

APPENDIX C: AWSP BASELINE HEALTH MONITORING STATUS  
REPORT

# **Alternative Water Systems Project: Chennai, India**

A research collaboration between University of Guelph (Guelph, Ontario), the Indian Institute of Technology Madras (Chennai, India) and Queen's University (Kingston, Ontario)

## **Baseline Health Monitoring Programme**

*Status Report*

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## Baseline Health Study

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### 1.0 Introduction

As part of the Alternative Water Systems project, a baseline health study was designed for Mylai Balaji Nagar, Chennai, India, to assess the current extent of diarrheal disease in the community. A cross sectional study was developed to choose households that would participate in a longitudinal disease monitoring programme that will track diarrheal disease prevalence in the community over a one-year period.

### 2.0 Methodology

There are two commonly used methods for documenting diarrheal disease: longitudinal prevalence of diarrhea or diarrhea incidence. The measure of diarrhea incidence can be defined as the “number of episodes experienced by each child over a defined period” where diarrhea prevalence is defined as the “number of days of diarrhea divided by the total number of days of observation for each child” (Morris et al., 1996).

In the current baseline health study, it was chosen to monitor “longitudinal prevalence” over “diarrhea incidence” for several reasons:

1. Longitudinal prevalence has been shown to be a stronger predictor of long-term health outcomes and nutritional status than diarrhea incidence (Morris et al., 1996).
2. Longitudinal prevalence measures have an advantage over diarrhea incidence measures, because frequency and duration of diarrheal disease episodes do not need to be collected. As a result, data collection in the field is much simpler. In addition, errors in defining a disease episode are avoided (Baqui et al., 1991; Morris et al., 1994).
3. Longitudinal prevalence seems to be the most commonly used measure for diarrhea in children under 5 years old in recent water, sanitation and hygiene related intervention studies (Stauber et al., 2009; Brown et al., 2008; Luby et al., 2006; Clasen et al., 2004; Reller et al., 2003; Quick et al., 2002; and Quick et al., 1999). Longitudinal prevalence was also chosen so that one could compare results from this study to recent research in the field.

In addition, it was chosen to use a 48- hour recall period for the duration of the baseline health study. Forty-eight- hour recall means that at each visit to a household, the household is asked whether or not

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anyone in the home has had diarrhea in the last 48- hours. Recent research suggests that any recall period longer than 48 hours significantly under-estimates the diarrheal disease burden (Zafar et al., 2010; Schmidt et al., 2007). It was for this reason that a 48- hour recall was chosen for the current study. Households in the baseline study will be visited every two weeks for a period of one year. This will yield approximately 54 days of observation of a total of 365 days.

According to recent work by Schmidt et al. (2007), a sampling interval of up to 14 days with 48 hour recall can improve estimates of diarrhea prevalence without increasing the costs of the study. Schmidt et al. (2007) indicate that the number of visits to a household is much more important than the duration of the study. They advise to space visits at 7 to 14 day intervals for a longer period of time than conducting a study over a short and intensive time period. In addition, a longer study has the advantage of capturing seasonal variations in disease occurrence. Consequently, the current study will run for one year. In addition, a two-week sampling interval was selected for the following reasons: a) availability of personnel to conduct the surveys, b) weekly visits might contribute to household fatigue and subsequent household drop out from the study; therefore visits at a 14-day interval were chosen as they require less time commitment from each household.

### **3.0 Study Design**

A copy of a community map of Mylai Balaji Nagar was obtained so that the sampling frame could be determined for the baseline health study. The community is divided into four sectors. Each sector is divided up into a number of plots. In general, a plot number corresponds to a house number. On the map, there are 2202 plots and it was assumed, initially, for sample size calculations that each plot contains one house. In practice, this was not the case. Upon visiting the community, many plots were empty and some houses were built on two plots, therefore the population of 2202 households is an overestimate of the actual number of homes in the community.

#### *3.1 Sample Size Determination*

A series of sample size calculations were performed to determine the sample size needed for the baseline health study. In order to perform the sample size calculations, a diarrhea disease prevalence rate was chosen from the literature. In a study conducted by Brown (2007) in rural Cambodia, diarrhea disease prevalence in a baseline health survey among a community without access to a safe water supply was found to be 12%. In a study in Delhi slums, morbidity prevalence was found to be 15.4% in the population (Marimuthu et al., 2009). Luby et al. (2006), found diarrhea prevalence to range from 2-

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10% depending on age in a control group for a water treatment intervention in Pakistan. Diarrhea disease prevalence in children under 5 was found to be 47.2% in an epidemiological study in a slum community in Varanasi, India (Saran & Gaur, 1981). In a more recent epidemiological study conducted in Pakistan, diarrhea prevalence in children under 5 was reported to be 51% (Shah et al., 2003). In addition, diarrhea prevalence ranged from 8.7- 33% in a study in Urban Mizapur depending on the season (Mishra et al., 1990).

