



Côte d'Ivoire water, sanitation and hygiene promotion project report:

Baseline survey for phase IV

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***Côte d'Ivoire water, sanitation and hygiene promotion
project report: Baseline survey for phase IV
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Côte d'Ivoire water, sanitation and hygiene promotion project report:

Baseline survey for phase IV

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Guided by *Strategy 2020* – our collective plan of action to tackle the major humanitarian and development challenges of this decade – we are committed to 'saving lives and changing minds'.

Our strength lies in our volunteer network, our community-based expertise and our independence and neutrality. We work to improve humanitarian standards, as partners in development and in response to disasters. We persuade decision-makers to act at all times in the interests of vulnerable people. The result: we enable healthy and safe communities, reduce vulnerabilities, strengthen resilience and foster a culture of peace around the world.

Table of contents

Acknowledgements	4
.....	
Abbreviations	5
.....	
Glossary	6
.....	
Executive summary	7
.....	
Summary of recommendations for subsequent monitoring and evaluation	12
.....	
Introduction	13
.....	
Method	15
.....	
Findings from the survey of households and community water points	18
General characteristics of the villages and the households	18
Household sources of drinking water	18
Reasons for preferring one water source over another	19
Survey of water points (boreholes and protected wells with pumps)	20
Volume of drinking water reported to be consumed each day by the household	22
Who collects the water?	22
Village water committees and maintenance of water points	22
Alternative sources of water	25
Satisfaction with the current source of water	25
Sources of water for bathing, laundry, cooking and dishwashing	25
Storage of drinking water	25
Serving drinking water	26
Water treatment	26
Hand-washing	26
.....	

Use of latrines	27
Reasons for not using a latrine	28
Reasons for using a latrine	28
Type, distance and condition of latrines	28
Waste disposal	29
Use of a rack for drying dishes	29
Reported incidence of childhood diarrhoea during the last two weeks	29
Knowledge of the causes of diarrhoea	30
Exposure to community-level hygiene promotion	30

Findings from the survey of schools and school latrines 31

The schools surveyed	31
Hygiene promotion in schools	31
Sources of water for the schools	31
Satisfaction with sources of drinking water	32
School latrines	32
Hand-washing stations	32
Hand-washing practices	33
Knowledge of how to prevent diarrhoea	35
Use of a latrine while at school	35
Satisfaction with Red Cross support	35

Recommendations for subsequent monitoring and evaluation of the phase IV project 36

Recommendations for project monitoring	36
Recommendations for the end-of-project survey	36

Annexes 38

Annex 1: The sampling frame	38
Annex 2: Surface area not consistent with population projections	41
Annex 3: Segmentation of a village using a Google Earth image	42
Annex 4 : The questionnaires	43
Annex 5: Photographs captured and uploaded using Magpi questionnaires	58
Annex 6: Google Earth image showing the location of data collected	59
Annex 7: Photograph of a student using a hand-washing station	60

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The survey was designed by a team consisting of Zachari Issa (IFRC's regional coordinator for water, sanitation and hygiene promotion), Jacques Apollinaire (IFRC's water, sanitation and hygiene promotion delegate for Côte d'Ivoire), Jean-Claude Guedé (Red Cross Society of Côte d'Ivoire coordinator for water, sanitation and hygiene promotion), Robert Fraser (IFRC's global coordinator for water, sanitation and hygiene promotion), Rania Alerksoussi (IFRC's coordinator of RAMP activities) and Bob Pond (independent consultant).

This report is dedicated to the team of Red Cross community mobilizers, project coordinators, volunteers and drivers, who, consistently and over many long days, demonstrated their rigorous attention to the requirements for collecting high-quality survey data.

Abbreviations

CI	Confidence intervals
EPI	Expanded programme on immunization
IFRC	International Federation of Red Cross and Red Crescent Societies
GPS	Global Positioning System
GWSI	Global Water and Sanitation Initiative
RAMP	Rapid Mobile Phone-based system
WASH	Water, sanitation and hygiene promotion

Glossary

Confidence interval is a percentage value that describes how likely it is that the true value of the characteristic being estimated will fall into the interval defined, if the survey were to be repeated many times. The usual level of confidence is 95 per cent. For example, if the point estimate is 70 per cent and the 95 per cent confidence interval is ± 5 per cent, then 95 per cent of the time the true value would fall between 65 and 75 per cent if the survey were to be repeated many times.

