using LIII WSS for drinking water	% of HH using unprotected water source (dug well/unpipelined spring), now
Ivisan	29.14	34.19	5.05	9.18	9.14	-0.04	25.57	25.36	-0.22	12.00
Jamindan	14.02	17.45	3.43	11.87	11.36	-0.51	7.03	6.52	-0.51	40.71
Ma Ayon	56.17	59.54	3.37	1.47	1.03	-0.44	0.00	0.00	0.00	6.34
Panay	2.84	3.11	0.27	2.56	2.69	0.13	61.77	64.31	2.54	1.78
Panitan	55.00	51.78	-3.22	0.92	0.38	-0.55	14.89	15.02	0.12	11.44
Pilar	26.31	22.47	-3.84	5.99	3.78	-2.21	25.01	24.14	-0.86	39.57
Pontevedra	32.86	33.98	1.12	11.74	12.63	0.88	19.07	19.03	-0.04	4.86
Pres. Roxas	14.86	14.78	-0.09	8.02	8.08	0.06	8.57	7.96	-0.61	19.95
Roxas City	6.23	5.67	-0.56	0.00	0.00	0.00	82.49	83.07	0.58	0.19

Table 8: Iloilo - Water access pre and post Haiyan

Municipality	Drinking water access LI, LII, LII WSS and unprotected drinking water sources									
	% HH using Tubewell before	% HH using Tubewell Now	% variation in HH using tubewells for drinking water	% HH using LII Before	% HH using LII now	% variation in HH using LII WSS for drinking water	% HH using LIII WSS before	% HH served by LIII WSS Now	% variation in HH using LIII WSS for drinking water	% of HH using unprotected water source (dug well/unprotected spring), now
Balasan	35.48	37.75	2.27	3.07	0.27	-2.80	0.00	0.00	0.00	30.69
Batad	18.39	19.91	1.53	16.64	8.88	-7.76	0.00	0.00	0.00	18.66
Carles	15.48	14.53	-0.95	16.55	10.84	-5.71	3.14	1.82	-1.33	43.06
Concepcion	37.03	34.62	-2.41	13.80	8.52	-5.27	14.51	13.95	-0.56	24.83
Estancia	32.44	31.42	-1.02	9.31	8.24	-1.07	29.77	29.80	0.03	4.28
San Dionisio	38.85	35.59	-3.26	23.44	23.49	0.05	9.71	13.71	4.00	11.94
Sara	47.75	52.24	4.49	7.90	7.80	-0.10	14.81	14.61	-0.19	3.71

Indicatively, the most vulnerable population is assumed to be the one utilizing unprotected water sources and LI WSS for drinking purposes: tubewells are typically not more than 10 ft deep into alluvial soil and the shallow water table is strongly influenced by surface and subsurface water circulation. These hydrogeological characteristics, together with the lack of proper waste water and sewerage management, rank the users of unprotected water sources and LI WSS as the most vulnerable population for water borne diseases and outbreaks.

This assumption is supported also by the biological water quality tested in LI WSS in Leyte and Samar: 71% of the water samples are positive to coliform contamination. Table 9 quantifies the population relying solely on L1 WSS and unprotected sources, and also highlights the number of barangays where there is an existing non-functioning L2 WSS, where repair is likely to reduce the population reliant on L1 WSS or unprotected source.

Table 9: Level I and Unprotected Water Sources access per province

Province	Municipality (#)	Reliant Barangays on L1 wss only (#) (% of total municipality Barangays)	Population now with access to L1 wss only (#)	Population with access to L1 wss only (%)	Existing but non-functional L2 wss in barangays reliant on L1 wss only (#)	Population using unprotected water sources for drinking water (%)
Cebu	12	46 (14.6%)	72,805	9.7	4	18.8
Leyte	33	399 (30.6%)	361,680	21.5	80	21.4
Samar	2	34 (45.0%)	35,204	52.5	5	33.7
Eastern Samar	12	106 (33.0%)	78,012	28	22	21
Capiz	9	107 (40.5%)	28337	5.4	4	14.2
Iloilo	7	139 (69.1%)	199192	62.7	13	19.5

The relative location of barangays and the related impact of Haiyan on water facilities is shown in Figure 10 below: most of the damages (defined by proxy as the percentage reduction of the water access) are located in an area between the coastal line and 2 km inland. This is likely due not only to the combined effect of storm surge and wave action together with wind and flying objects but also to flooding (by lack of natural/man-made drainage and river flooding), water logging in fields and soil erosion. All these natural and induced hydrological elements need further analysis and particularly considered in any DRR linked with the WASH or Shelter sectors.

Figure 1: Reduced water access versus position of barangays

Variation of water access versus position of barangays (percentage infrastructure lost)



LOCAL WASH COMMITTEES

Overall, 62% of the barangays reported having a committee with a mandate covering WASH (70% in Cebu, 61% in Leyte and 73% in Samar, 61% in Eastern Samar, 43% in Capiz and 65% in Iloilo). The assessment made no qualitative assessment of these committees. Barangay Health Workers (BHWs) and Community Health Workers (CHW) are present in the 96-98% of the barangays in the 80 Municipalities covered by the present survey.

WASH committees are community groups of women and men who volunteer or are elected to support the management of WASH in the communities. The committees facilitate a group decision-making process and implement the local rules agreed in terms of installation, operation, maintenance and minor repairs of the WASH facilities in the communities. The WASH Committees also work with the Barangay Health Workers (BHWs) for health promotion activities. The cluster strategy is to support the establishment of these WASH committees and strengthen them. WASH Committees may either be stand-alone groups, or a committee under an organization (such as a Barangay level association, a cooperative or simply a barangay mandated committee). The WASH Committees provide the communities with a venue for community feedback, complaints, and suggestions relating to WASH concerns.

The questionnaire did not contain specific questions to assess the roles, duties and responsibilities of the barangay committees with a mandate covering WASH. Further investigation would be required to assess what social, cultural, economic and technical conditions are present, or need to be promoted at the barangay level to support WASH strategies regarding behavioural and social change. This information would allow the WASH partners to develop mid and long term participatory, sustainability and accountability strategies which would go beyond the creation of a technical capacity to manage the WASH facilities provided.

SANITATION ACCESS AND OPEN DEFECATION PRACTICES

The sanitation figures reported as “now” are inclusive of the hardware and software emergency assistance provided to the affected population from November 2013 to May 2014.

Consideration of the access to private HH toilets pre-typhoon and now, gives the best indication of typhoon toilet damage. There has been a 2.1% loss of private HH toilets in Cebu, a loss of 7.9% in Leyte, a loss of 6.2% in Eastern Samar and 11.5% loss in Samar. Capiz and Iloilo show a reduced access amounting respectively to the 2.1% and 2.3%. This represents an approximate loss of access to private latrines by 197,288 persons in real terms for the areas assessed to date.

The sanitation response to date has been mainly focused around the provision of emergency communal toilets; there has seen a consequent increase in access to these facilities: Cebu +1.2%, Leyte +1.9, Samar +7.6%, Eastern Samar +2.5%, Capiz +0.1 and +0.2 in Iloilo. Overall, among the 2,497 barangays surveyed, the pre-Haiyan sanitation access (private or communal toilets) of 72.1% of the population, decreased to 69% at present. In Cebu, the sanitation access (private and communal together) decreased by the -0.8% (-6,415 HHs) since November 2013 while in Leyte and Samar the losses in sanitation access amounts respectively to -6.1% (-102,175HHs) and -4.1% (-3,206 HHs). See table 12 for the sanitation gaps and present hygiene practices for the assessed areas.

Table 10: Sanitation gaps and hygiene practices at present

Province	Population now (#)	HHs now (#)	HHs with access to private toilet before Yolanda (%)	HHs with access to private toilet now (%)	HHs variation access to private toilets (%)	HHs with access to communal toilet before Yolanda (%)	HHs with access to communal toilet now (%)	HHs variation access to communal toilets (%)	Represented population that have lost access to private and communal sanitation (#)	Represented HHs that have lost access to private and communal sanitation (#)	Barangay where open defecation is practiced at present (%)	Barangays where open defecation is perceived as a potential health problem (%)	Barangays where open defecation increased after Yolanda (%)
Cebu	765369	171121	61.23	59.22	-2.01	3.17	4.34	1.17	-6,415	-1,434	83.84	89.33	67.07
Leyte	1687168	402657	70.15	62.21	-7.94	3.50	5.39	1.88	-102175	-24385	72.03	84.52	55.33
Samar	78229	17277	64.71	53.00	-11.71	0.65	8.27	7.61	-3206	-708	81.33	93.33	65.33
Eastern Samar	283559	58456	74.12	67.87	-6.25	3.17	5.65	2.49	-10670	-2200	73.77	84.57	56.17
Capiz	527995	113014	78.67	76.53	-2.14	1.91	1.98	0.07	-10915	-2336	70.83	81.06	50.00
Iloilo	317944	72149	69.49	67.19	-2.30	2.18	2.39	0.22	-6631	-1505	70.65	85.07	56.72

The previous two Shelter and WASH surveys promoted by the Shelter Cluster in December 2013 and March 2014 confirmed these figures - last December, overall in all affected areas, the 92.24% of the 6,247 HHs declared that cesspools or septic tanks were not irreparably damaged or in need to be reconstructed, while 7.73% of the households defined the substructure of the sanitation facility not functioning anymore due to wall collapses and the need to be partially reconstructed. In high storm surge areas, 11.33% of toilets were reported to be heavily damaged while inland this figure amounted to 10.06%. Moreover, within the 25 Km distance path this percentage increased to 14.25% and decreased to 10.11% and 3.68% respectively for 50 Km and 50+ Km distance path.

The increased access to sanitation in some affected barangays is mainly due to communal toilets built after Haiyan by the WASH agencies during the emergency response (4 HHs/communal toilets); though limited interventions with private toilets have been reported by the KIs in these barangays. This approach noticeably contributed to minimizing open defecation practices among the affected population. Despite these efforts, at present the quality of the access remains a concern - communal toilets are an emergency sanitation stopgap measure which cannot be guaranteed in post-emergency and recovery phases. Construction material for the superstructure, together with the construction methodologies utilized, has a limited life span against UV, temperature/humidity, wind, wind-blown rain and wind-blown debris. The unlined substructure could be prone to caving and collapses due to the infiltration of surface and subsurface water and potentially less durable. Moreover, communal toilets provide a lower level of service and present challenges in guaranteeing cleaning and maintenance operations as well as in providing long term dignity and privacy to users. In case of heavy wind or rain, damages to communal toilets could significantly compromise the achievements in sanitation access since November 2013 (see figure 2). Details of the sanitation access by municipality pre and post Haiyan is given in tables 12 - 17.

Table 11: Cebu - Sanitation access pre and post Haiyan

Province	Municipality	Sanitation access					
		% HH Before with Private Toilet	% HH Now with Private Toilet	% variation in HH using private toilet	% HH using communal toilet before	% HH now using communal toilet	% variation in HH using communal toilet
Cebu	Bantayan	48.99	52.28	3.29	9.23	10.93	1.70
	City of Bogó	59.05	55.52	-3.53	0.28	0.24	-0.04
	Borbon	76.79	73.35	-3.43	0.18	2.79	2.60
	Daanbantayan	65.25	56.15	-9.10	2.42	3.01	0.59
	Madridejos	42.78	43.93	1.15	8.47	7.53	-0.93
	Medellin	61.67	65.83	4.16	1.36	2.97	1.61
	Pilar_Cebu	86.35	83.14	-3.21	1.30	1.53	0.23
	Poro	84.76	71.50	-13.25	0.52	0.72	0.20
	San Francisco	68.76	68.61	-0.15	0.21	0.18	-0.03
	San_Remigio	74.58	69.01	-5.57	1.72	3.22	1.50
	Santa_Fe	44.81	43.74	-1.07	15.60	28.55	12.95
	Sogod	64.68	64.62	-0.06	0.00	0.00	0.00
	Tabogon	48.39	52.61	4.22	0.01	1.77	1.75
	Tabuelan	75.73	73.79	-1.95	0.89	2.47	1.58
	Tuburan	43.03	43.73	0.70	5.44	5.19	-0.25
Tudela	89.18	82.82	-6.36	0.83	1.31	0.48	

Table 12: Leyte - Sanitation access pre and post Haiyan

Province	Municipality	Sanitation access					
		% HH Before with Private Toilet	% HH Now with Private Toilet	% variation in HH using private toilet	% HH using communal toilet before	% HH now using communal toilet	% variation in HH using communal toilet
Leyte	Alangalang	58.89	47.19	-11.70	18.53	15.29	-3.24
	Albuera	68.01	64.36	-3.65	0.25	0.24	-0.01
	Babatngon	63.42	60.75	-2.67	6.27	6.39	0.12
	Barugo	62.99	57.19	-5.80	2.52	3.86	1.34
	Burauen	74.29	67.81	-6.47	0.79	2.31	1.52
	Calubian	49.70	45.71	-3.99	1.38	1.28	-0.10
	Capoocan	51.34	49.16	-2.18	9.77	12.98	3.21
	Carigara	68.97	64.32	-4.65	0.81	1.83	1.02
	Dagami	68.93	61.43	-7.50	0.19	3.83	3.64
	Dulag	67.44	51.23	-16.20	2.36	9.31	6.95
	Isabel	78.07	69.94	-8.12	8.63	6.79	-1.84
	Jaro	59.18	55.12	-4.06	3.33	3.65	0.32
	Javier_Bugho	80.58	76.27	-4.30	0.96	1.03	0.07
	Julita	71.88	76.13	4.24	0.59	0.47	-0.12
	Kananga	70.07	60.51	-9.57	6.10	9.22	3.12
	La_Paz	78.80	78.88	0.08	1.48	7.19	5.71
	Leyte	55.07	48.47	-6.60	1.12	0.95	-0.17
	Macarthur	81.33	67.18	-14.15	0.31	1.86	1.55
	Matag_Ob	55.96	45.11	-10.86	0.27	0.95	0.68
	Mayorga	87.88	71.84	-16.04	0.68	1.97	1.29
	Merida	75.69	61.68	-14.01	5.18	5.49	0.31
	Ormoc_City	77.51	63.90	-13.61	0.80	1.53	0.74
	Palo	76.81	67.01	-9.80	1.51	12.06	10.55
	Palompon	69.77	66.36	-3.42	0.52	0.64	0.13
	Pastrana	66.70	70.11	3.41	9.75	12.88	3.13
	San_Isidro	41.83	41.45	-0.39	3.50	0.32	-3.18
	San_Miguel	74.89	71.87	-3.02	2.05	2.77	0.72
	Santa Fe	83.23	69.95	-13.29	0.10	0.19	0.09
	Tabango	49.52	35.25	-14.27	1.56	4.33	2.77
	Tabontabon	78.29	76.75	-1.54	1.63	1.04	-0.60
Tacloban_City	76.55	69.92	-6.63	6.02	8.90	2.88	
Tanauan	81.30	67.01	-14.29	4.85	11.64	6.80	
Tolosa	72.48	56.18	-16.29	5.98	11.48	5.50	
Tunga	76.39	68.82	-7.58	0.00	0.00	0.00	
Villaba	52.47	53.64	1.18	1.73	1.82	0.08	