From available literature, two diarrhea prevalence rates were assumed. A 15% prevalence rate was chosen as a conservative estimate of what the diarrheal disease prevalence rate may be among the entire population in Mylai Balaji Nagar (including all age groups). In addition, sample size calculations were performed for a prevalence rate of 50%, which would be an extremely conservative estimate of the disease burden for the entire population, however would be a reasonable estimate for the burden on children five years old and under.

The sample size calculations were determined using the following information:

- Population: 2202 households x 5 people per household = 11,010
- Assumed Proportion of population with diarrhea disease prevalence: 15%; 50%

The following table presents three sample size calculation scenarios. It was found that a sample size of 150 households, which corresponds to approximately 750 people total, at the 95% confidence interval gives between 2.5- 3.5% error depending on the assumed diarrheal disease prevalence rate. One of the inclusion criteria for the study is that all participating households have at least one child  $\leq$  5 years old. Assuming every household has one child, we can estimate the sample size of children  $\leq$  5 to be approximately 150. Using a diarrhea prevalence rate of 50%, a sample size of 150 children yields an error of approximately 8% at the 95% confidence interval. These conservative estimates all yield acceptable levels of error, therefore a sample size of 150 households was determined to be acceptable for purposes of the baseline health study. In addition, a sample size of 150 households is a manageable number of households given current available resources. Also, 150 households allows for a 15%- 20% drop out rate without losing a significant amount of statistical power.

**Table 1. Sample Size Calculation Scenarios**

Scenario	Confidence Interval	Diarrheal Disease Prevalence	Sample Size (n= number of people)	Sample Size (n= number of households)	Error
1	95%	15%	750	150	2.5 %

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2	95%	50%	750	150	3.5 %
3	95%	50%	150 children ≤ 5	150	8 %

### 3.2 Sampling Frame

Households were selected to participate in the study using systematic sampling with replacement. First, the community was divided by sector, into 4 groups. Based on a sample size of 150 households, a proportional number of households were selected from each sector. The following calculations were performed using the number of plots in each sector:

Proportion of Community Population

Sector 1 = Plot 1- 357

Sector 2 = Plot 358- 1388

Sector 3 = Plot 1389- 1866

Sector 4= Plot 1867-2202

Sector 1 Proportion =  $357 / 2202 = 0.162$

Sector 2 Proportion =  $(1388-358) / 2202 = 0.468$

Sector 3 Proportion =  $(1866-1389) / 2202 = 0.217$

Sector 4 Proportion =  $(2202-1867) / 2202 = 0.152$

# Sample Households per sector

Sector 1 =  $150 * 0.162 = 24$

Sector 2 =  $150 * 0.468 = 70$

Sector 3 =  $150 * 0.217 = 33$

Sector 4 =  $150 * 0.152 = 23$

From the number of households per sector, the sampling interval “n” required per sector was determined.

Sampling interval per sector (interval “n”)

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$$\text{Sector 1} = 357 / 24 = 14.875$$

$$\text{Sector 2} = (1388-358) / 70 = 14.714$$

$$\text{Sector 3} = (1866-1389) / 33 = 14.455$$

$$\text{Sector 4} = (2202-1867) / 23 = 14.565$$

Given that “n” for each sector was approximately 15, a sampling interval of every 15th household was chosen for the entire community.

Households were visited starting at plot #1, then plot #15, followed by plot #30 and so on for every 15th household. In order for households to be included in the study, they had to meet some preliminary requirements. If these were not met, they were replaced by the neighbouring household (i.e. Household # 1 would be replaced by Household #2 if requirements were not met.) The following were the inclusion requirements for the study:

1. The household needed to have at least one child  $\leq 5$  years old living in the home.
2. The household had to be willing to participate in the year long study and could commit to having someone at home to answer questions every two weeks ( usually was the primary caregiver for the children).

If the household met these requirements, then they were enrolled in the study and ethics consent was obtained. If these two criteria were not met, then the household would be replaced with the neighbouring household and so on until one household was found with the desired criteria within the 15- home interval. In some cases, the plots were empty or the homes were abandoned. These homes were replaced with subsequent households and their plot numbers were noted. In the event that the household was not home, the household was visited twice before replacing them with the next household.

In total, 137 households were enrolled in the baseline health study. There were thirteen, 15-home sampling intervals, throughout the community that did not have a home with a child 5 years old and under. Often these intervals contained numerous empty or abandoned homes; therefore a smaller number of households were visited in that interval. Consequently, the likelihood of coming across a home with children 5 years old and under was less probable. As a result, no households were selected from these intervals. The initial population estimate of 2202 homes in the community was an overestimate and therefore the calculated sample size could have been reduced. In addition, the population of children under the age of 5 was initially unknown for the community, and given how many sampling intervals did not contain households with children 5 years old and under, it is anticipated that a sample size of 137 households is more than adequate to represent the community.