Expanded programme on immunization (EPI) is a World Health Organization programme with the goal to make vaccines available to all children throughout the world.

EPI random-walk method entails (i) randomly choosing a starting point and a direction of travel within a sample cluster, (ii) conducting an interview in the nearest household, and (iii) continuously choosing the next nearest household for an interview until the target number of interviews has been obtained.

Haversine formula is an equation important in navigation, giving great-circle distances between two points on a sphere from their longitudes and latitudes.

Sample represents part of the population that is selected to participate in the survey. A survey is a method of collecting information about a population which involves gathering data from only a part of the population and estimating from the results what is occurring in the entire population.

Stata is a data analysis and statistical software. Stata's capabilities include data management, statistical analysis, graphics, simulations, regression analysis (linear and multiple), and custom programming.

Statistically significant results are not likely to occur randomly or by chance, but these results could be attributed to a specific cause. It should be noted however that statistical significance does not always mean practical significance, in terms of the observed magnitudes.

Executive summary

Introduction

This is a report of a baseline survey of households, schools and water points in a random sample of 30 villages selected for phase IV of the Côte d'Ivoire water, sanitation and hygiene promotion (WASH) project. This, the final phase of the project, extends from 2014 to 2017 and aims to provide improved WASH services to 52 new project villages in addition to 71 villages previously benefiting from phase III of the project. The sample included 14 villages previously targeted for phase III community mobilization.

The survey was conducted by a group of community mobilizers and project managers from the phase III WASH project, who were trained using a modified version of the International Federation of Red Cross and Red Crescent Societies' (IFRC) Rapid Mobile Phone-based (RAMP) system. Questionnaires were administered and the responses recorded using Samsung tablets equipped with Magpi software.

Surveyors aimed to interview 15 households in each of the 30 selected villages. A total of 436 household interviews were completed. The teams surveyed all boreholes and protected wells with pumps in each village. In 25 of the villages, the teams surveyed the head teacher, between two and six students and the latrine at a local school. Each questionnaire included a question that automatically captured the geo-coordinates at the site where the questionnaire was administered. The pump and latrine questionnaires also captured photographs of the infrastructure.

Sources of drinking water

Forty-six per cent of households took their drinking water from a protected source (protected well with pump, borehole or standpipe) while 54 per cent took their drinking water from an unprotected source (unprotected well or surface water). After excluding households which obtained their drinking water from a standpipe, the percentage of households reporting that they drank from a protected source appears to be higher in villages benefiting from phase III water point rehabilitation (52 per cent) than in other villages (33 per cent).

Records were completed on 41 boreholes and 16 protected wells with pumps. Twenty-four per cent of borehole pumps and 60 per cent of pumps on top of protected wells were non-functional. Forty-three per cent of borehole pumps and 40 per cent of pumps on top of protected wells had been maintained in the last six months. Pumps were more likely to be functional if they had been maintained in the last six months (67 per cent versus 30 per cent; difference statistically significant with $p < 0.002$).

The percentage of households drinking from a protected pump (borehole pump or pump on top of a protected well) dropped sharply as the distance to the nearest pump increased beyond 100 metres. For 80 per cent of households, only females (women and girls) collect the water.

Village-level maintenance of water points

Different households in the same village sometimes provided conflicting information on whether their village had a functioning water committee and whether a fee was charged for maintenance of protected pumps. Nonetheless, the data were consistent enough to conclude that fees were paid for maintenance of pumps in at least nine villages whereas no fees were paid in at least four other villages. In villages where fees were paid for maintenance of pumps, a higher percentage of pumps were fully functional (71 per cent versus 46 per cent), although the difference was not statistically significant.

Such findings are intuitive and suggest that the data are internally consistent. What is surprising, however, is that, compared to households in villages not yet targeted for community mobilization, the households in villages already targeted for phase III community mobilization were significantly less likely to report that the villages had water committees or to report paying for maintenance of pumps. They also appeared to be less likely to participate in activities to maintain the pumps and less likely to have pumps in their villages that were at least partly functional.