Table 13: Samar - Sanitation access pre and post Haiyan

Province	Municipality	Sanitation access					
		% HH Before with Private Toilet	% HH Now with Private Toilet	% variation in HH using private toilet	% HH using communal toilet before	% HH now using communal toilet	% variation in HH using communal toilet
Samar	Basey	70.88	58.95	-11.93	0.43	8.01	7.58
	Marabut	46.62	35.46	-11.16	1.31	9.02	7.71

Table 14: Eastern Samar - Sanitation access pre and post Haiyan

Province	Municipality	Sanitation access					
		% HH Before with Private Toilet	% HH Now with Private Toilet	% variation in HH using private toilet	% HH using communal toilet before	% HH now using communal toilet	% variation in HH using communal toilet
Eastern Samar	Balangiga	74.20	45.03	-29.17	3.63	16.42	12.79
	Balangkayan	79.48	74.63	-4.85	1.77	8.23	6.46
	Borongan City	81.41	82.59	1.18	4.98	5.47	0.49
	General McArthur	71.82	69.92	-1.90	0.73	1.19	0.46
	Giporlos	70.56	61.96	-8.60	3.41	8.89	5.48
	Guiuan	67.37	60.78	-6.59	3.17	3.55	0.38
	Hernani	86.20	58.69	-27.51	0.05	8.32	8.27
	Lawaan	67.95	58.28	-9.68	5.38	7.99	2.62
	Mercedes	67.11	68.69	1.58	4.32	3.55	-0.77
	Quinapondan	53.38	48.91	-4.47	0.96	2.91	1.95
	Salcedo	82.57	71.65	-10.91	0.58	5.61	5.02
	San Julian	77.86	76.57	-1.29	3.26	3.38	0.12

Table 15: Capiz - Sanitation access pre and post Haiyan

Province	Municipality	Sanitation access					
		% HH Before with Private Toilet	% HH Now with Private Toilet	% variation in HH using private toilet	% HH using communal toilet before	% HH now using communal toilet	% variation in HH using communal toilet
Capiz	Ivisan	80.26	78.39	-1.87	0.20	0.44	0.25
	Jamindan	73.45	68.25	-5.20	2.04	2.13	0.09
	Ma Ayon	74.69	76.33	1.64	0.92	1.14	0.22
	Panay	76.19	75.83	-0.36	2.24	2.35	0.11
	Panitan	81.37	80.38	-0.99	0.39	0.38	-0.01
	Pilar	59.61	51.34	-8.27	3.93	3.73	-0.20
	Pontevedra	77.35	75.36	-1.99	3.14	2.38	-0.76
	President Roxas	79.19	78.21	-0.98	1.74	1.73	-0.01
	Roxas City Capital	85.11	83.60	-1.51	1.90	2.17	0.27

Table 16: Iloilo - Sanitation access pre and post Haiyan

Province	Municipality	Sanitation access					
		% HH Before with Private Toilet	% HH Now with Private Toilet	% variation in HH using private toilet	% HH using communal toilet before	% HH now using communal toilet	% variation in HH using communal toilet
Iloilo	Balasan	70.09	69.45	-0.64	0.94	1.90	0.96
	Batad	63.41	53.62	-9.80	0.23	5.17	4.94
	Carles	57.25	54.88	-2.37	2.84	1.38	-1.46
	Concepcion	80.95	75.94	-5.01	1.09	2.19	1.10
	Estancia	70.60	70.89	0.29	2.32	2.31	-0.01
	San Dionisio	66.50	66.97	0.47	4.49	4.49	0.00
	Sara	79.39	77.07	-2.32	1.93	1.74	-0.18

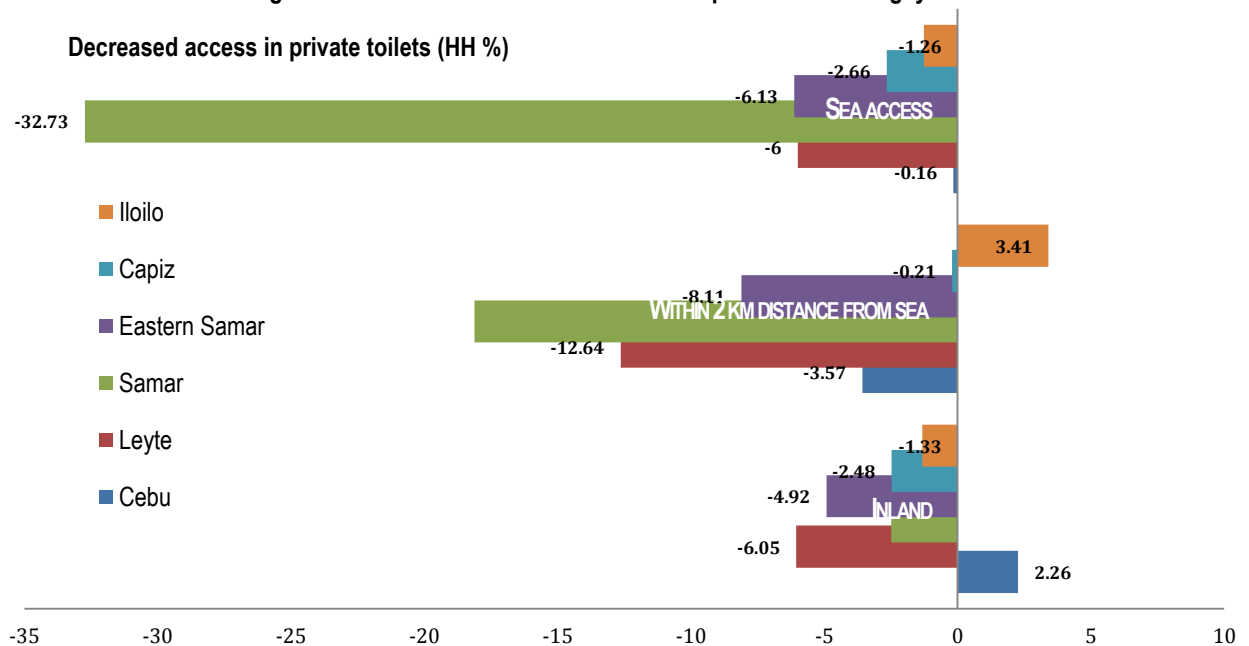
Photo 2: Communal toilets provided during the emergency phase and at present still implemented by some WASH Partners



Three questions on open defecation practices have been included in the KI questionnaire (1: is open defecation practiced?; 2: Is it perceived as a potential health problem?; and 3: has open defecation increased after Haiyan?). Considering open defecation practices, the answer options for KIs were Yes or No regardless the percentage of the population practicing it: this means that if one only person within the barangay practices open defecation, the answer selected was Yes. Consequently, these percentages do not provide the magnitude of the habit but only where this practice exists. Overall, open defecation is reported to be practiced in 75.4% of the barangays surveyed. Open defecation is perceived as a public health problem by 86.3% of the KIs and 58.4 % of them report that this practice has increased since Haiyan (table 4-9). Further municipality breakdown can be found in section 6

The relative position of the barangays and related impact of Haiyan on the water facilities has shown Figure 2: most of the damages (defined by proxy as the percentage reduction of the water access) are located in an area limited between the coastal line and 2 km inland: this is due not only to the combined effect of storm surge and wave action together with wind and flying objects but also to the he flooding of premises and fields (by lack of natural/man-made drainage and river flooding), water logging in fields and soil erosion. All these natural and induced hydrological elements should be better analyzed and above all considered in any DRR linked with the WASH or Shelter sectors.

Figure 2: Reduced sanitation access versus position of barangays



WASH EMERGENCY ASSISTANCE

The KI questionnaire included a section dedicated to the WASH assistance the affected population has received from WASH Actors since November 2013.

KI's were asked if their barangays were involved in the relief operation as per provision of hygiene family kits, emergency water supply (water trucking or distribution of bottled water), water disinfectant products, plumbing tool kits, masonry/carpentry tool kits, toilet repairing kits, shelter repairing kits, water/sanitation/shelter repair training and hygiene promotion initiatives.

The last question of the questionnaire was related to the market availability of personal hygiene items within the barangay. The Cluster wanted to establish access to hygiene materials to determine whether the need for a second round of hygiene kit distributions was needed. Table 5 summarizes the KI feedback at provincial level.

Table 17: Summary of the KI feedback at provincial level regarding humanitarian assistance

Province	Barangays (#)	Family Hygiene Kits (%)	%Water containers (%)	Emergency water trucking, bottled water (%)	Water disinfectant (%)	Plumbing tool kits (%)	Masonry /carpentry tool kits (%)	Toilet repair kit (%)	Shelter repair kit (%)	Water/ sanitation/ shelter repair training (%)	Hygiene promotion (%)	Sari sari stores selling personal hygiene products (%)
Cebu	328	66.5	53.3	73.2	45.6	17.3	51.4	19.4	56.8	27.3	59.6	98.5
Leyte	1305	78.1	80	73.2	75.2	12.4	62.1	12.4	41	27.9	52.5	96.9
Samar	75	93	92.2	81.3	77	28.8	63.2	19.6	56.6	27.3	68.9	96
Eastern Samar	324	86.1	87.6	81.2	82.4	22.2	79	28.7	56.2	41.4	65.1	98.5
Capiz	264	76.9	66.7	75.4	36.4	15.9	56.8	9.1	60.2	18.9	46.9	99.2
Iloilo	201	79.1	85.5	80.1	51.2	27.9	64.2	17.4	69.1	38.3	56.7	96

Overall, 80% of the KIs belonging to the 2,497 barangays surveyed declared that their barangay was involved in the distribution of family hygiene kits and 77.5% in water containers distribution; the emergency water supply (bottled water/trucking) and water disinfectant distribution covered respectively 77.4% and 61.3% of the assessed barangays and the hygiene promotion activities the 58.3%. Geographic coverage of distributions over the area assessed was also fairly high.

Lower figures are reported in emergency assistance related to the distribution of kits aimed to provide basic capacity to the affected HHs in repairing shelters and WASH infrastructure. The related assistance in WASH shows lower figures than the shelter assistance support provided. Plumbing tool kits and toilet repairing kits covered, respectively 20.7% and 17.8% of the assessed barangays; KIs declared that the shelter repairing kits and masonry/carpentry tool kits covered 56.6% and 62.8% of the surveyed barangays.

With high market availability to hygiene products (available in 97.5% of the assessed barangays), there seems to be no need for further hygiene kit replenishments.

WASH INTENTION SURVEY

In parallel to the WASH baseline assessment, an intention survey was conducted in April 2013 by the RAT team in order to provide a picture of the future plan of the WASH Partners against pre-Haiyan and present WASH findings.

Out of more than 25 partners in the WASH sector, 12 of them responded to a rapid intention questionnaire (see annex 5) in providing a general picture of their plans in water, sanitation, WASH software, vector control and waste management. In Cebu, 4 partners provide feedback, in Leyte 7 and 1 in Samar. The overall picture is summarized in table 6. It is noted however, that a number of large agencies have not contributed to the survey, hence limiting the findings.

Table 18: Intentions of WASH actors on their upcoming programs

	Leyte	Cebu	Samar	TOTAL
Total # agencies reporting	7	4	1	12
Total # of beneficiaries for:				
Water supply	297,505	10,118	0	307,623
Sanitation	190,344	9,000	25,350	224,694
Software	349,563	7,000	24,350	380,913
Vector	23,963	0	0	23,963
Waste	23,963	0	0	23,963

WATER AND SANITATION

In Leyte, respondents have an intention to cover LI, LII, LIII water supply systems with specific emphasis on LII services. Water supply, together with the provision of sanitation in schools, are planned by 100% of the partners in Leyte as well in Cebu. In Samar, the only respondent is planning to cover sanitation needs in schools without the water supply component. Water and sanitation intervention in hospitals are not planned by any agency in Leyte and only 20% of partners in Cebu (no data for East or West Samar).

Willingness to pay assessments for water supply are planned on by 57% of the respondents in Leyte and 40% in Cebu (no data for East or West Samar): this scenario makes it difficult to understand the sustainability, investment plans and exit strategies for the partners involved in the construction/rehabilitation/extension of LII and LIII WSS. Moreover, considering that 86% of the partners in Leyte and 40% in Cebu are planning the installation/rehabilitation of water treatments plants, it is not clear how the operation and maintenance costs could be covered to guarantee long term sustainability. The willingness to pay assessment for sanitation services are planned by the 43% of the partners in Leyte, 20% in Cebu and 0% in Samar. Also in this case, cost and interventions related to sustainability options like desludging and environmental health issues are not clear.

The construction of sewerage treatment systems and provision of desludging services are planned respectively by 29% and 57% of the partners in Leyte, in Cebu 20% for both activities and 0% for both activities in Samar.