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### 3.3 Questionnaire

Preliminary and on-going questionnaires were developed to assess the diarrheal disease prevalence in household members. In the questionnaire, the interviewer was required to explain to the household, the definition of diarrheal disease and then ask if any household members have had diarrhea in the last 48 hours. The standard WHO definition of diarrheal disease episode used for the study is given in Baqui (1993) as *“three or more loose, liquid, or watery stools or at least one bloody stool in 24 hours. An episode was considered resolved on the last day of diarrhea if there were at least 3 intervening diarrhea-free days”*. In the current study the recall period is 48 hours, and individual episodes are documented per household member. Consequently, multiple episodes are not documented as the recall period is not long enough to allow for “3 diarrhea-free days”. Documenting single episodes also allows for easier documentation of diarrhea in the field as frequency and duration of each episode are not recorded.

In addition, the preliminary questionnaire addressed questions regarding household water use, consumption, storage, hand washing, hygiene and sanitation as well as socioeconomic indicators such as educational background of household members. Also, questions regarding household assets were incorporated in the questionnaire so that relative household wealth could be documented. The preliminary and on-going questionnaires can be found in Appendix A.

### 4.0 Preliminary Sampling

The preliminary round of sampling and selection of the 137 households took place in early February 2010. The on-going questionnaire will be administered every two weeks to all 137 households beginning on February 8, 2010 and will continue for one year.

Currently, there is one field team leader and three field staff that are conducting the interviews at all households. Surveys are administered daily for a two week period until all 137 households have been visited. The field workers have been instructed to re-visit households until someone is at home to conduct the questionnaire. They have also been asked to setup an appropriate time for the visit with each household and create a schedule so that households are visited on the same day and time of the week at every two week visit (see QA/QC sheets in Appendix B).

### 5.0 Data Management & Quality Control Measures

At the end of every field day, the field team leader will check every field worker’s questionnaires to ensure that all questions have been answered. In the event that a question was missed, the field worker will be required to re-visit the home the following day to collect the missing information. At the end of each

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sampling day, the completed questionnaires will be collected by the field team leader and then placed in the on-going questionnaire binder and locked in a cabinet at IIT Madras. Every two weeks, the team leader will enter the field data in prepared spreadsheets and will e-mail a copy to S. Imran Ali to be checked for errors in data entry. All data entry will occur on a secure computer that is locked in Dr. Prema Rajagopalan meeting room at IIT Madras and the field team leader will also back up all the information on a data key.

A series of check sheets were developed for each field staff member. The sheets identify which households need to be visited by each worker every two weeks. In addition, the field worker is required to complete a section for each household that indicates whether the questionnaire was completed or not. If it was not completed, the field worker needs to include reasons why the questionnaire was not administered. In addition, a master list of all households in the study was created for all the field staff so that household code, plot address and last person interviewed can be cross referenced to ensure that the same household is interviewed every two weeks. This is important as not all households are physically labelled with a household address and therefore, care must be made to ensure the same household is interviewed from visit to visit. Example check sheets and the master household list can be found in Appendix B.

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APPENDIX A

Preliminary and On-going Health Questionnaires

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Sanitary Risk and Health Study - Extended Questionnaire

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Interviewer Name: ..... Date (D/M/Y):  
.....

Household Code: .....

***Preliminary Questions (Enrolment Criteria)***

<p>Q1. Is anyone in your household under the age of 5?</p> <p>If <b>NO</b>: Do not fill out the Questionnaire, move to next household (next door).</p>	<p><input type="checkbox"/> 1. Yes   <input type="checkbox"/> 2. No</p>
<p>Q2. Would you be willing to participate in a 12 month study where we come visit your house once every 2 weeks to ask you some questions? Today we will ask you some questions for about 30 minutes. After this week, we will visit on every other week and take only 15 minutes of your time. Are you willing to participate?</p> <p>If <b>NO</b>: Do not fill out the Questionnaire, move to next household (next door).</p>	<p><input type="checkbox"/> 1. Yes   <input type="checkbox"/> 2. No</p>
<p>Q3. Ethics consideration presented to interviewee and informed consent obtained?</p> <p>If <b>NO</b>: Do not fill out the Questionnaire, move to next household (next door).</p>	<p><input type="checkbox"/> 1. Yes   <input type="checkbox"/> 2. No</p>