Together, these findings suggest the limitations of phase III community mobilization activities. It is possible that the villages targeted for phase III community mobilization were particularly resistant to efforts to promote development of water committees and village-level financing of the maintenance of water points. It must be noted that the villages targeted for phase III community mobilization have populations that are more than twice as large as those of the villages not yet targeted for such community mobilization. If these findings are confirmed during baseline assessment of other project villages, then the project should consider developing and implementing alternative approaches to mobilization of larger communities.

Sources of water for bathing, laundry, cooking and dishwashing

A large majority (more than 80 per cent) of households drinking water from a protected source take their water for bathing, laundry, cooking and dishwashing from the same protected source. This helps to explain why informants find it so difficult to estimate the volume of drinking water they consume each day.

Water storage and dispensing

Even among households that take their drinking water from a protected source, 12 per cent store their drinking water in a dirty container and 91 per cent of households serve their drinking water by dipping a possibly dirty cup into the container.

Water treatment

Only 27 per cent of households drinking protected water and 20 per cent of households drinking non-protected water reported that they ever treat water when it may be unsafe. The most common methods of treatment include filtration (11 per cent of households) and the addition of chlorine (7 per cent of households).

Hand-washing

While almost all informants reported that they wash their hands before eating, only 17.6 per cent said that they do so after defecating. Informants in households in communities targeted for phase III community mobilization were no more likely than those in communities not yet targeted for community mobilization to report hand-washing after defecation.

Fifty-two point four per cent (43.0 per cent – 61.9 per cent) of household informants were observed to wash their hands with a technique that was at least adequate (with clean water and soap). The percentage of respondents in phase III community mobilization villages who washed their hands adequately was not significantly different from the percentage in other villages.

Use of latrines

According to household informants, the adults of 53 per cent of households defecated in a latrine. This percentage appears to be somewhat lower in villages exposed to phase III community mobilization than it was in villages not yet exposed to water, sanitation and hygiene promotion community mobilization (46 per cent versus 60 per cent).

Children were reported to defecate in a latrine in 68 per cent of households where adults used a latrine. Though this may, at first, appear to be the result of the carelessness of children, informants reported with a subsequent question that only 71 per cent of households with a latrine authorized children to use the latrine. Children in villages targeted for phase III community mobilization appear no more likely than children in villages not yet targeted for community mobilization to defecate in a latrine.

When informants in households not using a latrine were asked why not, 64 per cent said that latrines are too expensive and 11 per cent said that latrines are too difficult to dig. When informants in households using a latrine were asked why, 55 per cent said they used a latrine to prevent disease, 21 per cent to provide privacy, 17 per cent for convenience/comfort, 13 per cent to prevent bad odours and 10 per cent to prevent flies.

Characteristics of the latrines

Half (53 per cent) of households had no latrine. Another 7 per cent of households had a latrine without a concrete slab. Only 39 per cent of households had a latrine with a concrete slab.

Half (53 per cent) of the latrines were private while the remainder were shared with other households.

Half (53 per cent) of latrines were within the courtyards of the households. Another quarter (24 per cent) of latrines were within 10 metres of the courtyards and the remainder were more than 10 metres away.

All of the 177 latrines that were observed were clearly in use. Seventeen per cent of them were clean, well maintained and covered. Another 58 per cent of latrines were clean but uncovered or they had cracks in the slab. Twenty-three per cent were dirty and/or poorly maintained.

Women were responsible for cleaning 77 per cent of latrines compared to men who were responsible for only 9 per cent and children 7 per cent.

Waste disposal

Only 15 per cent of households deposited their household garbage in an approved waste depot. Three-quarters of households admitted to throwing their waste into the fields or into illegal dumps. It appeared that such illegal dumping was somewhat less common in villages exposed to phase III community mobilization (67 per cent versus 82 per cent) although this difference was not statistically significant.

Use of a rack for drying dishes

Only 4.4 per cent left their dishes to dry on a rack. Ninety-two per cent left dishes close to the ground (typically in a basin) where they could be soiled. This practice did not vary significantly in villages exposed to phase III community mobilization.