Knowledge Management Documentation (KMD) for water and sanitation is planned by 86% of the agencies in Leyte, 100% in Cebu and 0% in Samar.

Water for shelter is planned by 57% of the respondents in Leyte and 60% in Cebu. Interventions in sanitation for shelter in Leyte and Cebu are planned respectively by the 43% and 60% of the respondents.

WASH SOFTWARE

Hygiene promotion is planned by 71% of the respondents in Leyte, 100% in Cebu and 100% in Samar. The Zero Open Defecation initiative shows similar intentions in the three provinces.

Limited interest on water safety plans, environmental health services, sustainable service scale (3S) is showed by all respondents in all provinces. By proxy, this finding could represent a limited interest of partners in long term commitments in capacity building for communities and local/national authorities and probably a limited skill level in implementing these approaches in the Philippines despite the favourable social and cultural conditions.

Similar considerations about research and innovative WASH approaches and water quality monitoring programmes exist.

VECTOR CONTROL

Vector control in its four approaches proposed by questionnaire (1- Environmental Management for Vector Control, 3- System-wide Initiative on Malaria and Agriculture -SIMA, 3- Basic approach: vector control in specific sites - insecticide, larvicide, sensitization campaigns, ITN, LLINs, IRS and 4- Provision of equipment to public/private counterpart - sprayers any type, protection gears, vehicles, dewatering pumps, insecticide stock etc.) recorded limited or null interest by the respondents. Those interested are mainly planning a so-called "Basic Approach".

WASTE MANAGEMENT (SOLID AND MEDICAL WASTE)

Only Leyte is the focus of any waste management intentions. 71% of the respondents are interested on waste management in communities while 57% are planning capacity building in waste management for local or national counterparts and waste reduction programs.

Construction of, and fix-term management of landfills are planned by 29% of the respondents.

14% of the participants in the intention survey are planning medical waste management in hospitals.

TECHNICAL DESCRIPTIONS

This section provides a technical description of the primary data collected, and the sources of secondary data for complimentary analysis, as well as making recommendations on how to best utilise the baseline data.

DEMOGRAPHICS

Urban/Rural: Barangay located in urban or rural areas as per Philippines Statistic Authority – National Statistic Office.

Inland/within 2 km from the coastal are/sea access: position of the barangays respect the coastal line. This information is necessary when dealing with DRR activities in order to define potential hazards and mitigation measures. Sea access = barangay with direct access to the coastal line where storm surge and waves action are potentially active. 2 km from the coastal area = flooding (rivers or run off) and water logging are potential hazards together with storm surge and wave action. It includes the sea access. Inland = river and run off flooding are the main hazards. Soil erosion and wind damages, flying objects are common hazards for all the three areas.

A municipality has been considered as coastal when more than 50% of the barangays are coastal.

Census population before (#): number of individuals as per 2010-2013 population census by Philippines National Statistics Coordination Board NSCB (secondary data)

Population before and Household before (#): number of individuals and households in a specific location (barangay or municipality) before Haiyan. Information collected by KIIs (primary data)

Population now and Households now (#): number of individuals and households in a specific location (barangay or municipality) in April 2014. Information collected by KII (primary data)

Variation in population before Haiyan (%): variation in % between population (individuals) before Haiyan (primary data) vs census by the Philippines NSCB (secondary data). It defines positive or negative trends in population variation in a specific area of interest (barangay or municipality) before Haiyan vs census figures. This information can help WASH partners to define the pre-Haiyan degree of stress in the utilization of the WASH facilities in a specific project site (number of water points/users, yield of boreholes/springs versus water demand, number of users/km of water main, sanitation coverage, solid/liquid waste production versus transport/treatment/disposal capacity, etc). Health sector partners can utilize this information to define health coverage versus number of users.

Population growth factor: annual increase of the population

Population growth factor in Region VI Easter Visayas: 1.38

Population growth factor in Region VII Central Visayas: 1.98

Population growth factor in Region VIII Eastern Visayas: 1.48

(source: Philippines Statistic Authority – National Statistic Office, <http://www.census.gov.ph/>)

Variation in population before and after Haiyan (%): variation in % between population (individuals) before Haiyan (primary data) and after Haiyan (primary data). It defines positive or negative trends in population variation in a specific area of interest (barangay or municipality) before and after Haiyan. This information can help WASH partners to define WASH needs versus new population figures. Health and livelihood partners can utilize these data for specific sectoral planning activities.

Area (Km²): area of barangays based on WGS 1984 UTM Zone 51N geographic coordinate projection.

Population density (#/Km²): at barangay level, number individuals (primary data)/ Km² at present. This data provides support to studies on relationship between sanitation, population density, and fecal-associated health problems, epidemiology in prevention of outbreaks as well as cost-benefit analysis for LII and LIII water supply systems

Population density Region VI: 342

Population density Region VII: 428

Population density Region VIII: 176

(Source: Philippines Statistic Authority – National Statistic Office, <http://www.census.gov.ph/>)

Committee active in WASH: any committee at barangay level active in WASH (hardware and software activities) at present. This data provides information on WASH governance at barangay level, presence of potential health and WASH interlocutors (implementation, capacity building and M&E activities)

BHW or CHVs present: Barangay Health Workers or Community Health Volunteers active at barangay level at present.

Severity score and Rank: Severity score was generated from secondary data using a multivariate formula incorporating physical factors (storm surge, proximity to storm path, etc), reported affected population statistics and baseline vulnerability indicators. Data originally compiled by Miguel Antonio from the Barcelona School of Economics and geo-referenced by MapAction, UN-OCHA, MSF-UK, and WFP.

MGB Geo-hazard map coverage: this data indicated if a specific area (barangay or municipality) is included in the present 1:50,000 scale landslide and flood susceptibility maps produced and disseminated by the Mines and Geo-Sciences Bureau (MGB) - <http://gdis.denr.gov.ph/mgbviewer/>.

The GIS based maps provide also information on:

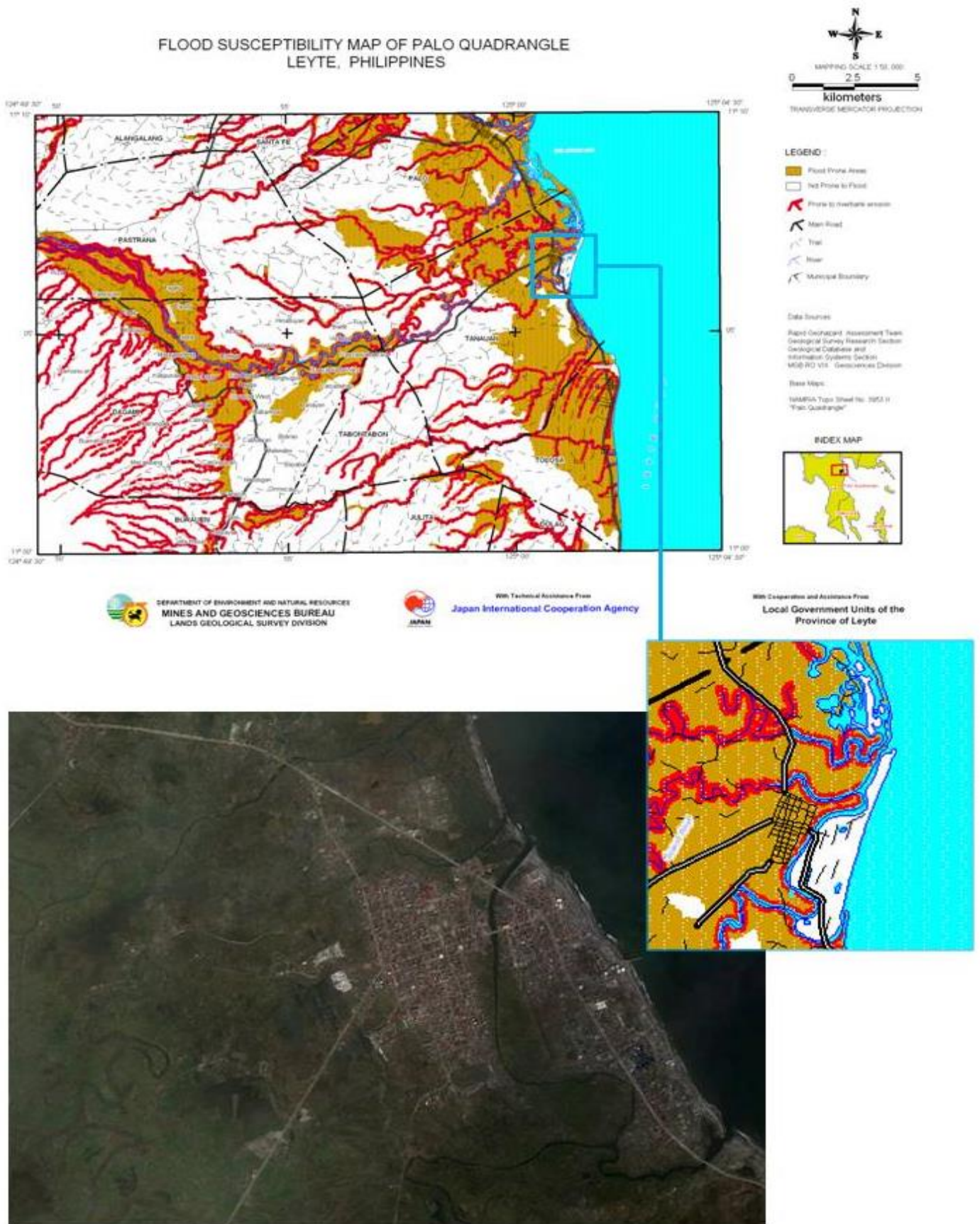
- Geology
- Drains
- Roads
- Shoreline
- Waterbodies
- Mining Tenement Map
- Mineral Resources
- GEOBIBS

In addition, MGB is presently involved in a detailed geohazards mapping program at 1:10,000 scale which aims to identify specific high risk zones, critical sites, and unstable areas within specific target areas. The maps will also delineate highly vulnerable portions of the target areas that might require follow-up and more detailed technical works. Possible relocation/ evacuation sites following natural disasters or geohazard events will be also identified. Primary emphasis is placed on the flood/flashflood and landslide hazards susceptibility analysis. The detailed geohazard mapping and assessment program is expected to be completed in 2014.

It is important to underline that the new thematic maps will not provide information on mitigation measures needed to be taken for environmental management, flood/landslide risks mitigation, water resources and water facilities protection as well as civil engineering standards. Consequently, the present maps (scale 1:50,000 and the basic geomorphologic analysis of Google Earth imageries, provide enough data to users to recognise if their areas of intervention are in flood/landslide prone areas and to take all the technical and management actions to mitigate or reduce mid or long term natural disaster damages.

MGB maps, together with Google Earth imageries, can identify critical portions of the coastal areas, as well as river basin catchment systems, urbanised and cultivated land and industrial settlements. Moreover, relevant geomorphologic features indicating flood prone areas (floodplains with oxbow lakes, rills, confluences where two or more watercourses meet) can provide users with information on how to build back safer and DRR strategies. Figure 3 displays an example of the level of detail on flood susceptibility in a coastal area (Palo) that users can obtain by crossing the MGB maps and GoogleEarth imageries.

Map 3: Example of freely available online information for DRR approaches, example location used is the Palo area,



Leyte province (sources, MGB and Google Earth)

WATER SUPPLY SYSTEMS

WATER SUPPLY SYSTEM Level I (LI WSS)

Level I (point source) systems include a protected well (with or without hand pump), a developed spring or rain water catchment system with an outlet but without a distribution system. These systems are generally adaptable for rural areas where the houses are thinly scattered. Level I infrastructure provides for least 20 L/p/d, it serves around 15 to 25 households and its outreach must not be more than 250 meters from the farthest user. The Philippine National Standards for Drinking Water –PD 856, mentions that the yield or discharge is generally from 40 to 140 liters per minute. Water fees are not collected (source: the Department of Public Works and Highways-DPWH).

Tubewells before Haiyan (#): total number of tubewells equipped with hand pump before Haiyan regardless of whether they are working on non-working. This figure considers only tubewells utilized by the population for drinking water. [Information related to water access, service coverage and service quality].

Tubewells working before Haiyan (#): number of working tubewells equipped with hand pump before Haiyan utilized by the population for drinking water only. [Information related to water access, service coverage and service quality].

Tubewells working before Haiyan (%): difference in % between total and working number of tubewells equipped with hand pump utilized for drinking water before Haiyan. [Information related to water access, service coverage, governance and operation and maintenance (O&M) capacity at barangay level].

Tubewell working now (#): number of currently working tubewells equipped with hand pump utilized by the population for drinking water. [Information related to water access, service coverage and service quality]. This figure includes also new tubewells constructed or rehabilitated after Haiyan as part of the WASH emergency response.

Variation in tubewells before and now (%): variation in number of working tubewells equipped with hand pump and utilized by the population for drinking water before Haiyan and currently. This figure includes also new tubewells constructed or rehabilitated after Haiyan as part of the WASH emergency response. [Information related to possible impact of Haiyan on LI water supply].

HHs using tubewells before (#): number of HHs using tubewells equipped with hand pump for drinking purpose before Haiyan. [Information related to water access, service coverage, water quality and public health risk exposure].

HHs using tubewells before (%): percentage of HHs within a barangay using tubewells equipped with hand pump for drinking purpose before Haiyan. [Information related to water access, service coverage, water quality and public health risk exposure].

HHs using tubewells now (#): number of HHs currently using tubewells equipped with hand pump for drinking purpose [Information related to water access, service coverage, water quality and public health risk exposure].

HHs using tubewells now (%): percentage of HHs within a barangay currently using tubewells equipped with hand pump for drinking purpose [Information related to water access, service coverage. Information on water access related to possible impact of Haiyan on LI water supply].