***Household Data***

Household Code: .....			
Sector : ..... Address : .....			
Interviewee's name: ..... Gender: ..... Age: .....			
Relation to children: ..... Number of Household Members: .....			
Fill in table with information about all household members (start with the interviewee's information):			
<i>N°</i>	<i>Age (year or months)</i>	<i>Gender (M/F)</i>	<i>Level of Education</i>
1			
2			
3			
4			
5			
6			
7			

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***Drinking Water Management***

<p>Q4. What source of water do you use for drinking right now?</p>	<p><input type="checkbox"/> 1. Bottles (20L cans - bubble top)  <input type="checkbox"/> 2. Lorries (trucked-in water)  <input type="checkbox"/> 3. Well (personal well)  <input type="checkbox"/> 4. Public Taps (lake water)  <input type="checkbox"/> 5. Other, specify: .....</p>
<p>Q5. Do you think your drinking water is of good quality?   Q5a. If yes, why?   Q6b. If no, why?</p>	<p><input type="checkbox"/> 1. Yes   <input type="checkbox"/> 2. No   Write down comments: .....  .....  .....  .....</p>
<p>Q6. Do you ever clean your drinking water in the home?</p>	<p><input type="checkbox"/> 1. Yes   <input type="checkbox"/> 2. No</p>
<p>Q7. How do you clean your drinking water in the home?</p>	<p><input type="checkbox"/> 1. No treatment  <input type="checkbox"/> 2. Boiling  <input type="checkbox"/> 3. Alum  <input type="checkbox"/> 4. Bleaching powder (chlorine)  <input type="checkbox"/> 5. Filter (candle filter)  <input type="checkbox"/> 6. Cloth (cotton fabric)  <input type="checkbox"/> 7. Other, specify: .....</p>
<p>Q8. How often do you clean your drinking water?</p>	<p><input type="checkbox"/> 1. No treatment  <input type="checkbox"/> 2. Never  <input type="checkbox"/> 3. Always  <input type="checkbox"/> 4. When children are sick  <input type="checkbox"/> 5. For baby milk powder  <input type="checkbox"/> 6. Sometimes, specify: .....</p>
<p>Q9. How do you store your drinking water in the home?</p>	<p><input type="checkbox"/> 1. Cooking pot  <input type="checkbox"/> 2. Plastic pots  <input type="checkbox"/> 3. In the same bottle purchased in (20L)  <input type="checkbox"/> 4. Other, specify: .....   <input type="checkbox"/> 1. Yes   <input type="checkbox"/> 2. No   <input type="checkbox"/> 3. Some</p>

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Q9a. Is it covered? ( <i>Make a visual check, and specify type of cover</i> )	<i>Specify type of cover:</i> .....
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***Household Water Management***

Q10. What source of water do you use for all household activities such as washing and bathing?	<input type="checkbox"/> 1. Lorries (trucked-in water) <input type="checkbox"/> 2. Well (personal well) <input type="checkbox"/> 3. Public Taps (lake water) <input type="checkbox"/> 4. Other, specify: .....
Q11. How do you store this water in the home?	<input type="checkbox"/> 1. Plastic pots <input type="checkbox"/> 2. Large drums (plastic) <input type="checkbox"/> 3. Sump (underground tank) <input type="checkbox"/> 4. Above-ground tank (cement) <input type="checkbox"/> 5. Syntex Tank <input type="checkbox"/> 6. Other, specify: .....
Q11a. Is it covered? ( <i>Make a visual check</i> )	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Some
Q12. How much water does your household use each day for <b>drinking and cooking</b> ? ( <i>Ask the interviewee how many containers they use</i> )	# of containers: .....
Q12a. What kind of container do they use:	.....
Q12b. What is the volume of the container:	..... (litres)
Q13. How much water does your household use on average each day for <b>bathing and toilet</b> ?	# of containers: .....
Q13a. What kind of container do they use:	.....
Q13b. What is the volume of the container:	..... (litres)
Q14. How much water does your household use on average each day for <b>cleaning inside the house and washing dishes</b> ?	# of containers: .....
Q14a. What kind of container do they use:	.....
Q14b. What is the volume of the container:	..... (litres)



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<p>Q15. How much water does your household use on average each day for <b>laundry</b>?</p> <p>Q15a. What kind of container do they use:</p> <p>Q15b. What is the volume of the container:</p>	<p># of containers: .....</p> <p>.....</p> <p>..... (litres)</p>
<p>Q16. How long do you have to wait in between times for the water to come on in the taps?</p>	<p><input type="checkbox"/> 1. 5-7 days</p> <p><input type="checkbox"/> 2. Between 8 – 14 days (1 – 2 weeks)</p> <p><input type="checkbox"/> 3. Other, specify: .....</p>