Reported incidence of childhood diarrhoea during the last two weeks

The two-week incidence of childhood diarrhoea appeared to be lower in households with a latrine (6 per cent) than in households without a latrine (12 per cent), although this difference was not statistically significant.

Knowledge of the causes of diarrhoea

When respondents were asked to say what caused diarrhoea, the mean number of correct responses (out of seven) was 1.3 (1.1 – 1.5). Overall, 14.5 per cent (9.4 – 19.7) of respondents could not specify a correct cause of diarrhoea. These statistics were not significantly better for respondents in villages targeted for phase III community mobilization (1.3 correct responses; 15.5 per cent of respondents could not name any correct response) than they were for respondents not yet targeted (1.3; 13.6 per cent).

Exposure to community-level hygiene promotion

Phase III community mobilization activities ended in December 2013. This was reflected in the finding that only 18 per cent of respondents could recall a home visit and only 16 per cent of respondents could recall a community meeting in the last six months to promote improved water, sanitation or hygiene.

Findings from the survey of schools and school latrines

Twenty-eight schools were surveyed in 25 villages. In each school, one teacher and at least two students were interviewed and the latrine and hand-washing stations (if any) were inspected.

Hygiene promotion in schools

Forty-six per cent of the schools had functional hygiene clubs. Only 21 per cent of schools had had meetings in the last six months to promote improved water supply, sanitation or hygiene.

Sources of water for the schools

Sixty-eight per cent of the teachers interviewed said that their schools had no source of drinking water. Eighteen per cent of schools had water supplied by borehole while 14 per cent of the schools collected drinking water from an unprotected well. Only 16 per cent of the students interviewed said that, while at school, they obtained drinking water from the school's water source.

GPS coordinates showed that the percentages of schools within 100 metres of the closest functioning or partly functioning pump, within 100 to 500 metres, or more than 500 metres away were 14 per cent, 39 per cent and 25 per cent, respectively. A quarter of schools were in villages without functioning or partly functioning pumps.

School latrines

Twenty (70 per cent) of the schools had latrines. Seventy per cent of these latrines were clean and well maintained, while 20 per cent were dirty and poorly maintained and 10 per cent had been either abandoned or locked up and not used for more than a year.

Hand-washing stations

Fifteen (54 per cent) of the schools had at least one hand-washing station (see photograph in [Annex 7](#)) and 14 schools (50 per cent) had at least one that still functioned. Of the 27 hand-washing stations that were inspected, 22 per cent were broken (typically for lack of an inexpensive rubber gasket). Unfortunately, teachers at 11 of 14 (79 per cent) schools which had functional hand-washing stations said that there was no water source for the school.

Hand-washing practices

When teachers were compared with household informants, the percentage of them who said that they washed their hands after defecating and the percentage of them with good hand-washing technique were substantially higher. Students' knowledge of when to wash their hands and students' hand-washing techniques were intermediate between those of household informants and those of teachers. Students at schools with active hygiene clubs appeared to do better than students at schools without such clubs. Students at schools targeted for phase III community mobilization appeared to do better than students at schools not yet targeted.

Knowledge of how to prevent diarrhoea

Forty per cent of students could not name any correct way to prevent diarrhoea. Students could name a higher number of correct ways if the school had a hygiene club (1.6 correct ways versus 0.8 correct ways) and if the school had been targeted for phase III community mobilization (1.4 versus 0.8).

Use of a latrine while at school

Even at schools with latrines, only 88 per cent of students said that they used them. The percentage of students who reported using the school latrine to defecate while at school did not vary significantly as a function of whether there was a hygiene club or whether the village had been targeted for phase III community mobilization.

Satisfaction with Red Cross support

Seventeen (61 per cent) of the 28 teachers interviewed said that their school had previously benefited from Red Cross activities. All 17 were satisfied with this assistance and no complaints were reported.

Summary of recommendations for subsequent monitoring and evaluation

Recommendations for subsequent project monitoring

1. The tablets and Magpi software should be used for subsequent project monitoring. Recommendations for the design of such a project monitoring system are the subject of a separate report.
2. For some of the project villages, the current population estimates cannot be relied upon for project planning. A top priority during the initial stages of the project will be to conduct a rapid count of compounds or households in each village.