WATER SUPPLY SYSTEM Level II (LII WSS)

Level II (communal faucet system or stand posts) systems are composed of a source (well, borehole or spring), a reservoir, a piped distribution network and two or more communal faucets located at not more than 25 meters from the farthest house, with each faucet serving from four to six households. These systems are generally suitable for rural and urban fringe areas where houses are clustered densely to justify a simple piped system. Level II infrastructure provides for at least 60 litres per person per day (40-80 L/p/d following the National Standards for Drinking Water – PD 856). Water is not metered (source: the Department of Public Works and Highways-DPWH).

Total LII WSS before (#): total number of LII WSS before Haiyan, both functioning and non-functioning. . [Information related to water access, service coverage, governance and O&M capacity, potential for water mains extension, water treatment options, rehabilitation/reconstruction options, water quality and public health risk exposure].

Working LII WSS before (#): number of LII WSS working before Haiyan. [Information related to water access, service coverage, governance and O&M capacity.]

Working LII WSS before (%): difference in % between total and working number of LII WSS before Haiyan. Information related to water access, service coverage, governance and O&M capacity at barangay level.

Working LII WSS at present (#): number of LII WSS currently working. This figure may include also new/rehabilitated LII WSS after Haiyan as part of the WASH emergency response.

Working LII WSS at present (%): difference in % between the number of working LII WSS before Haiyan and the current number working. This figure also includes new/rehabilitated LII WSS after Haiyan as part of the WASH emergency response. [Information related to possible impact of Haiyan on LII water supply systems.]

Lost LII WSS at present (%): percentage of LII WSS damaged due to Haiyan.

LII WSS not functioning now (#): number of LII WSS damaged due to Haiyan. This figure does not consider those LII WSS not working before Haiyan.

Reason why not functioning: KIs were asked to explain why the LII WSS in their barangay were not currently working. Options for answers were: power supply, infrastructure (borehole or spring box damages, water mains damages, water towers/reservoirs damages), low yield of water source and do not' know [Information related to governance, financial capacity and O&M capacity at barangay level].

WATER SUPPLY SYSTEM Level III (LIII WSS)

Level III (waterworks systems or individual household connections) are systems with a source, a reservoir, a piped distribution network and household taps. It is generally suited for populated areas. Level III infrastructure provides for at least 100 litres per person per day. This level of facility requires a minimum level of disinfection treatment. A Water metering policy allows for water fees collection (source: the Department of Public Works and Highways - DPWH)

LIII WSS before (Y/N): barangay covered by a LIII WSS before Haiyan. [Information on quality of service and service coverage before Haiyan in a specific barangay.]

HHs using LIII WSS before (%): percentage of HHs using LIII WSS for drinking water before Haiyan. This figure includes all HHs utilizing LIII WSS for drinking water regardless if the HHs are located in a barangay that is not served by a LIII WSS - in peri-urban areas where only LI WSS is available, most HHs buy drinking water from HHs which are connected to a LIII WSS (informal drinking water market).

LIII WSS now (Y/N): barangay currently covered by a LIII WSS. This figure also includes any rehabilitation/water mains extensions provided by the WASH emergency response, from November 2013 to April 2014. [Information on the current quality of service and service coverage in a specific barangay. Possible indicator of Haiyan impact on LIII WSS.]

HHs using LIII WSS now (%): percentage of HHs currently using a LIII WSS for drinking water. This figure includes all HHs utilizing LIII WSS for drinking water also regardless if the HHs are located in a barangay that is not served by a LIII WSS: in peri-urban areas where only LI WSS supply is available, most of the HHs buy drinking water from HHs which are connected to a LIII WSS (informal drinking water market). Possible indicator of Haiyan impact on LIII WSS.

Chlorination practiced at present (Y/N): KIs declared that the chlorination of water is a known practice and practiced by HHs in the barangay but not necessarily by the entire population of the barangay. This information does not provide any figure on the % of the population which treat the water before drinking: it provides only an indication of the knowledge level of the HHs on water quality issues. Last December 2013, 70 % of the 6,247 HHs interviewed declared that they do not treat water before drinking it (*Typhoon Haiyan Shelter and WASH Assessment – Philippines – January 2013. REACH-WASH Cluster*). The recent Shelter and WASH Response Monitoring Report – 22 April 2014, REACH-WASH Cluster, quotes the following figures for HH water treatment practices:

Before Haiyan, 72 per cent of the interviewed households reported that they did not treat the water before drinking it. Data from the assessments in December 2013 and March 2014 show an increased number of the population treating water at the household level in urban areas (19 per cent increase), while household water treatment in rural areas amounted to only about a one per cent increase.

Table 19: Temporal and Urban/Rural differences in Water Treatment at HH level

	PERIOD	Water treatment at HH level	
		No (%)	Yes (%)
Rural	Dec 2013	69.3	30.07
	March 2014	70.88	29.12
Urban	Dec 2013	81.17	18.83
	March 2014	62.56	37.44

Water quality tested (Y/N): KIs were asked if currently the quality of the water sources utilized for drinking purposes were regularly tested for bacteriological and chemical parameters linked to public health concerns.

To properly contextualize this question with public health concerns related to the drinking water quality, secondary data was collected on the distribution of water kits and water disinfectant, and the results of water analysis from three main WASH actors from December 2013 to end of March 2014. 60% of the total 290 water sources analyzed were positive to coliforms with 71% and 73% peaks respectively for LI and unprotected water sources utilized for drinking water. Emergency water supply by water trucking and bladders showed 50% of the water points without free residual chlorine and positivity to coliforms (see table 22).

Table 20: Bacterial analysis of different source of drinking water

Type of source	Coliform (P - Presence; A - Absence)				
	Analysis (#)	Presence (#)	Absent (#)	No data (#)	% P
LI	92	65	11	4	71%
LII	60	35	20	2	58%
LIII	67	22	3	1	33%
Unprotected water sources	71	52	15	0	73%
Total	290	174	49	7	60%

Each of the three agencies that provided information on water quality analyses utilized different testing methodologies for coliforms: (1) membrane filtration (able to detect total and faecal coliforms); (2) the Presence/Absent method (designed to detect the presence or absence of total and faecal coliforms in a water sample. This test does not enumerate the level of coliforms but simply indicates whether or not they are present); and (3) the Petrifilm method used to enumerate total coliforms and E. Coli.

Due to the different testing methodologies, the magnitude of the organic pollution cannot be univocally measured. Turbidity, temperature and pH tests were not carried out together with the organic analysis of the same water sample. This approach does not assist in defining the most appropriate mid and long term water treatment strategies at HH or community level, taking into account related cost-benefits and sustainability aspects. In instances when water disinfectant products are used, lack of turbidity, temperature and pH information limits the fine tuning of a chlorination process aimed to increase the palatability of treated water or to reduce the risk of gastric problems. Data on turbidity becomes even more relevant in cases where tubewells or boreholes are utilized - this is true for tubewells exploiting only shallow aquifers (2-3 m depth) which are hydro-geologically influenced by precipitation and subsurface water circulation and boreholes that do not have any information on screens or case efficiency and conditions.

For rural areas, pesticide contamination of drinking water sources is not taken into account by current water quality testing. Some WASH actors gave the lack of a budget as a reason for not taking turbidity measures, but the turbidity tube can be home-made at a limited cost – around 5 USD⁵.

GPS positions of the analysed water points are not routinely recorded, consequently there is a redundancy risk in water testing as well as difficulties for other partners to follow-up water quality related activities.

Among agencies, there is not a common and standardised terminology to univocally describe the points from where water samples are taken: at present, there are 24 different ways to describe the type of water sources or distribution points where water has been tested. This gap, together with the lack of GPS positions, makes it challenging to use the results by other stakeholders not directly involved in the water analysis campaign (short term issues), and increases the risk of losing the institutional memory (mid/long term issue). Table 9 displays the different water source terminology encountered in the Philippines.

⁵ <http://www.cas.umn.edu/assets/pdf/Turbidity%20Tube.pdf>

http://caistage.nku.edu/orsanco_upgrade/jupgrade/images/stories/files/riverwatchers/chemicaltests/turbidity.pdf

Table 21: Contradictory terminology utilized to identify water sources in water analysis campaigns

#	Terminology
1	Hand pump
2	Jetmatic Pump
3	Pitcher Pump
4	Shallow dugwell
6	Dugwell
7	Spring
8	LMWD (open pipe)
9	MCWD
10	LMWD
11	Communal facet (LMWD)
12	Communal Dist Faucet
13	Wash Project
14	Purifier
15	Spring Reservoir
16	Water bladder
17	McArthur Water Supply System
18	MSF
19	Water Refilling Station
20	product water (Pyomitz WRS)
21	Filtration
22	Level I
23	Level II
24	Level III

SANITATION

HHs with private toilets before Haiyan (#): before Haiyan, the number of HHs within the barangay which have access to their own toilet which is not shared with other HHs (population referred to pre Haiyan). [Information related to sanitation access and quality of the service].

HHs with private toilet before Haiyan (%): before Haiyan, the percentage of HHs within the barangay which have access to their own toilet which is not shared with other HHs (population figure referred to pre Haiyan). [Information related to sanitation access and quality of the service].

HHs currently with private toilet at present (#): number of HHs within the barangay which currently have access to their own toilet which are not shared with other HHs (population referred to present). This figure also includes emergency toilets provided by WASH Partners during the WASH emergency response. [Information related to sanitation access and quality of the service. Indicator for Haiyan impact on sanitation access].

HHs with private toilet at present (%): % of HHs within the barangay which currently have access to their own toilet which are not shared with other HHs (population referred to present). This figure also includes emergency toilets provided by WASH Partners during the WASH emergency response. [Information related to sanitation access and quality of the service. Indicator for Haiyan impact on sanitation] access.

HHs using communal toilets before Haiyan (#): before Haiyan, number of HHs within the barangay which are sharing a toilet (population referred to pre Haiyan). [Information related to sanitation access and quality of the] service.

HHs using communal toilets before Haiyan (%): before Haiyan, percentage of HHs within the barangay which are sharing a toilet (population referred to pre Haiyan). [Information related to sanitation access and quality of the service].

HHs currently using communal toilets (#): currently, number of HHs within the barangay which are sharing a toilet (population referred to present). [Information related to sanitation access and quality of the service. Indicator for Haiyan impact on sanitation access].

HHs currently using communal toilets (%): currently, percentage of HHs within the barangay which are sharing a toilet (population referred to pre Haiyan). [Information related to sanitation access and quality of the service. Indicator for Haiyan impact on sanitation access].

Open defecation (Y/N): KIs were asked if open defecation is practiced by HHs living in the barangay. This information does not provide any figure on the number or percentage of population practicing open defecation.

Is open defecation perceived as a problem? (Y/N): KIs were asked if open defecation is perceived as a potential health problem by HHs living in the barangay.

Open defecation increasing (Y/N): KIs were asked if open defecation has increased since Haiyan.

Land tenure issue (Y/N/ do not know): KIs were asked if there were HHs in the barangay which were not allowed to build permanent toilets, or portions of land where the construction of permanent structures was not allowed.

EMERGENCY ASSISTANCE POST HAIYAN

The questionnaire included ten questions for KIs to ascertain if their respective barangays have been involved in the WASH or Shelter emergency response. They were limited to a Yes or No response - answering Yes meant that the barangay received either WASH NFI or emergency shelter assistance, but it does not necessarily mean that the entire population of the barangay has been covered. The main objective of this section of the questionnaire is to identify the main gaps in the assistance provided at barangay level within a specific municipality, as well as to identify the type of assistance not provided from a list of ten items, kits or services:

1. Family hygiene kits;
2. Water containers (any type);
3. Water trucking or distribution of bottled water;
4. Water disinfectant;
5. Plumbing tool kits;
6. Masonry/carpentry tool kits;
7. Toilet repair kit/emergency toilet kit;
8. Shelter repair kits;
9. Water/sanitation/shelter repair trainings;
10. Hygiene promotion

KIs were also asked if there were sari sari stores in their barangay selling personal hygiene items (a measure of market availability).

Unfortunately, there is limited data available regarding on-going M&E activities aimed to assess the impact of these relief operations on the living conditions of the beneficiaries. If a more comprehensive assessment of impact was to be undertaken, it would include verifying the level of standardization of content of the kits and replenishment strategies and beneficiary selection criteria implemented in the response. The Philippines WASH Cluster has a standard hygiene and water kit, but it would be useful to verify the compliance to this standard.