***Hygiene and Sanitation***

<p>Q17. Where do you place the solid wastes from your house?</p>	<p><input type="checkbox"/> 1. In the canal</p> <p><input type="checkbox"/> 2. By the roadside</p> <p><input type="checkbox"/> 3. In a bin</p> <p><input type="checkbox"/> 4. Take and dispose somewhere else</p> <p><input type="checkbox"/> 5. Other, specify: .....</p>
<p>Q18. Where do you and your family use the toilet?</p>	<p><input type="checkbox"/> 1. Toilet in the house</p> <p><input type="checkbox"/> 2. Public toilet blocks</p> <p><input type="checkbox"/> 3. Personal latrine outside the home</p> <p><input type="checkbox"/> 4. Open space</p> <p><input type="checkbox"/> 5. Other, specify: .....</p>
<p>Q19. Can you tell me when do you wash your hands with soap? (<b><i>Do not prompt interviewee, allow them to answer freely and check all that apply</i></b>)</p>	<p><input type="checkbox"/> 1. Never</p> <p><input type="checkbox"/> 2. Before cooking</p> <p><input type="checkbox"/> 3. Before eating</p> <p><input type="checkbox"/> 4. After eating</p> <p><input type="checkbox"/> 6. After using the toilet</p> <p><input type="checkbox"/> 7. After cleaning baby's bottom</p> <p><input type="checkbox"/> 8. Before feeding children/ baby</p> <p><input type="checkbox"/> 9. After helping my children use the toilet</p> <p><input type="checkbox"/> 10. When dirty</p> <p><input type="checkbox"/> 11. Other, specify: .....</p>
<p>Q20. When do your children under 5 years old wash their hands with soap? (<b><i>Do not prompt</i></b>)</p>	<p><input type="checkbox"/> 1. Never</p>



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<input type="checkbox"/> 2. Worm, intestinal	# of people .....
<input type="checkbox"/> 3. Skin infection	# of people .....
<input type="checkbox"/> 4. Eye disease	# of people .....
<input type="checkbox"/> 5. Abdominal pain	# of people .....
<input type="checkbox"/> 6. Vomiting	# of people.....
<input type="checkbox"/> 7. Nausea	# of people .....

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**Asset Index (Socio-economic status)**

Q25. Do you own or rent your house?	<input type="checkbox"/> 1. Own <input type="checkbox"/> 2. Rent <input type="checkbox"/> 3. Other, specify: .....
Q26. <b>Visual observation:</b> What is the roof of the house made of?	<input type="checkbox"/> 1. Thatch <input type="checkbox"/> 2. Corrugated Metal/ Asbestos/ Fibre <input type="checkbox"/> 3. Pukka (concrete) <input type="checkbox"/> 4. Tile <input type="checkbox"/> 5. Other, specify: .....
Q27. <b>Visual observation:</b> What are the walls of the house made of?	<input type="checkbox"/> 1. Thatch <input type="checkbox"/> 2. Corrugated Metal/ Asbestos/ Fibre <input type="checkbox"/> 3. Pukka (concrete) <input type="checkbox"/> 4. Other, specify: .....
Q28. <b>Visual observation:</b> What is the floor of the house made of?	<input type="checkbox"/> 1. Mud <input type="checkbox"/> 2. Tile (ceramic) <input type="checkbox"/> 3. Pukka (concrete) <input type="checkbox"/> 4. Vinyl sheet <input type="checkbox"/> 5. Other, specify: .....
Q29. <b>Visual observation:</b> How many levels does the house have?	<input type="checkbox"/> 1. Ground floor <input type="checkbox"/> 2. 1 floor <input type="checkbox"/> 3. 2 floors <input type="checkbox"/> 4. Other, specify: .....
Q30. Do you own a TV?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
Q31. Do you have a cable?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
Q32. Does your family have a motorbike?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
Q32a. If yes, how many?	# of motorbikes: .....
Q33. Does your household own a refrigerator?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
Q34. Do you have a toilet inside your home?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No

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On-going Disease Study- Questionnaire

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Interviewer Name: ..... Date (D/M/Y):  
.....

***Household Data***

Household Code: .....
Sector : ..... House # (plot #) : .....
Interviewee's name: ..... Gender: ..... Age: .....
Relation to children: .....