Recommendations for the end-of-project survey

1. If, as a result of project interventions, these key indicators can be increased by 20 to 30 percentage points then an end-of-project survey with a comparable random sample size should be able to demonstrate a statistically significant improvement. If the impact of the project is anticipated to be smaller than this, then a larger random sample will be needed for the end-of-project survey, if it is to show a statistically significant improvement.
2. There are three options for selection of the sample for the end-of-project survey:
 - a. Google Earth images could be used once again to segment each village.
 - b. Surveyors could rely exclusively on the expanded programme on immunization (EPI) random-walk method'.
 - c. Geo-coordinates and Google Earth imagery could be used to relocate and resurvey the same (or almost the same) households. This may prove to be the simplest approach and one that would be more likely to show a statistically significant change in key indicators.

Introduction

The use of mobile phone technology and virtual networks has over recent years become increasingly applicable to both humanitarian and developmental efforts worldwide. The proven benefits and indeed potential broadened scope and use of these technologies and approaches is fast evolving and is becoming standard practice for both emergency and development players, their partners and donors.

Using mobile phone-based technology makes it easier and more efficient to gather data in comparison to paper-based solutions. Data can be collated and analysed more easily and quickly, give remote access to managers and other interested parties (both in-country and internationally), can increase transparency and provide a platform for greater interaction between the field, headquarters and international information flow and knowledge sharing.

This technology already is and will increasingly play a role in providing access to and empowering populations targeted for humanitarian and development interventions. Giving individuals and groups an effective platform to disseminate their views gives them a potentially greater role in decision-making in project or programme design and delivery. It is also a means to capture their perspectives and learn from past experience.

The International Federation of Red Cross and Red Crescent Societies' (IFRC) Global Water and Sanitation Initiative (GWSI 2005–2025) is the umbrella under which Red Cross Red Crescent National Societies deliver developmental water, sanitation and hygiene promotion (WASH) projects.

Traditionally, IFRC has mostly used standardized tools and methods that were paper-based for conducting baseline, mid-term, end-line and look back post project surveys and studies. IFRC has adapted these standardized approaches using mobile phone-based technology and supporting networks.

The WASH project in Côte d'Ivoire is being implemented in four phases. During the implementation of phase IV, 2014 to 2017, the project aims to provide improved water, sanitation and hygiene services to 52 new project villages in addition to 71 villages previously benefiting from phase III of the project. The services provided during phase III varied from one village to another. Of the 71 villages benefiting from phase III, 33 had been targeted for community mobilization, 49 for repair of one or more hand/foot pumps and 27 for construction or rehabilitation of a school latrine.

The results presented here and in the Use of rapid-mobile phone-based system for monitoring: Phase IV Côte d'Ivoire water, sanitation and hygiene promotion project report present an example of a baseline exercise. This is the first step in process that will evolve based on further learning and experience.



Method

For the baseline survey, 30 of the 123 phase IV villages were selected at random with a probability of selection that was proportional to the size of the village (the sampling frame is provided as [Annex 1](#)).¹ This included 14 villages previously targeted for phase III community mobilization (hereafter referred to as 'phase III community mobilization villages'), nine villages targeted for phase III pump repair/rehabilitation ('phase III pump villages') and 14 villages targeted for phase III school latrine construction ('phase III latrine villages'). Figure 1 shows the location of the 123 phase IV villages and those selected for the baseline survey.

The survey was conducted from 17 February to 13 March 2013. Four teams were formed from community mobilizers and project managers from the phase III WASH project. Each team consisted of one supervisor and two surveyors. These 12 field workers were trained from 17 to 21 February (i.e., five days of training) using a modified version of the IFRC RAMP guide.² This included two days of field practice.

The household survey itself extended from 23 February to 3 March (i.e. eight days, not including a day of rest on Sunday, 1 March). A complementary survey of schools located in the same villages as were the households surveyed extended from 23 February to 13 March.