BASELINE RESULTS

Table 22: Municipality breakdown of availability to infrastructure - Part 1

Province	Municipality	Barangay (#)	Pop Now (#)	HH Now (#)	Total Tube well Before (#)	Working Tube wells Before (#)	% Functional Before	Working Tube wells Now (#)	% Gap of tubewells working now and working before	HH using Tubewell Before (#)	% HH using Tubewell before	HH using Tubewell Now (#)	% HH using Tube well Now	Barangay where Cholirination is Practised (#)	% Barangay where Cholirination is Practised	Barangay where Water Quality is Tested (#)	% Barangay where Water Quality is Tested	Severity Score	Severity Rank	MGB Data
Capiz	Ivisan	15	30157	6751	181	165	91.2	154	-7.1	1939	29.1	2308	34.2	6	40.0	8	53.3	0.5064	64	Yes
Capiz	Jamindan	30	49586	8491	289	236	81.7	220	-7.3	1196	14.0	1482	17.5	7	23.3	8	26.7	0.4117	116	Yes
Capiz	Ma Ayon	32	39793	8238	208	190	91.3	185	-2.7	4775	56.2	4905	59.5	5	15.6	8	25.0	0.461	92	Yes
Capiz	Panay	42	54744	12060	133	114	85.7	105	-8.6	355	2.8	375	3.1	25	59.5	30	71.4	0.5199	57	Yes
Capiz	Panitan	26	45815	9597	510	479	93.9	446	-7.4	5248	55.0	4969	51.8	8	30.8	14	53.8	0.4978	75	Yes
Capiz	Pilar	24	40666	10107	75	71	94.7	63	-12.7	2425	26.3	2271	22.5	11	45.8	12	50.0	0.6559	24	Yes
Capiz	Pontevedra	26	51082	10130	177	156	88.1	155	-0.6	3339	32.9	3442	34.0	17	65.4	13	50.0	0.578	43	Yes
Capiz	Pres. Roxas	22	36098	7288	49	45	91.8	37	-21.6	1067	14.9	1077	14.8	4	18.2	8	36.4	0.5986	37	Yes
Capiz	Roxas City	47	180054	40352	345	343	99.4	294	-16.7	2503	6.2	2289	5.7	30	63.8	37	78.7	0.7619	10	Yes
Iloilo	Balasan	23	31877	7836	139	98	70.5	85	-15.3	2714	35.5	2958	37.7	10	43.5	12	52.2	0.7273	14	Yes
Iloilo	Batad	24	20643	5047	59	56	94.9	54	-3.7	893	18.4	1005	19.9	12	50.0	16	66.7	0.6153	31	Yes
Iloilo	Carles	33	74642	16516	242	151	62.4	144	-4.9	2464	15.5	2400	14.5	31	93.9	27	81.8	0.7911	6	Yes
Iloilo	Concepcion	25	39894	9490	213	196	92.0	162	-21.0	3371	37.0	3285	34.6	13	52.0	19	76.0	0.7217	15	Yes
Iloilo	Estancia	25	51508	11353	190	172	90.5	156	-10.3	3607	32.4	3567	31.4	12	48.0	19	76.0	0.938	4	Yes
Iloilo	San Dionisio	29	41616	8646	127	123	96.9	112	-9.8	3341	38.8	3077	35.6	10	34.5	12	41.4	0.5708	48	Yes
Iloilo	Sara	42	57764	13261	468	448	95.7	384	-16.7	6224	47.7	6927	52.2	16	38.1	28	66.7	0.4663	89	Yes
Cebu	Bantayan	25	82546	18397	47	37	78.7	36	-2.8	1398	7.6	828	4.5	23	92.0	21	84.0	0.9818	3	Yes
Cebu	City of Bogo	29	79968	20480	84	77	91.7	67	-14.9	1661	8.4	1240	6.1	27	93.1	28	96.6	0.5257	55	Yes
Cebu	Borbon	19	44643	8395	17	15	88.2	12	-25.0	165	2.0	178	2.1	19	100.0	15	78.9	0.4331	111	Yes
Cebu	Daanbantayan	20	85262	20620	25	21	84.0	16	-31.3	1645	8.5	630	3.1	16	80.0	16	80.0	0.7826	7	Yes
Cebu	Madridejos	14	38155	8151	36	30	83.3	30	0.0	560	7.2	560	6.9	14	100.0	14	100.0	0.9821	2	Yes
Cebu	Medellin	19	56634	11893	37	37	100.0	34	-8.8	1705	14.5	1030	8.7	17	89.5	16	84.2	0.6838	19	Yes
Cebu	Pilar_Cebu	13	12895	3202	0	0	0.0	0	0.0	0	0.0	0	0.0	9	69.2	7	53.8	0.4907	78	Yes
Cebu	Poro	17	27039	6394	4	4	100.0	4	0.0	33	0.5	39	0.6	8	47.1	14	82.4	0.3645	134	Yes
Cebu	San Francisco	15	48602	10825	43	39	90.7	39	0.0	310	2.9	313	2.9	10	66.7	12	80.0	0.457	97	Yes
Cebu	San Remigio	27	57394	13867	28	28	100.0	21	-33.3	492	3.6	550	4.0	23	85.2	22	81.5	0.6854	18	Yes
Cebu	Santa Fe	10	28885	6312	112	111	99.1	112	0.9	1400	22.5	1400	22.2	9	90.0	10	100.0	0.9822	1	Yes
Cebu	Sogod	18	35357	8295	18	17	94.4	9	-88.9	808	10.0	486	5.9	15	83.3	18	100.0	0.315	151	Yes
Cebu	Tabogon	25	46644	9004	21	16	76.2	5	-220.0	1220	14.7	320	3.6	25	100.0	25	100.0	0.4704	87	Yes
Cebu	Tabuelan	12	33699	6676	3	3	100.0	3	0.0	0	0.0	0	0.0	11	91.7	10	83.3	0.4053	119	Yes
Cebu	Tuburan	54	76233	15933	146	122	83.6	116	-5.2	2315	15.3	2245	14.1	40	74.1	45	83.3	0.3454	143	Yes
Cebu	Tudela	11	11413	2677	12	11	91.7	11	0.0	10	0.4	10	0.4	5	45.5	8	72.7	0	0	
Eastern Samar	Balangiga	13	15266	3313	57	57	100.0	54	-5.6	891	28.3	681	20.6	12	92.3	11	84.6	0.5073	63	Yes
Eastern Samar	Balangayan	15	10541	2235	34	34	100.0	21	-61.9	458	20.3	255	11.4	13	86.7	7	46.7	0.2905	161	Yes
Eastern Samar	Borongan City	61	80120	15316	347	325	93.7	319	-1.9	6304	42.3	6081	39.7	29	47.5	32	52.5	0.3161	150	Yes
Eastern Samar	Gen McArthur	30	17630	3275	7	6	85.7	5	-20.0	55	1.7	65	2.0	19	63.3	23	76.7	0.4662	90	Yes

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Eastern Samar	Giporlos	18	15493	3218	100	95	95.0	86	-10.5	1648	54.6	1844	57.3	15	83.3	11	61.1	0.5785	42	Yes
Eastern Samar	Guiuan	60	56360	12625	252	231	91.7	198	-16.7	4446	35.2	4181	33.1	50	83.3	31	51.7	0.9013	5	Yes
Eastern Samar	Hernani	13	11080	2019	65	65	100.0	9	-622.2	406	20.3	445	22.0	10	76.9	12	92.3	0.5813	40	Yes
Eastern Samar	Lawaan	16	13105	3027	98	93	94.9	70	-32.9	1722	59.3	1591	52.6	13	81.3	6	37.5	0.4871	79	Yes
Eastern Samar	Mercedes	16	7248	1466	51	50	98.0	44	-13.6	675	47.0	677	46.2	14	87.5	13	81.3	0.7217	16	Yes
Eastern Samar	Quinapondan	25	17094	3439	19	19	100.0	12	-58.3	576	17.2	309	9.0	22	88.0	24	96.0	0.7022	17	Yes
Eastern Samar	Salcedo	41	25225	5207	89	87	97.8	93	6.5	1094	21.3	1470	28.2	28	68.3	26	63.4	0.6784	20	Yes
Eastern Samar	San Julian	16	14397	3316	49	47	95.9	54	13.0	1490	46.2	1434	43.2	12	75.0	4	25.0	0	0	
Leyte	Alangalang	54	57941	12835	508	437	86.0	386	-13.2	5307	43.3	5576	43.4	32	59.3	31	57.4	0.4442	104	Yes
Leyte	Albuera	16	47208	11802	463	463	100.0	462	-0.2	2539	22.5	2335	19.8	8	50.0	8	50.0	0.4859	80	Yes
Leyte	Babatngon	25	29831	6367	51	49	96.1	44	-11.4	2755	46.0	2929	46.0	9	36.0	10	40.0	0.4423	105	Yes
Leyte	Barugo	37	36754	7101	175	166	94.9	139	-19.4	1832	26.2	1808	25.5	23	62.2	25	67.6	0.5212	56	Yes
Leyte	Burauen	77	55609	12704	140	140	100.0	118	-18.6	794	6.5	495	3.9	43	55.8	45	58.4	0.4679	88	Yes
Leyte	Calubian	53	36954	9122	156	98	62.8	67	-46.3	1457	16.7	1381	15.1	20	37.7	20	37.7	0.3912	125	Yes
Leyte	Capoocan	21	33330	7757	19	13	68.4	13	0.0	45	0.6	28	0.4	5	23.8	7	33.3	0.4532	98	Yes
Leyte	Carigara	49	54276	11683	45	28	62.2	25	-12.0	229	2.0	229	2.0	32	65.3	26	53.1	0.5198	59	Yes
Leyte	Dagami	65	37444	8461	105	95	90.5	66	-43.9	1163	13.9	1004	11.9	31	47.7	23	35.4	0.4783	86	Yes
Leyte	Dulag	45	51181	11276	666	614	92.2	437	-40.5	7046	64.0	6617	58.7	16	35.6	24	53.3	0.6741	21	Yes
Leyte	Isabel	24	47125	13778	34	26	76.5	21	-23.8	79	0.7	25	0.2	11	45.8	11	45.8	0.6623	23	Yes
Leyte	Jaro	46	45582	9833	245	207	84.5	150	-38.0	2118	21.2	1998	20.3	14	30.4	14	30.4	0.4832	83	Yes
Leyte	Javier_Bugho	28	25228	6217	176	169	96.0	169	0.0	2389	38.7	2100	33.8	22	78.6	4	14.3	0.386	127	Yes
Leyte	Julita	26	18029	3837	139	120	86.3	112	-7.1	2394	64.2	2491	64.9	16	61.5	14	53.8	0.5009	71	Yes
Leyte	Kananga	23	60722	13921	123	106	86.2	108	1.9	2082	16.7	1866	13.4	17	73.9	17	73.9	0.5798	41	Yes
Leyte	La_Paz	35	22435	5118	282	276	97.9	244	-13.1	1954	40.2	2043	39.9	20	57.1	17	48.6	0.5177	60	Yes
Leyte	Leyte	30	44266	9481	37	35	94.6	33	-6.1	646	7.0	646	6.8	21	70.0	16	53.3	0.5026	68	Yes
Leyte	Macarthur	31	22233	5173	182	169	92.9	127	-33.1	1759	35.8	1690	32.7	12	38.7	13	41.9	0.5731	46	Yes
Leyte	Matag_Ob	21	28980	4649	2	2	100.0	1	-100.0	55	1.2	0	0.0	19	90.5	19	90.5	0.5064	65	Yes
Leyte	Mayorga	16	17674	4066	145	97	66.9	91	-6.6	1963	51.4	2877	70.8	11	68.8	13	81.3	0.6421	27	Yes
Leyte	Merida	22	31772	8382	20	20	100.0	20	0.0	500	6.5	480	5.7	17	77.3	9	40.9	0.5564	50	Yes
Leyte	Ormoc_City	110	216439	56331	117	111	94.9	106	-4.7	1585	3.0	1571	2.8	84	76.4	85	77.3	0.5514	52	Yes
Leyte	Palo	33	76689	17845	32	27	84.4	19	-42.1	30	0.2	30	0.2	13	39.4	8	24.2	0.6056	35	Yes
Leyte	Palompon	50	64346	15093	164	155	94.5	141	-9.9	2644	17.9	2070	13.7	32	64.0	21	42.0	0.615	32	Yes
Leyte	Pastrana	29	17332	4145	87	81	93.1	62	-30.6	530	13.1	419	10.1	21	72.4	15	51.7	0.4798	85	Yes
Leyte	San_Isidro	19	31035	8500	54	49	90.7	37	-32.4	1551	19.0	1469	17.3	17	89.5	17	89.5	0.5017	69	Yes
Leyte	San_Miguel	21	20036	4447	27	27	100.0	14	-92.9	875	19.9	700	15.7	18	85.7	17	81.0	0.347	141	Yes
Leyte	Santa_Fe	20	20683	5367	98	83	84.7	75	-10.7	1791	36.2	1710	31.9	15	75.0	14	70.0	0.4348	110	Yes
Leyte	Tabango	13	36219	9013	71	66	93.0	57	-15.8	3595	40.8	4024	44.6	12	92.3	9	69.2	0.5605	49	Yes
Leyte	Tabontabon	16	10665	2800	32	31	96.9	27	-14.8	480	18.2	491	17.5	12	75.0	8	50.0	0.6018	36	Yes
Leyte	Tacloban_City	138	257766	61869	485	377	77.7	282	-33.7	2139	3.6	1330	2.1	127	92.0	118	85.5	0.7467	12	Yes
Leyte	Tanauan	54	57028	14513	247	207	83.8	181	-14.4	2807	21.2	2455	16.9	43	79.6	34	63.0	0.7614	11	Yes
Leyte	Tolosa	15	20847	5069	144	125	86.8	115	-8.7	2910	58.6	2679	52.9	11	73.3	11	73.3	0.776	8	Yes
Leyte	Tunga	8	8766	1985	13	13	100.0	9	-44.4	457	25.0	457	23.0	6	75.0	7	87.5	0.5773	44	Yes
Leyte	Villaba	35	44743	12117	13	13	100.0	13	0.0	458	3.8	391	3.2	21	60.0	20	57.1	0.5885	38	Yes
Samar	Basey	51	58997	12897	177	152	85.9	104	-46.2	4031	31.2	2971	23.0	24	47.1	30	58.8	0.5053	66	Yes
Samar	Marabut	24	19232	4380	63	53	84.1	41	-29.3	778	17.6	424	9.7	12	50.0	13	54.2	0.5268	54	Yes