***Drinking Water Management***

Q1. What source of water do you use for drinking right now?	<input type="checkbox"/> 1. Bottles (20L cans – bubble top) <input type="checkbox"/> 2. Lorries (trucked-in water) <input type="checkbox"/> 3. Well (personal well) <input type="checkbox"/> 4. Public Taps (lake water) <input type="checkbox"/> 5. Other, specify: .....
Q2. Do you ever clean your drinking water in the home?	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
Q3. How do you clean your drinking water in the home?	<input type="checkbox"/> 1. No treatment <input type="checkbox"/> 2. Boiling <input type="checkbox"/> 3. Alum <input type="checkbox"/> 4. Bleaching powder (chlorine) <input type="checkbox"/> 5. Filter <input type="checkbox"/> 6. Cloth <input type="checkbox"/> 7. Other, specify: .....
Q4. How often do you clean your drinking water?	<input type="checkbox"/> 1. No treatment <input type="checkbox"/> 2. Never <input type="checkbox"/> 3. Always <input type="checkbox"/> 4. When children are sick <input type="checkbox"/> 5. For baby milk powder <input type="checkbox"/> 6. Sometimes, specify: .....
Q5. How do you store your drinking water in the home?	<input type="checkbox"/> 1. Cooking pot <input type="checkbox"/> 2. Plastic pots <input type="checkbox"/> 3. In the same bottle purchased in (20L)

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Q5a. Is it covered? ( <i>Make a visual check</i> )	<input type="checkbox"/> 6. Other, specify: .....  <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
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***Household Water Management***

Q6. What source of water do you use for all household activities such as washing and bathing?	<input type="checkbox"/> 1. Lorries (trucked-in water) <input type="checkbox"/> 2. Well (personal well) <input type="checkbox"/> 3. Public Taps (lake water) <input type="checkbox"/> 4. Other, specify: .....
Q7. How much water does your household use each day for <b>drinking and cooking</b> ? ( <i>Ask the interviewee how many containers they use</i> )  Q7a. What kind of container do they use:  Q7b. What is the volume of the container:	# of containers: .....  .....  ..... (litres)
Q8. How much water does your household use on average each day for <b>bathing and toilet</b> ?  Q8a. What kind of container do they use:  Q8b. What is the volume of the container:	# of containers: .....  .....  ..... (litres)
Q9. How much water does your household use on average each day for <b>cleaning inside the house and washing dishes</b> ?  Q9a. What kind of container do they use:  Q9b. What is the volume of the container:	# of containers: .....  .....  ..... (litres)
Q10. How much water does your household use on average each day for <b>laundry</b> ?  Q10a. What kind of container do they use:  Q10b. What is the volume of the container:	# of containers: .....  .....  ..... (litres)

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***Hygiene and Sanitation***

<p>Q11. Can you tell me when do you wash your hands with soap? (<b><i>Do not prompt interviewee, allow them to answer freely and check all that apply</i></b>)</p>	<p><input type="checkbox"/> 1. Never</p> <p><input type="checkbox"/> 2. Before cooking</p> <p><input type="checkbox"/> 3. Before eating</p> <p><input type="checkbox"/> 4. After eating</p> <p><input type="checkbox"/> 6. After using the toilet</p> <p><input type="checkbox"/> 7. After cleaning baby's bottom</p> <p><input type="checkbox"/> 8. Before feeding children/ baby</p> <p><input type="checkbox"/> 9. After helping my children use the toilet</p> <p><input type="checkbox"/> 10. When dirty</p> <p><input type="checkbox"/> 11. Other, specify: .....</p>
<p>Q12. When do your children under 5 years old wash their hands with soap? (<b><i>Do not prompt interviewee, allow them to answer freely and check all that apply</i></b>)</p>	<p><input type="checkbox"/> 1. Never</p> <p><input type="checkbox"/> 2. Before eating</p> <p><input type="checkbox"/> 3. After eating</p> <p><input type="checkbox"/> 4. After using the toilet</p> <p><input type="checkbox"/> 5. Before sleeping</p> <p><input type="checkbox"/> 6. When dirty</p> <p><input type="checkbox"/> 7. Other, specify: .....</p>

***Disease Status***

<p>Q13. Do you have soap in your house for washing hands and bathing?</p>	<p><input type="checkbox"/> 1. Yes    <input type="checkbox"/> 2. No</p>
<p>Q14. Has anyone in your family had diarrhea in the last 48 hours (2 days prior to now)?</p> <p><b><i>Explain the definition of diarrhea to the interviewee:</i></b> Diarrhea can be defined by relieving loose or watery motions 3 times or more in 24 hours.</p>	<p><input type="checkbox"/> 1. Yes    <input type="checkbox"/> 2. No</p>

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**Q15. If YES, ask which family members (currently living in the household) had diarrhea and record all data into the next table.**

N°	Age (Yr./ Mo.)	Gender (M/F)	Is he/ she a child that is Breastfed (Yes/ No)  1= Yes 2= No	Feces with blood (Yes/No)  1 = Yes 2 = No	How did you cure this diarrhea? (Enter code as shown below) 0=No treatment 1=Mix water with rehydration salts (packages) 2=Western medicine (doctor vist), <b>specify</b> 3= Western medicine (self medication), <b>specify</b> 4=Traditional medicine (herbs), <b>specify</b> 5=Home medicine, <b>specify</b> 6=Don't know	How much did you pay for treatment of diarrhea?  Write cost here.  If there is no expense write "0"
1						
2						
3						
4						
5						
6						
7						

**Q16. Has anyone in the household been ill in the last 48 hours (2 days) had the following symptoms?**

- 1. None
- 2. Worm, intestinal # of people .....
- 3. Skin infection # of people .....
- 4. Eye disease # of people .....
- 5. Abdominal pain # of people .....
- 6. Vomiting # of people.....
- 7. Nausea # of people .....
- 8. Other, specify ....., # of people .....