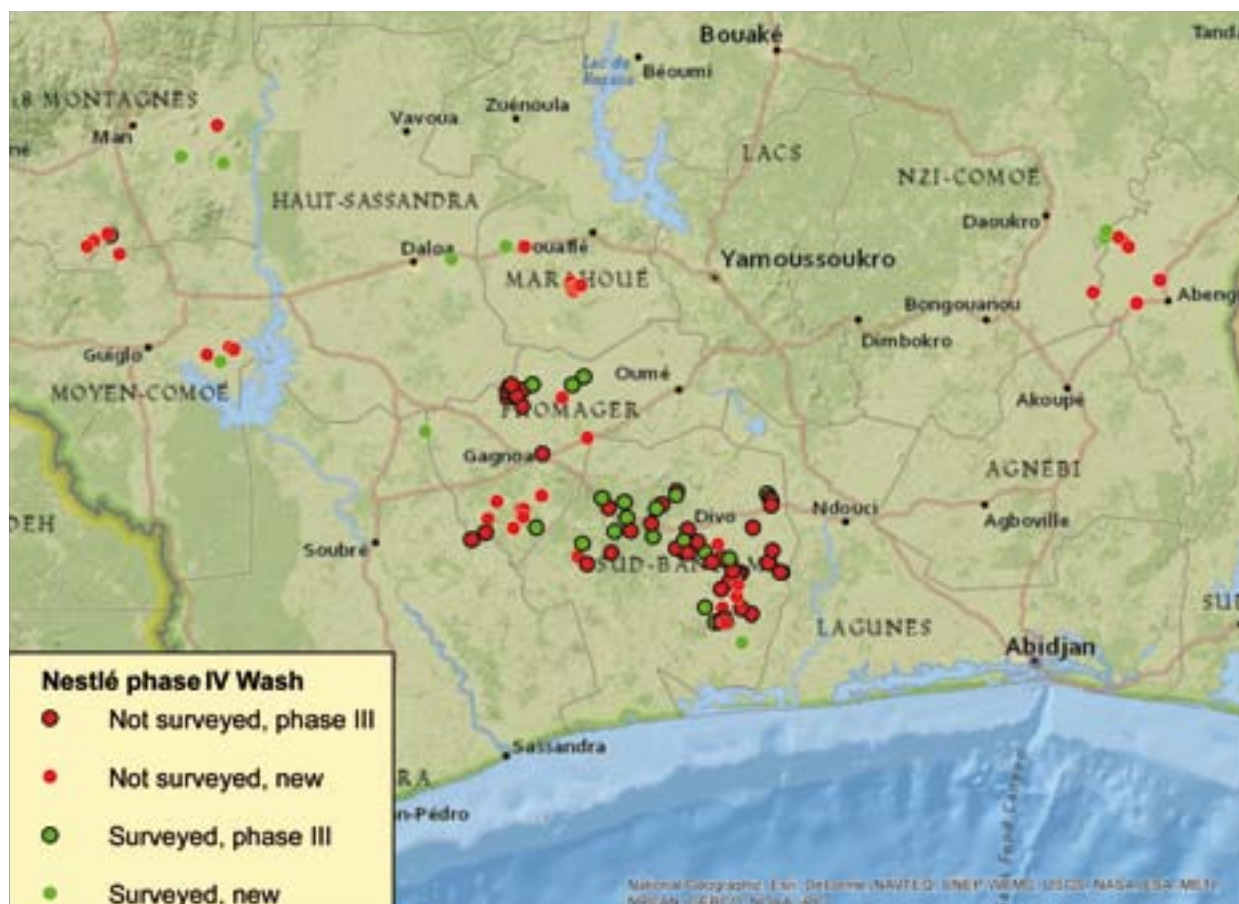
In each of the 30 villages, 15 households were to be selected at random for the household survey.³ These households were selected using a modification of the segmentation approach described in the RAMP guide. Selection of an appropriately sized segment in each village was complicated by the fact that no estimates were available of the relative size of the different neighbourhoods of each village. Google Earth imagery (see [Annex 3](#)) was thus used to estimate the surface area of various segments of each village. A segment containing approximately 40 households was therefore selected with the probability of selection of each segment being proportional to the surface area of the segment.