Table 23: Municipality breakdown of availability to infrastructure - Part 2

Province	Municipality	Barangay (#)	Total LIWS before (#)	Total working LIWS before (#)	HH using LII Before (#)	% HH using LII Before	LII Working Now (#)	% LII WSS Working Now	% LII WSS Gap of working now and before	HH using LII now (#)	% HH using LII now	Barangay served by LIII WSS Before (#)	% Barangay served by LIII WSS Before	Barangay not served by LIII WSS Before (#)	% Barangay served by LIII WSS Before	Barangay served by LIII WSS Now (#)	% Barangay served by LIII WSS Now	Barangay not served by LIII WSS Now (#)	% Barangay not served by LIII WSS Now	% HH using LIII WSS before	% HH served by LIII WSS Now
Capiz	Ivisan	15	65	25	611	9.2	11	44.0	56.0	617	9.1	8	53.3	7	46.7	8	53.3	7	46.7	25.6	25.4
Capiz	Jamindan	30	39	38	1013	11.9	34	89.5	10.5	965	11.4	3	10.0	27	90.0	2	6.7	28	93.3	7.0	6.5
Capiz	Ma Ayon	32	13	9	125	1.5	7	77.8	22.2	85	1.0	0	0.0	32	100.0	0	0.0	32	100.0	0.0	0.0
Capiz	Panay	42	15	15	320	2.6	15	100.0	0.0	325	2.7	32	76.2	10	23.8	32	76.2	10	23.8	61.8	64.3
Capiz	Panitan	26	3	3	88	0.9	2	66.7	33.3	36	0.4	10	38.5	16	61.5	9	34.6	17	65.4	14.9	15.0
Capiz	Pilar	24	24	14	552	6.0	9	64.3	35.7	382	3.8	8	33.3	16	66.7	8	33.3	16	66.7	25.0	24.1
Capiz	Pontevedra	26	27	27	1193	11.7	27	100.0	0.0	1279	12.6	13	50.0	13	50.0	12	46.2	14	53.8	19.1	19.0
Capiz	Pres. Roxas	22	17	14	576	8.0	16	114.3	-14.3	589	8.1	4	18.2	18	81.8	4	18.2	18	81.8	8.6	8.0
Capiz	Roxas City	47	0	0	1	0.0	1	0.0	0.0	1	0.0	46	97.9	1	2.1	46	97.9	1	2.1	82.5	83.1
Iloilo	Balasan	23	11	11	235	3.1	9	81.8	18.2	21	0.3	0	0.0	23	100.0	0	0.0	23	100.0	0.0	0.0
Iloilo	Batad	24	11	8	808	16.6	7	87.5	12.5	448	8.9	0	0.0	24	100.0	0	0.0	24	100.0	0.0	0.0
Iloilo	Carles	33	34	33	2634	16.6	25	75.8	24.2	1790	10.8	3	9.1	30	90.9	1	3.0	32	97.0	3.1	1.8
Iloilo	Concepcion	25	15	13	1256	13.8	11	84.6	15.4	809	8.5	4	16.0	21	84.0	4	16.0	21	84.0	14.5	14.0
Iloilo	Estancia	25	7	6	1035	9.3	6	100.0	0.0	935	8.2	7	28.0	18	72.0	7	28.0	18	72.0	29.8	29.8
Iloilo	San Dionisio	29	22	22	2016	23.4	21	95.5	4.5	2031	23.5	2	6.9	27	93.1	3	10.3	26	89.7	9.7	13.7
Iloilo	Sara	42	15	14	1030	7.9	14	100.0	0.0	1034	7.8	10	23.8	32	76.2	9	21.4	33	78.6	14.8	14.6
Cebu	Bantayan	25	49	48	1179	6.4	44	91.7	8.3	1174	6.4	18	72.0	7	28.0	17	68.0	8	32.0	45.8	51.0
Cebu	City of Bogo	29	7	7	394	2.0	5	71.4	28.6	351	1.7	25	86.2	4	13.8	26	89.7	3	10.3	47.5	49.7
Cebu	Borbon	19	10	10	701	8.6	10	100.0	0.0	701	8.4	17	89.5	2	10.5	19	100.0	0	0.0	55.3	63.0
Cebu	Daanbantayan	20	24	24	230	1.2	16	66.7	33.3	135	0.7	17	85.0	3	15.0	17	85.0	3	15.0	43.7	53.3
Cebu	Madridejos	14	28	28	491	6.3	25	89.3	10.7	804	9.9	13	92.9	1	7.1	13	92.9	1	7.1	63.3	61.8
Cebu	Medellin	19	2	2	464	3.9	2	100.0	0.0	464	3.9	17	89.5	2	10.5	17	89.5	2	10.5	57.5	60.5
Cebu	Pilar_Cebu	13	0	0	0	0.0	0	0.0	0.0	0	0.0	13	100.0	0	0.0	13	100.0	0	0.0	95.6	96.2
Cebu	Poroc	17	19	19	868	13.7	18	94.7	5.3	888	13.9	15	88.2	2	11.8	15	88.2	2	11.8	77.8	78.7
Cebu	San Francisco	15	14	14	1742	16.3	9	64.3	35.7	1226	11.3	12	80.0	3	20.0	12	80.0	3	20.0	65.3	65.5
Cebu	San Remigio	27	15	15	312	2.3	16	106.7	-6.7	1835	13.2	24	88.9	3	11.1	24	88.9	3	11.1	55.8	52.8
Cebu	Santa Fe	10	29	29	1210	19.5	28	96.6	3.4	1210	19.2	4	40.0	6	60.0	4	40.0	6	60.0	15.6	15.2
Cebu	Sogod	18	6	6	880	10.9	6	100.0	0.0	900	10.8	13	72.2	5	27.8	14	77.8	4	22.2	44.5	46.0
Cebu	Tabogon	25	2	2	95	1.1	2	100.0	0.0	110	1.2	23	92.0	2	8.0	23	92.0	2	8.0	47.5	60.8
Cebu	Tabuelan	12	0	0	0	0.0	0	0.0	0.0	0	0.0	11	91.7	1	8.3	9	75.0	3	25.0	80.8	74.3
Cebu	Tuburan	54	52	49	1177	7.8	47	95.9	4.1	1170	7.3	24	44.4	30	55.6	23	42.6	31	57.4	29.1	30.3
Cebu	Tudela	11	14	14	578	21.7	13	92.9	7.1	588	22.0	7	63.6	4	36.4	7	63.6	4	36.4	63.7	63.4
Eastern Samar	Balangiga	13	6	6	1105	35.1	6	100.0	0.0	992	29.9	7	53.8	6	46.2	7	53.8	6	46.2	36.2	42.2
Eastern Samar	Balangayan	15	7	7	485	21.5	7	100.0	0.0	437	19.6	9	60.0	6	40.0	9	60.0	6	40.0	43.6	43.3
Eastern Samar	Borongan City	61	49	49	3630	24.3	46	93.9	6.1	3345	21.8	24	39.3	37	60.7	22	36.1	39	63.9	14.2	11.6
Eastern Samar	Gen McArthur	30	28	27	1225	38.9	27	100.0	0.0	1307	39.9	9	30.0	21	70.0	9	30.0	21	70.0	22.9	25.1
Eastern Samar	Giporlos	18	13	13	703	23.3	12	92.3	7.7	748	23.2	9	50.0	9	50.0	2	11.1	16	88.9	15.4	10.2

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Eastern Samar	Guiuan	60	29	29	3177	25.1	25	86.2	13.8	2614	20.7	29	48.3	31	51.7	29	48.3	31	51.7	24.3	24.7
Eastern Samar	Hernani	13	5	5	304	15.2	6	120.0	-20.0	304	15.1	6	46.2	7	53.8	3	23.1	10	76.9	21.7	11.8
Eastern Samar	Lawaan	16	12	12	1070	36.9	7	58.3	41.7	819	27.1	15	93.8	1	6.3	14	87.5	2	12.5	22.0	20.4
Eastern Samar	Mercedes	16	14	14	602	42.0	6	42.9	57.1	292	19.9	1	6.3	15	93.8	1	6.3	15	93.8	11.6	12.2
Eastern Samar	Quinapondan	25	10	9	753	22.5	8	88.9	11.1	1002	29.1	5	20.0	20	80.0	5	20.0	20	80.0	14.1	14.2
Eastern Samar	Salcedo	41	38	37	2088	40.6	33	89.2	10.8	1679	32.2	19	46.3	22	53.7	18	43.9	23	56.1	18.5	18.6
Eastern Samar	San Julian	16	5	5	411	12.7	5	100.0	0.0	413	12.5	11	68.8	5	31.3	11	68.8	5	31.3	31.9	34.7
Leyte	Alangalang	54	30	24	987	8.1	17	70.8	29.2	862	6.7	13	24.1	41	75.9	6	11.1	48	88.9	3.8	0.9
Leyte	Albuera	16	21	20	1868	16.6	16	80.0	20.0	1736	14.7	9	56.3	7	43.8	9	56.3	7	43.8	21.6	21.6
Leyte	Babatngon	25	26	23	2334	38.9	20	87.0	13.0	2171	34.1	5	20.0	20	80.0	5	20.0	20	80.0	8.2	9.3
Leyte	Barugo	37	9	9	616	8.8	8	88.9	11.1	388	5.5	22	59.5	15	40.5	23	62.2	14	37.8	31.4	30.7
Leyte	Burauen	77	46	45	2728	22.4	38	84.4	15.6	2715	21.4	46	59.7	31	40.3	45	58.4	32	41.6	48.3	47.8
Leyte	Calubian	53	45	43	3192	36.7	36	83.7	16.3	2989	32.8	10	18.9	43	81.1	9	17.0	44	83.0	6.6	6.3
Leyte	Capoocan	21	38	35	3416	45.0	25	71.4	28.6	2814	36.3	3	14.3	18	85.7	3	14.3	18	85.7	12.3	11.6
Leyte	Carigara	49	15	15	1127	9.8	13	86.7	13.3	990	8.5	27	55.1	22	44.9	27	55.1	22	44.9	46.3	46.4
Leyte	Dagami	65	10	9	679	8.1	7	77.8	22.2	487	5.8	35	53.8	30	46.2	31	47.7	34	52.3	30.1	29.3
Leyte	Dulag	45	37	37	331	3.0	37	100.0	0.0	331	2.9	14	31.1	31	68.9	15	33.3	30	66.7	12.6	11.0
Leyte	Isabel	24	31	31	3941	32.6	29	93.5	6.5	3757	27.3	19	79.2	5	20.8	19	79.2	5	20.8	67.3	61.8
Leyte	Jaro	46	52	50	2327	23.3	26	52.0	48.0	2053	20.9	8	17.4	38	82.6	7	15.2	39	84.8	16.6	16.3
Leyte	Javier_Bugho	28	21	20	2840	46.0	20	100.0	0.0	2867	46.1	0	0.0	28	100.0	1	3.6	27	96.4	0.0	3.2
Leyte	Julita	26	2	2	70	1.9	1	50.0	50.0	55	1.4	10	38.5	16	61.5	10	38.5	16	61.5	16.3	17.7
Leyte	Kananga	23	50	50	3604	28.9	44	88.0	12.0	3576	25.7	11	47.8	12	52.2	10	43.5	13	56.5	29.4	26.8
Leyte	La_Paz	35	19	18	1565	32.2	18	100.0	0.0	1536	30.0	7	20.0	28	80.0	6	17.1	29	82.9	13.6	13.1
Leyte	Leyte	30	43	40	3496	38.0	37	92.5	7.5	3083	32.5	4	13.3	26	86.7	3	10.0	27	90.0	12.2	11.1
Leyte	Macarthur	31	17	16	615	12.5	8	50.0	50.0	388	7.5	18	58.1	13	41.9	17	54.8	14	45.2	20.0	20.9
Leyte	Matag_Ob	21	39	38	1646	37.0	34	89.5	10.5	1760	37.9	7	33.3	14	66.7	8	38.1	13	61.9	21.8	22.5
Leyte	Mayorga	16	2	2	248	6.5	1	50.0	50.0	244	6.0	0	0.0	16	100.0	0	0.0	16	100.0	0.0	0.0
Leyte	Merida	22	31	31	3361	43.6	30	96.8	3.2	3627	43.3	10	45.5	12	54.5	10	45.5	12	54.5	45.3	40.3
Leyte	Ormoc_City	11	141	137	8584	16.5	134	97.8	2.2	9065	16.1	83	75.5	27	24.5	82	74.5	28	25.5	54.4	53.9
Leyte	Palo	33	3	3	2	0.0	4	133.3	-33.3	59	0.3	29	87.9	4	12.1	28	84.8	5	15.2	70.0	71.9
Leyte	Palompon	50	75	73	4525	30.7	67	91.8	8.2	4461	29.6	22	44.0	28	56.0	21	42.0	29	58.0	35.7	34.4
Leyte	Pastrana	29	0	0	0	0.0	0	0.0	0.0	0	0.0	27	93.1	2	6.9	20	69.0	9	31.0	55.9	37.9
Leyte	San_Isidro	19	13	12	597	7.3	11	91.7	8.3	542	6.4	5	26.3	14	73.7	5	26.3	14	73.7	5.7	4.8
Leyte	San_Miguel	21	4	4	344	7.8	3	75.0	25.0	257	5.8	12	57.1	9	42.9	12	57.1	9	42.9	40.4	41.9
Leyte	Santa Fe	20	14	9	602	12.2	6	66.7	33.3	302	5.6	8	40.0	12	60.0	8	40.0	12	60.0	25.6	24.6
Leyte	Tabango	13	20	20	2565	29.1	21	105.0	-5.0	1737	19.3	6	46.2	7	53.8	5	38.5	8	61.5	32.2	29.7
Leyte	Tabontabon	16	0	0	0	0.0	0	0.0	0.0	0	0.0	13	81.3	3	18.8	13	81.3	3	18.8	51.7	49.0
Leyte	Tacloban_City	13	121	90	4287	7.2	46	51.1	48.9	2999	4.8	121	87.7	17	12.3	122	88.4	16	11.6	57.9	52.7
Leyte	Tanauan	54	23	20	784	5.9	3	15.0	85.0	109	0.8	29	53.7	25	46.3	28	51.9	26	48.1	49.9	46.2
Leyte	Tolosa	15	35	35	1177	23.7	31	88.6	11.4	492	9.7	6	40.0	9	60.0	6	40.0	9	60.0	19.4	19.2
Leyte	Tunga	8	0	0	0	0.0	0	0.0	0.0	0	0.0	6	75.0	2	25.0	6	75.0	2	25.0	63.1	61.5
Leyte	Villaba	35	65	65	5932	48.7	62	95.4	4.6	5517	45.5	11	31.4	24	68.6	13	37.1	22	62.9	12.4	14.4
Samar	Basey	51	48	48	2803	21.7	44	91.7	8.3	2388	18.5	19	37.3	32	62.7	18	35.3	33	64.7	13.7	15.3
Samar	Marabut	24	22	22	1232	27.9	21	95.5	4.5	921	21.0	2	8.3	22	91.7	2	8.3	22	91.7	3.6	3.8