APPENDIX B

Master Household List &  
Example QA/QC Check -sheets

Alternative Water Systems Project  
Baseline Health Study

**Household Code Master Sheet**

Household Code	Sector	Plot/ Door #	Name of person Interviewed 1st time	Relation to Children	Age	Gender	Other Comments
H1	1	3		Mother	24	F	
H2	1	24		Uncle	32	M	
H3	1	42		Mother	19	F	
H4	1	53		Mother	22	F	
H5	1	63		Mother	25	F	
H6	1	76		Mother	22	F	
H7	1	138		Father	30	M	
H8	1	102		Father	40	M	
H9	1	125		Father	28	M	
H10	1	151		Mother	28	F	
H11	1	173		Father	30	M	
H12	1	110		Mother	32	F	
H13	1	195		Mother	36	F	
H14	1	189		Father	35	M	
H15	1	246		Mother	21	F	
H16	1	230		Mother	23	F	
H17	1	221		Grandfather	50	M	
H18	1	78		Grandmother	51	F	
H19	1	285		Grandmother	50	F	
H20	1	288		Father	25	M	
H21	1	333		Father	40	M	
H22	1	271		Father	30	M	
H23	1	318		Father	30	M	
H24	1	306		Father	34	M	
End of Sector 1							
H25	2	377		Mother	24	F	
H26	2	390		Mother	28	F	
H27	2	450		Mother	25	F	
H28	2	410		Mother	38	F	
H29	2	437		Mother	26	F	
H30	2	528		Mother	24	F	
H31	2	431		Grandmother	48	F	
H32	2	374		Mother	37	F	
H33	2	482		Mother	24	F	
H34	2	501		Mother	32	F	
H35	2	541		Grandfather	65	M	Shop owner
H36	2	524		Mother	20	F	
H37	2	1298		Mother	30	F	
H38	2	1256		Mother	24	F	
H39	2	1245		Mother	38	F	
H40	2	571		Mother	26	F	
H41	2	585		Mother	25	F	
H42	2	615		Mother	28	F	
H43	2	639		Mother	25	F	

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H44	2	645		Father	32	M	
H45	2	700		Mother	27	F	
H46	2	602		Grandmother	55	F	
H47	2	717		Mother	26	F	
H48	2	732		Father	32	M	
H49	2	765		Father	24	M	
H50	2	775		Father	30	M	
H51	2	793		Father	29	M	
H52	2	747		Father	34	M	
H53	2	810		Father	30	M	
H54	2	1152/1153		Mother	28	F	
H55	2	820		Father	31	M	
H56	2	835		Grandmother	45	F	
H57	2	850		Mother	28	F	
H58	2	869		Father	34	M	
H59	2	903		Father	29	F	
H60	2	1121		Mother	28	F	
H61	2	912		Mother	28	F	
H62	2	940		Mother	31	F	
H63	2	966		Mother	29	F	
H64	2	979		Mother	26	F	
H65	2	991		Mother	24	F	
H66	2	1003		Mother	26	F	
H67	2	1015		Mother	26	F	
H68	2	927		Father	32	M	
H69	2	1034		Father	41	M	
H70	2	1045		Grandmother	45	F	
H71	2	1060		Mother	27	F	
H72	2	1075		Mother	22	F	
H73	2	1103		Mother	32	F	
H74	2	1107		Father	32	M	
H75	2	880		Mother	26	F	
H76	2	1202		Father	32	M	
H77	2	1137		Mother	23	F	
H78	2	1171		Uncle	40	M	
H79	2	1351		Mother	28	F	
H81	2	1184		Mother	25	F	
H83	2	1236		Father	25	M	
H84	2	1312		Uncle	14	M	
H85	2	1320		Mother	25	F	
H86	2	1338		Grandmother	67	F	
H87	2	1171		Mother	24	F	
H101	2	1370		Mother	30	F	
End of Sector 2							
H80	3	1393		Mother	36	F	
H82	3	1408		Mother	21	F	
H88	3	1420		Father	32	M	