¹ *Compilation of a suitable sampling frame was complicated due to uncertainties about village populations. For many of the new villages, the only available population estimates were based upon projections of the 1998 national population census. Due to significant migration during the intervening years, such estimates could be quite unreliable. This was shown by the fact that the surface area of several of these new villages (see Annex 2) was out of proportion to the population projected from the 1998 census. To arrive at a more reliable figure, the populations of 67 of the villages were estimated based upon the surface area of recent Google Earth images (assuming an average of 109 persons per hectare). Annex 1 provides the sampling frame along with both of the populations based upon projection from the 1998 census as well as the adjusted population estimated from a recent Google Earth image.*

² www.ifrc.org/ramp

³ *The total size of the sample (450 households) would be adequate to find a statistically significant increase in use of latrines if: 40 per cent of households used a latrine at baseline; 50 per cent of households used a latrine at the end of the project; type 1 error = 5 per cent; type 2 error = 20 per cent; design effect = 2; response = 95 per cent; and the end-of-project survey had the same sample size as did the baseline survey.*

Figure 1: Villages involved in phase IV of the Côte d'Ivoire WASH project, including those surveyed and those not surveyed, those targeted during phase III and new villages



Images suitable for this purpose were available for 23 of the 30 villages. The aerial photograph of the segment provided a good map with which to locate and number the households of the segment. Once a segment of approximately 40 households had been mapped in this way, a table of random numbers by interval was used to select 15 of the households at random.

⁴ The survey team started at the centre of the village, used a spinning pen to select a direction randomly, then walked in that direction (usually zigzagging to move around structures) while counting the structures that they passed. A random number table was then used to select a number between one and the number of structures passed. The team then returned to the selected structure and used that as the centre of its segment.

⁵ For villages in which 16 households were surveyed, data from the 16th house (the last to be surveyed) were omitted from the sample.

For villages for which no suitable aerial image was available, the 'EPI random-walk method' was used first to select a starting point at random.⁴ Surveyors then mapped a segment of approximately 40 households surrounding the starting point and used a table of random numbers by interval to select 15 of the households at random.

The survey was carried out at a time of the year when many families spent much of the day at their farms to prepare their fields for the oncoming rains. As a result, about 20 per cent of the selected households were vacant during the initial visit and about 15 per cent of households remained vacant at the time of a single return visit. In these cases, the nearest occupied house was selected as a substitute to be surveyed. The resulting sample included 12 to 16 houses in each of 30 project villages.⁵ Therefore, a total of 436 household interviews was completed after informed consent was obtained (only two refusals were recorded).

The responses were recorded immediately on Samsung tablets equipped with Magpi questionnaires.

The teams also surveyed all boreholes and protected wells⁶ with pumps in each village and, in 25 of the villages, the teams surveyed the head teacher and between two and six students at a local school.⁷ The resulting data set includes photographs of most boreholes.

The five questionnaires (household, pump, teacher, student, latrine) are included as [Annex 4](#). Each questionnaire included a question that automatically captured the geo-coordinates at the site where the questionnaire was administered. The pump and latrine questionnaires also captured photographs of the infrastructure (see [Annex 5](#)).

All data were uploaded to the Magpi server. The data were downloaded subsequently to excel spreadsheets, which then were analysed using Stata version 13. All household statistics were weighted for non-response/incomplete sampling⁸ and adjusted for the effect of cluster sampling⁹ using Stata svy commands. With the haversine formula,¹⁰ the geo-coordinates were used to calculate the distance of each pump from the households and schools surveyed. The geo-coordinates of all villages, all households interviewed, all boreholes and protected hand pumps, and all latrines were also placed on Google Maps to visualize the location of these features (see [Annex 6](#)).

For measurements of key indicators, 95 per cent confidence intervals (CI) are provided in parentheses. This can be interpreted as meaning that there is a 95 per cent chance that the true value of the measurement within the full population of each project village falls within this range.

⁶ A protected well is one that is adequately lined to sufficient depth to prevent surface water from infiltrating.

⁷ Surveyors visited each class of the school and selected the student who was closest to the door. Two schools were surveyed in Krazandougou, Neko-Tiegba and Gnéhiri. Data from these schools were included in the analysis.

⁸ A proportionally higher weight was given to data from villages where fewer than 15 responses were obtained.