Table 24: Municipality breakdown of sanitation conditions

Province	Municipality	Barangays (#)	HHs with private toilet before (#)	% HH Before with Private Toilet	HHs with private toilet now (#)	% HH Now with Private Toilet	HHs using communal toilet before (#)	% HH using communal toilet before	HHs using communal toilet now (#)	% HH now using communal toilet	HH before with access to toilets (private or communal) (#)	% HH before with access to toilets (private or communal) (#)	HH present with access to toilets (private or communal) (#)	% HH now with access to toilets (private or communal)	% Baranagay reported Open defecation occurring	% Baranagay reported Open defecation is a health problem	% Baranagay reported Open Defecation increased after Yolanda	% Land status issues for latrine construction
Capiz	Ivisan	15	5341	80.3	5292	78.4	13	0.2	30	0.4	5354	80.5	5322	78.8	80.0	93.3	33.3	26.7
Capiz	Jamindan	30	6266	73.4	5795	68.2	174	2.0	181	2.1	6440	75.5	5976	70.4	53.3	76.7	40.0	23.3
Capiz	Ma Ayon	32	6349	74.7	6288	76.3	78	0.9	94	1.1	6427	75.6	6382	77.5	90.6	96.9	62.5	31.3
Capiz	Panay	42	9509	76.2	9145	75.8	280	2.2	284	2.4	9789	78.4	9429	78.2	64.3	66.7	40.5	40.5
Capiz	Panitan	26	7764	81.4	7714	80.4	37	0.4	36	0.4	7801	81.8	7750	80.8	65.4	96.2	57.7	19.2
Capiz	Pilar	24	5495	59.6	5189	51.3	362	3.9	377	3.7	5857	63.5	5566	55.1	87.5	83.3	70.8	45.8
Capiz	Pontevedra	26	7860	77.4	7634	75.4	319	3.1	241	2.4	8179	80.5	7875	77.7	80.8	88.5	57.7	38.5
Capiz	President	22	5684	79.2	5700	78.2	125	1.7	126	1.7	5809	80.9	5826	79.9	90.9	86.4	68.2	27.3
Capiz	Roxas City	47	34176	85.1	33733	83.6	761	1.9	874	2.2	34937	87.0	34607	85.8	51.1	66.0	34.0	40.4
Iloilo	Balasan	23	5361	70.1	5442	69.4	72	0.9	149	1.9	5433	71.0	5591	71.4	60.9	78.3	39.1	43.5
Iloilo	Batad	24	3080	63.4	2706	53.6	11	0.2	261	5.2	3091	63.6	2967	58.8	91.7	100.0	91.7	25.0
Iloilo	Carles	33	9111	57.3	9064	54.9	452	2.8	228	1.4	9563	60.1	9292	56.3	75.8	100.0	51.5	36.4
Iloilo	Concepcion	25	7370	81.0	7207	75.9	99	1.1	208	2.2	7469	82.0	7415	78.1	72.0	96.0	68.0	24.0
Iloilo	Estancia	25	7849	70.6	8048	70.9	258	2.3	262	2.3	8107	72.9	8310	73.2	76.0	76.0	60.0	28.0
Iloilo	San Dionisio	29	5719	66.5	5790	67.0	386	4.5	388	4.5	6105	71.0	6178	71.5	72.4	86.2	44.8	55.2
Iloilo	Sara	42	10348	79.4	10220	77.1	251	1.9	231	1.7	10599	81.3	10451	78.8	54.8	66.7	50.0	16.7
Cebu	Bantayan	25	9014	49.0	9618	52.3	1698	9.2	2011	10.9	10712	58.2	11629	63.2	88.0	96.0	64.0	72.0
Cebu	City of Bogu	29	11609	59.0	11370	55.5	55	0.3	50	0.2	11664	59.3	11420	55.8	75.9	82.8	58.6	20.7
Cebu	Borbon	19	6252	76.8	6158	73.4	15	0.2	234	2.8	6267	77.0	6392	76.1	100.0	100.0	47.4	21.1
Cebu	Daanbantayan	20	12626	65.3	11578	56.1	469	2.4	621	3.0	13095	67.7	12199	59.2	95.0	95.0	85.0	90.0
Cebu	Madridejos	14	3325	42.8	3581	43.9	658	8.5	614	7.5	3983	51.2	4195	51.5	78.6	92.9	64.3	64.3
Cebu	Medellin	19	7257	61.7	7829	65.8	160	1.4	353	3.0	7417	63.0	8182	68.8	89.5	84.2	47.4	15.8
Cebu	Pilar_Cebu	13	2650	86.3	2662	83.1	40	1.3	49	1.5	2690	87.7	2711	84.7	100.0	76.9	61.5	23.1
Cebu	Poro	17	5371	84.8	4572	71.5	33	0.5	46	0.7	5404	85.3	4618	72.2	100.0	100.0	76.5	23.5
Cebu	San Francisco	15	7364	68.8	7427	68.6	23	0.2	20	0.2	7387	69.0	7447	68.8	80.0	100.0	60.0	33.3
Cebu	San Remigio	27	10084	74.6	9569	69.0	233	1.7	447	3.2	10317	76.3	10016	72.2	81.5	88.9	77.8	55.6
Cebu	Santa Fe	10	2784	44.8	2761	43.7	969	15.6	1802	28.5	3753	60.4	4563	72.3	60.0	70.0	60.0	60.0
Cebu	Sogod	18	5214	64.7	5360	64.6	0	0.0	0	0.0	5214	64.7	5360	64.6	88.9	83.3	66.7	16.7
Cebu	Tabogon	25	4019	48.4	4737	52.6	1	0.0	159	1.8	4020	48.4	4896	54.4	88.0	92.0	88.0	96.0
Cebu	Tabuelan	12	4940	75.7	4926	73.8	58	0.9	165	2.5	4998	76.6	5091	76.3	91.7	91.7	50.0	25.0
Cebu	Tuburan	54	6490	43.0	6967	43.7	820	5.4	827	5.2	7310	48.5	7794	48.9	75.9	88.9	75.9	44.4
Cebu	Tudela	11	2374	89.2	2217	82.8	22	0.8	35	1.3	2396	90.0	2252	84.1	45.5	72.7	45.5	9.1
Eastern	Balangiga	13	2333	74.2	1492	45.0	114	3.6	544	16.4	2447	77.8	2036	61.5	84.6	100.0	84.6	23.1
Eastern	Balangayan	15	1793	79.5	1668	74.6	40	1.8	184	8.2	1833	81.3	1852	82.9	60.0	80.0	53.3	26.7
Eastern	Borongan City	61	12141	81.4	12649	82.6	743	5.0	838	5.5	12884	86.4	13487	88.1	62.3	72.1	37.7	36.1
Eastern	Gen. McArthur	30	2261	71.8	2290	69.9	23	0.7	39	1.2	2284	72.6	2329	71.1	70.0	80.0	56.7	13.3
Eastern	Giporlos	18	2131	70.6	1994	62.0	103	3.4	286	8.9	2234	74.0	2280	70.9	83.3	94.4	72.2	22.2
Eastern	Guiuan	60	8517	67.4	7674	60.8	401	3.2	448	3.5	8918	70.5	8122	64.3	88.3	86.7	75.0	21.7

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Eastern	Hernani	13	1724	86.2	1185	58.7	1	0.1	168	8.3	1725	86.3	1353	67.0	76.9	84.6	69.2	23.1
Eastern	Lawaan	16	1972	68.0	1764	58.3	156	5.4	242	8.0	2128	73.3	2006	66.3	62.5	87.5	43.8	12.5
Eastern	Mercedes	16	963	67.1	1007	68.7	62	4.3	52	3.5	1025	71.4	1059	72.2	62.5	81.3	12.5	18.8
Eastern	Quinapondan	25	1784	53.4	1682	48.9	32	1.0	100	2.9	1816	54.3	1782	51.8	80.0	92.0	68.0	40.0
Eastern	Salcedo	41	4248	82.6	3731	71.7	30	0.6	292	5.6	4278	83.1	4023	77.3	68.3	87.8	48.8	19.5
Eastern	San Julian	16	2511	77.9	2539	76.6	105	3.3	112	3.4	2616	81.1	2651	79.9	87.5	93.8	62.5	0.0
Leyte	Alangalang	54	7216	58.9	6057	47.2	2270	18.5	1962	15.3	9486	77.4	8019	62.5	64.8	81.5	64.8	33.3
Leyte	Albuera	16	7664	68.0	7596	64.4	28	0.2	28	0.2	7692	68.3	7624	64.6	81.3	100.0	56.3	25.0
Leyte	Babatngon	25	3801	63.4	3868	60.8	376	6.3	407	6.4	4177	69.7	4275	67.1	88.0	100.0	60.0	28.0
Leyte	Barugo	37	4405	63.0	4061	57.2	176	2.5	274	3.9	4581	65.5	4335	61.0	73.0	81.1	43.2	21.6
Leyte	Burauen	77	9034	74.3	8615	67.8	96	0.8	294	2.3	9130	75.1	8909	70.1	67.5	72.7	40.3	31.2
Leyte	Calubian	53	4326	49.7	4170	45.7	120	1.4	117	1.3	4446	51.1	4287	47.0	94.3	96.2	77.4	20.8
Leyte	Capoccan	21	3898	51.3	3813	49.2	742	9.8	1007	13.0	4640	61.1	4820	62.1	85.7	95.2	66.7	33.3
Leyte	Carigara	49	7964	69.0	7515	64.3	94	0.8	214	1.8	8058	69.8	7729	66.2	85.7	87.8	42.9	20.4
Leyte	Dagami	65	5749	68.9	5198	61.4	16	0.2	324	3.8	5765	69.1	5522	65.3	76.9	87.7	56.9	16.9
Leyte	Dulag	45	7428	67.4	5777	51.2	260	2.4	1050	9.3	7688	69.8	6827	60.5	42.2	77.8	42.2	35.6
Leyte	Isabel	24	9440	78.1	9637	69.9	1043	8.6	935	6.8	10483	86.7	10572	76.7	70.8	70.8	62.5	12.5
Leyte	Jaro	46	5917	59.2	5420	55.1	333	3.3	359	3.7	6250	62.5	5779	58.8	78.3	97.8	89.1	19.6
Leyte	Javier_Bugho	28	4974	80.6	4742	76.3	59	1.0	64	1.0	5033	81.5	4806	77.3	67.9	96.4	39.3	3.6
Leyte	Julita	26	2682	71.9	2921	76.1	22	0.6	18	0.5	2704	72.5	2939	76.6	65.4	73.1	57.7	11.5
Leyte	Kananga	23	8732	70.1	8423	60.5	760	6.1	1284	9.2	9492	76.2	9707	69.7	87.0	100.0	82.6	4.3
Leyte	La_Paz	35	3828	78.8	4037	78.9	72	1.5	368	7.2	3900	80.3	4405	86.1	62.9	82.9	40.0	2.9
Leyte	Leyte	30	5060	55.1	4595	48.5	103	1.1	90	0.9	5163	56.2	4685	49.4	96.7	100.0	83.3	20.0
Leyte	Macarthur	31	3999	81.3	3475	67.2	15	0.3	96	1.9	4014	81.6	3571	69.0	71.0	71.0	54.8	12.9
Leyte	Matag_Ob	21	2492	56.0	2097	45.1	12	0.3	44	0.9	2504	56.2	2141	46.1	71.4	76.2	47.6	42.9
Leyte	Mayorga	16	3357	87.9	2921	71.8	26	0.7	80	2.0	3383	88.6	3001	73.8	31.3	68.8	25.0	31.3
Leyte	Merida	22	5836	75.7	5170	61.7	399	5.2	460	5.5	6235	80.9	5630	67.2	100.0	95.5	77.3	36.4
Leyte	Ormoc_City	110	40317	77.5	35993	63.9	414	0.8	864	1.5	40731	78.3	36857	65.4	67.3	79.1	50.9	30.0
Leyte	Palo	33	13607	76.8	11958	67.0	267	1.5	2152	12.1	13874	78.3	14110	79.1	69.7	78.8	66.7	27.3
Leyte	Palompon	50	10286	69.8	10015	66.4	76	0.5	97	0.6	10362	70.3	10112	67.0	82.0	96.0	36.0	26.0
Leyte	Pastrana	29	2694	66.7	2906	70.1	394	9.8	534	12.9	3088	76.5	3440	83.0	48.3	48.3	34.5	55.2
Leyte	San_Isidro	19	3422	41.8	3523	41.4	286	3.5	27	0.3	3708	45.3	3550	41.8	78.9	68.4	57.9	26.3
Leyte	San_Miguel	21	3289	74.9	3196	71.9	90	2.0	123	2.8	3379	76.9	3319	74.6	81.0	90.5	71.4	33.3
Leyte	Santa_Fe	20	4115	83.2	3754	69.9	5	0.1	10	0.2	4120	83.3	3764	70.1	100.0	100.0	65.0	45.0
Leyte	Tabango	13	4360	49.5	3177	35.2	137	1.6	390	4.3	4497	51.1	3567	39.6	100.0	100.0	69.2	61.5
Leyte	Tabontabon	16	2063	78.3	2149	76.8	43	1.6	29	1.0	2106	79.9	2178	77.8	75.0	87.5	31.3	18.8
Leyte	Tacloban_City	138	45836	76.5	43256	69.9	3604	6.0	5508	8.9	49440	82.6	48764	78.8	56.5	84.1	52.2	52.9
Leyte	Tanauan	54	10781	81.3	9725	67.0	643	4.8	1690	11.6	11424	86.1	11415	78.7	63.0	83.3	53.7	25.9
Leyte	Tolosa	15	3600	72.5	2848	56.2	297	6.0	582	11.5	3897	78.5	3430	67.7	60.0	93.3	66.7	46.7
Leyte	Tunga	8	1398	76.4	1366	68.8	0	0.0	0	0.0	1398	76.4	1366	68.8	75.0	75.0	37.5	50.0
Leyte	Villaba	35	6389	52.5	6500	53.6	211	1.7	220	1.8	6600	54.2	6720	55.5	91.4	88.6	65.7	20.0
Samar	Basey	51	9171	70.9	7603	59.0	55	0.4	1033	8.0	9226	71.3	8636	67.0	74.5	92.2	64.7	39.2
Samar	Marabut	24	2059	46.6	1553	35.5	58	1.3	395	9.0	2117	47.9	1948	44.5	95.8	95.8	66.7	37.5