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H89	3	1436		Mother	22	F		
H90	3	1452		Mother	24	F		
H91	3	1489		Grandfather	72	M		
H92	3	1571		Grandmother	40	F		
H93	3	1686		Mother	30	F	(Refer: Uma)	
H94	3	1694		Mother	21	F		
H95	3	1506		Father	31	M		
H96	3	1501		Mother	23	F		
H97	3	1513		Mother	24	F		
H98	3	1529/1530		Mother	20	F		
H99	3	1548		Mother	35	F		
H100	3	1557		Grandmother	48	F		
H102	3	1860		Mother	23	F	Red door next to shop	
H103	3	1594		Mother	21	F		
H104	3	1601		elder mother	32	F		
H105	3	1627		Mother	23	F		
H106	3	1632		Mother	25	F		
H107	3	1650/1651		Mother	25	F		
H108	3	1707		Mother	24	F		
H109	3	1722		Father	24	M		
H110	3	1735		Father	32	M		
H111	3	1789		Mother	32	F		
H112	3	1759		Mother	24	F		
H113	3	1771		Father	35	M		
H114	3	1808		Grandmother	48	F		
H115	3	1826		Mother	25	F		
H116	3	2153		Grandfather	60	M		
H117	3	1840		Mother	30	F		
End of Sector 3								
H118	4	1885		Mother	22	F		
H119	4	1870		Mother	24	F		
H120	4	1901		Grandfather	45	M		
H121	4	1922		Mother	24	F		
H122	4	1936		Mother	30	F		
H123	4	2160		Mother	31	F		
H124	4	1946		Mother	26	F		
H125	4	1965		Father	29	M		
H126	4	1975		Mother	25	F		
H127	4	2005		Mother	20	F		
H128	4	2020		Grandfather	58	M		
H129	4	2185		Mother	23	F		
H130	4	to be completed in Field week 1						
H131	4	2050		Father	30	M		
H132	4	2065		Mother	30	F		
H133	4	2081		Uncle	28	M		
H134	4	2104/2105		Mother	25	F		
H135	4	2170		Mother	36	F		

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H136	4	2037		Mother	23	F	
H137	4	1998		Mother	29	F	

**On-going Questionnaire Check-sheet**

**Interviewer:** Farihda

**Date (dd/mm/yyyy):** \_\_\_\_\_

**Visit #1**

Household Code	Sector	Plot/Door #	On-going questionnaire completed (Check here)	If, not completed. Explain why here.	Best Day and time of the week to visit household	Additional Comments
H91	3	1489				
H92	3	1571				
H93	3	1686				
H94	3	1694				
H95	3	1506				
H96	3	1501				
H97	3	1513				
H98	3	1529/1530				
H99	3	1548				
H100	3	1557				
H102	3	1860				
H103	3	1594				
H104	3	1601				
H105	3	1627				
H106	3	1632				
H107	3	1650/1651				
H108	3	1707				
H109	3	1722				
H110	3	1735				

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H111	3	1789				
H112	3	1759				
H113	3	1771				
H114	3	1808				
H115	3	1826				
H116	3	2153				
H117	3	1840				
H118	4	1885				
H119	4	1870				
H120	4	1901				
H121	4	1922				
H122	4	1936				
H123	4	2160				
H124	4	1946				
H125	4	1965				
H126	4	1975				
H127	4	2005				
H128	4	2020				
H129	4	2185				
H130	4					
H131	4	2050				
H132	4	2065				
H133	4	2081				
H134	4	2104/2105				
H135	4	2170				
H136	4	2037				
H137	4	1998				

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**On-going Questionnaire Check-sheet**

**Interviewer:** Farihda

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**Date (dd/mm/yyyy):**

**Visit:** \_\_\_\_\_

Date	Household Code	Sector	Plot/ Door #	On-going questionnaire completed (Check here)	If, not completed. Explain why here.	Additional Comments
	H91	3	1489			
	H92	3	1571			
	H93	3	1686			
	H94	3	1694			
	H95	3	1506			
	H96	3	1501			
	H97	3	1513			
	H98	3	1529/1 530			
	H99	3	1548			
	H100	3	1557			
	H102	3	1860			
	H103	3	1594			
	H104	3	1601			
	H105	3	1627			
	H106	3	1632			
	H107	3	1650/1 651			
	H108	3	1707			
	H109	3	1722			
	H110	3	1735			
	H111	3	1789			
	H112	3	1759			
	H113	3	1771			



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	H114	3	1808			
	H115	3	1826			
	H116	3	2153			
	H117	3	1840			
	H118	4	1885			
	H119	4	1870			
	H120	4	1901			
	H121	4	1922			
	H122	4	1936			
	H123	4	2160			
	H124	4	1946			
	H125	4	1965			
	H126	4	1975			
	H127	4	2005			
	H128	4	2020			
	H129	4	2185			
	H130	4				
	H131	4	2050			
	H132	4	2065			
	H133	4	2081			
	H134	4	2104/2 105			
	H135	4	2170			
	H136	4	2037			
	H137	4	1998			