Table 25: Municipality breakdown of assistance reportedly to be received

Province	Municipality	# of barangays	%Family Hygiene Kits	%Water containers	%Water (trucking, bottled)	%Water disinfectant	%Plumbing tool kits	%Masonry/ carpentry tool kits	%Toilet repair kit	%Shelter repair kit	%Water/sanitation/shelter repair training	%Hygiene promotion	%Sari Sari Stores available
Capiz	Ivisan	15	93.3	80.0	60.0	86.7	53.3	66.7	20.0	80.0	46.7	73.3	100.0
Capiz	Jamindan	30	83.3	83.3	83.3	53.3	16.7	43.3	13.3	56.7	20.0	40.0	100.0
Capiz	Ma Ayon	32	78.1	71.9	81.3	25.0	21.9	71.9	18.8	71.9	15.6	62.5	100.0
Capiz	Panay	42	78.6	52.4	57.1	21.4	2.4	38.1	2.4	57.1	19.0	33.3	100.0
Capiz	Panitan	26	88.5	96.2	80.8	38.5	11.5	65.4	3.8	53.8	11.5	46.2	100.0
Capiz	Pilar	24	66.7	50.0	66.7	45.8	4.2	45.8	0.0	54.2	12.5	25.0	100.0
Capiz	Pontevedra	26	96.2	76.9	84.6	42.3	30.8	92.3	7.7	80.8	26.9	80.8	100.0
Capiz	President Roxas	22	63.6	63.6	77.3	31.8	13.6	45.5	18.2	50.0	13.6	45.5	100.0
Capiz	Roxas City	47	59.6	48.9	83.0	23.4	12.8	55.3	6.4	51.1	17.0	38.3	95.7
Iloilo	Balasan	23	69.6	87.0	69.6	30.4	34.8	69.6	0.0	82.6	34.8	65.2	100.0
Iloilo	Batad	24	70.8	62.5	83.3	54.2	41.7	58.3	29.2	54.2	58.3	54.2	95.8
Iloilo	Carles	33	93.9	97.0	87.9	84.8	33.3	81.8	12.1	75.8	33.3	51.5	93.9
Iloilo	Concepcion	25	84.0	92.0	96.0	40.0	48.0	96.0	20.0	84.0	36.0	64.0	96.0
Iloilo	Estancia	25	72.0	76.0	80.0	60.0	20.0	60.0	28.0	72.0	40.0	60.0	100.0
Iloilo	San Dionisio	29	86.2	100.0	86.2	41.4	24.1	55.2	34.5	72.4	58.6	75.9	96.6
Iloilo	Sara	42	73.8	81.0	64.3	42.9	7.1	40.5	4.8	52.4	19.0	38.1	92.9
Cebu	Bantayan	25	72.0	92.0	96.0	68.0	40.0	88.0	64.0	80.0	64.0	76.0	100.0
Cebu	City of Bogu	29	82.8	62.1	89.7	41.4	3.4	69.0	10.3	75.9	27.6	37.9	100.0
Cebu	Borbon	19	78.9	63.2	89.5	42.1	15.8	63.2	15.8	78.9	36.8	57.9	100.0
Cebu	Daanbantayan	20	65.0	65.0	65.0	70.0	40.0	60.0	20.0	70.0	60.0	70.0	100.0
Cebu	Madridejos	14	92.9	100.0	85.7	92.9	50.0	78.6	85.7	92.9	57.1	92.9	100.0
Cebu	Medellin	19	94.7	63.2	84.2	15.8	15.8	52.6	21.1	68.4	15.8	42.1	100.0
Cebu	Pilar_Cebu	13	84.6	61.5	100.0	23.1	23.1	84.6	15.4	92.3	7.7	53.8	100.0
Cebu	Poro	17	47.1	35.3	70.6	23.5	5.9	52.9	5.9	70.6	11.8	52.9	100.0
Cebu	San Francisco	15	20.0	40.0	93.3	20.0	0.0	13.3	0.0	66.7	20.0	73.3	100.0
Cebu	San Remigio	27	66.7	55.6	59.3	51.9	14.8	59.3	14.8	48.1	22.2	40.7	96.3
Cebu	Santa Fe	10	90.0	90.0	90.0	70.0	70.0	90.0	40.0	50.0	60.0	90.0	100.0
Cebu	Sogod	18	44.4	22.2	83.3	16.7	0.0	55.6	11.1	61.1	11.1	61.1	94.4
Cebu	Tabogon	25	64.0	40.0	88.0	40.0	12.0	40.0	4.0	20.0	12.0	100.0	100.0
Cebu	Tabuelan	12	58.3	58.3	91.7	33.3	25.0	66.7	8.3	66.7	8.3	50.0	100.0
Cebu	Tuburan	54	38.9	20.4	20.4	50.0	3.7	5.6	9.3	11.1	13.0	42.6	96.3
Cebu	Tudela	11	27.3	54.5	81.8	72.7	9.1	36.4	18.2	81.8	45.5	72.7	100.0
Eastern Samar	Balangiga	13	100.0	100.0	92.3	100.0	15.4	76.9	23.1	46.2	23.1	84.6	92.3
Eastern Samar	Balangkayan	15	100.0	100.0	86.7	93.3	26.7	86.7	6.7	53.3	33.3	46.7	100.0
Eastern Samar	Borongan City	61	42.6	39.3	39.3	21.3	16.4	68.9	6.6	11.5	11.5	31.1	100.0
Eastern Samar	Gen. McArthur	30	100.0	93.3	83.3	100.0	10.0	46.7	60.0	63.3	53.3	80.0	96.7
Eastern Samar	Giporlos	18	100.0	100.0	94.4	100.0	38.9	88.9	44.4	55.6	38.9	77.8	100.0
Eastern Samar	Guiuan	60	96.7	100.0	98.3	98.3	23.3	78.3	23.3	58.3	55.0	66.7	96.7
Eastern Samar	Hernani	13	100.0	100.0	92.3	100.0	23.1	84.6	30.8	84.6	30.8	53.8	92.3
Eastern Samar	Lawaan	16	100.0	100.0	100.0	100.0	37.5	100.0	56.3	87.5	56.3	93.8	100.0
Eastern Samar	Mercedes	16	100.0	100.0	87.5	93.8	37.5	100.0	81.3	81.3	50.0	75.0	100.0

Eastern Samar	Quinapondan	25	92.0	100.0	76.0	96.0	16.0	76.0	28.0	80.0	40.0	80.0	100.0
Eastern Samar	Salcedo	41	95.1	100.0	95.1	92.7	26.8	90.2	26.8	75.6	65.9	80.5	100.0
Eastern Samar	San Julian	16	75.0	100.0	81.3	87.5	12.5	93.8	6.3	50.0	31.3	56.3	100.0
Leyte	Alangalang	54	83.3	85.2	72.2	92.6	22.2	50.0	5.6	22.2	20.4	37.0	100.0
Leyte	Albuera	16	81.3	81.3	68.8	87.5	12.5	93.8	6.3	81.3	31.3	50.0	100.0
Leyte	Babatngon	25	52.0	16.0	72.0	8.0	8.0	12.0	8.0	16.0	4.0	24.0	100.0
Leyte	Barugo	37	56.8	73.0	62.2	48.6	16.2	54.1	2.7	8.1	13.5	32.4	94.6
Leyte	Burauen	77	87.0	85.7	35.1	61.0	14.3	76.6	19.5	44.2	28.6	48.1	92.2
Leyte	Calubian	53	62.3	62.3	35.8	52.8	5.7	7.5	3.8	22.6	18.9	49.1	98.1
Leyte	Capoocan	21	28.6	61.9	81.0	33.3	9.5	42.9	0.0	4.8	47.6	19.0	100.0
Leyte	Carigara	49	49.0	75.5	73.5	61.2	4.1	26.5	2.0	36.7	10.2	40.8	100.0
Leyte	Dagami	65	89.2	98.5	83.1	90.8	6.2	43.1	12.3	30.8	29.2	38.5	92.3
Leyte	Dulag	45	93.3	97.8	66.7	88.9	26.7	66.7	15.6	51.1	28.9	66.7	100.0
Leyte	Isabel	24	75.0	79.2	66.7	50.0	0.0	79.2	4.2	54.2	25.0	29.2	100.0
Leyte	Jaro	46	76.1	97.8	95.7	91.3	30.4	89.1	13.0	52.2	15.2	73.9	100.0
Leyte	Javier_Bugho	28	92.9	96.4	96.4	92.9	7.1	17.9	3.6	14.3	7.1	57.1	100.0
Leyte	Julita	26	100.0	100.0	92.3	96.2	7.7	65.4	53.8	50.0	26.9	65.4	100.0
Leyte	Kananga	23	87.0	95.7	91.3	100.0	17.4	87.0	8.7	52.2	17.4	52.2	100.0
Leyte	La_Paz	35	100.0	97.1	77.1	94.3	14.3	77.1	68.6	45.7	48.6	68.6	100.0
Leyte	Leyte	30	86.7	80.0	76.7	60.0	13.3	43.3	10.0	33.3	33.3	66.7	100.0
Leyte	Macarthur	31	90.3	100.0	45.2	96.8	19.4	58.1	12.9	45.2	45.2	38.7	87.1
Leyte	Matag_Ob	21	100.0	61.9	71.4	38.1	4.8	66.7	0.0	61.9	19.0	47.6	95.2
Leyte	Mayorga	16	100.0	100.0	81.3	100.0	18.8	81.3	37.5	81.3	56.3	87.5	93.8
Leyte	Merida	22	100.0	95.5	95.5	95.5	9.1	59.1	4.5	45.5	36.4	36.4	100.0
Leyte	Ormoc_City	110	61.8	50.0	84.5	51.8	6.4	41.8	5.5	30.9	29.1	56.4	96.4
Leyte	Palo	33	87.9	87.9	78.8	72.7	24.2	81.8	24.2	48.5	24.2	66.7	93.9
Leyte	Palompon	50	86.0	94.0	84.0	90.0	2.0	74.0	12.0	78.0	16.0	36.0	100.0
Leyte	Pastrana	29	89.7	100.0	89.7	86.2	41.4	62.1	55.2	48.3	27.6	37.9	72.4
Leyte	San_Isidro	19	100.0	100.0	84.2	94.7	5.3	36.8	0.0	47.4	15.8	47.4	100.0
Leyte	San_Miguel	21	95.2	100.0	85.7	90.5	9.5	19.0	9.5	19.0	19.0	57.1	100.0
Leyte	Santa Fe	20	70.0	95.0	85.0	85.0	20.0	90.0	60.0	75.0	80.0	70.0	95.0
Leyte	Tabango	13	84.6	100.0	84.6	84.6	0.0	38.5	7.7	30.8	7.7	38.5	100.0
Leyte	Tabontabon	16	100.0	100.0	100.0	100.0	12.5	68.8	81.3	62.5	50.0	81.3	100.0
Leyte	Tacloban_City	138	64.5	57.2	65.2	78.3	7.2	41.3	10.1	30.4	34.1	63.0	100.0
Leyte	Tanauan	54	87.0	94.4	70.4	90.7	18.5	74.1	29.6	66.7	44.4	75.9	90.7
Leyte	Tolosa	15	100.0	86.7	80.0	100.0	33.3	100.0	0.0	46.7	46.7	86.7	100.0
Leyte	Tunga	8	87.5	62.5	87.5	50.0	0.0	25.0	0.0	12.5	50.0	50.0	100.0
Leyte	Villaba	35	57.1	65.7	68.6	71.4	2.9	74.3	11.4	60.0	14.3	34.3	100.0
Samar	Basey	51	90.2	84.3	66.7	70.6	11.8	43.1	19.6	54.9	25.5	62.7	96.1
Samar	Marabut	24	95.8	100.0	95.8	83.3	45.8	83.3	0.0	58.3	29.2	75.0	95.8

CONTACT DETAILS AND ANNEXES

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Annex 1: Raw and aggregated data

Annex 2: Baseline Tool

Annex 3: WASH Baseline Survey Training Tool

Annex 4: Water Quality Results and Raw Dataset

Annex 5: WASH Intention Survey Results

Annex 6: Intention Questionnaire and Indicators

Maps available: (A4 atlas per municipality, A4 by provinces, A0 with whole area) :

- Barangays declaring chlorination practice
- Percentage of HH with access to toilet
- Percentage of HH without access to toilet
- Type of water infrastructure available in the barangay
- Barangays with land tenure issue for building toilets
- Barangays with open defecation practice
- Population density per barangay

For all maps, reports and annexes, please visit:

<http://philippines.humanitarianresponse.info/>

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The Philippines National WASH Cluster is co-led by the Department of Health and UNICEF. For this response, a total of 25+ international and local partners coming from government and civil society continue to be actively engaged in the WASH cluster both at national and sub-national levels. The WASH Cluster has a five year strategic plan and do not deactivate as it tries to contribute in building resilient communities and local capacities for managing WASH response in emergencies. See more at the WASH Cluster page in the Philippine Humanitarian Response website: <http://philippines.humanitarianresponse.info/>



The global WASH Cluster Rapid Assessment Team (RAT) is a consortium of active WASH agencies (CARE, IFRC and OXFAM) which deploys in the early stages of major emergencies or crises, to provide a rapid assessment of WASH needs to all stakeholders. See more at <http://www.washcluster.info>

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