⁹ Compared to simple random sampling, cluster sampling increases the width of CI by a factor equal to the square root of the design effect (DEFF).

¹⁰ en.wikipedia.org/wiki/Haversine_formula

Findings from the survey of households and community water points

General characteristics of the villages and the households

The walls of half (55.5 per cent) of the houses were constructed from wattle and daub while half (44.5 per cent) were made of concrete.

Fifty-four per cent of respondents were male while 46 per cent were female. Eighty-nine per cent of heads of household were men while 11 per cent were women. Half (50 per cent) of household heads had received no formal education while 23 per cent had attended primary school, 22.5 per cent had attended secondary school and 3.2 per cent had received some higher education.

'Advantaged' households were defined as those living in houses with concrete walls where the head of the household had secondary or higher education. Thirteen per cent of households met the definition.

The reported size of the household varied from one to 41 people.

Household sources of drinking water

Respondents were asked: "This week, what was the principal source of drinking water for the members of your household?" Findings are presented in Table 1:

Source	Number of households	Percentage
Unprotected well without a pump	172	39.5
Unprotected well with a pump	8	01.8
Protected (lined) well with a pump	25	05.7
Borehole with a pump	119	27.3
Standpipe near to the house	18	04.1
Standpipe far from the house	33	07.6
Protected spring	3 ¹¹	00.7
Unprotected source	12	02.8
Surface water (pond, stream)	44	10.1
Bottled water/sachets	2 ¹²	00.5
Total	436	100.0%

11 This statistic is likely to be the result of misclassification by the surveyors as there are unlikely to be any protected springs in the villages surveyed.

12 One of these respondents had, in the last two weeks, moved to a village where the only hand pump had broken recently. He gave a convincing account of procuring water sachets from a town one mile away and drinking seven litres per day of sachet water.

In summary, 46.0 per cent (95.0 per cent CI = 32.1 per cent – 60.0 per cent) of households took their drinking water from a protected source (protected well with pump, borehole, standpipe, bottled) while 54.0 per cent took their drinking water from an unprotected source (unprotected well, surface water).

After excluding households which obtained their drinking water from a standpipe, the percentage of households reporting that they drank from a protected source appeared to be higher in villages benefiting from phase III water point rehabilitation (51.6 per cent – 95.0 per cent CI = 29.6 per cent – 73.7 per cent) than it was in other villages (32.6 per cent – 95.0 per cent CI = 15.4 per cent – 49.9 per cent). However, this difference was not statistically significant.

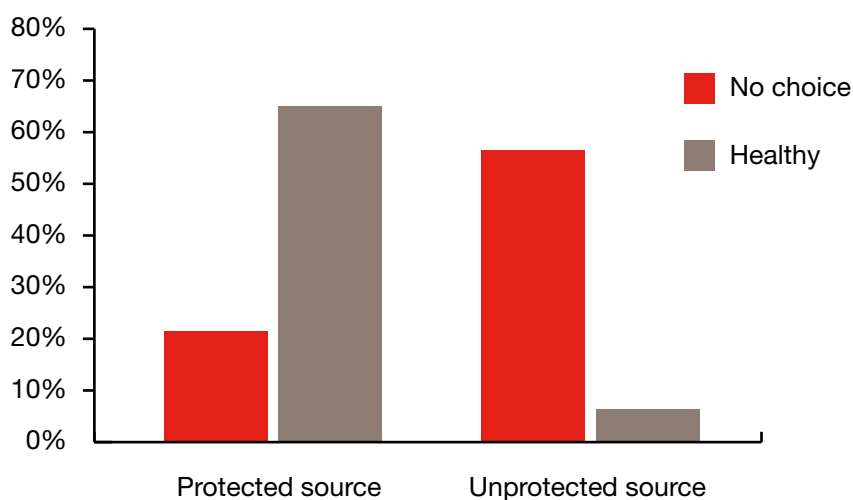
Twenty-four point three per cent (0.6 per cent – 47.8 per cent) of advantaged homes versus 9.6 per cent (1.2 per cent – 18.0 per cent) of non-advantaged homes obtained their drinking water from a standpipe (private or public). However, the difference was not statistically significant.

After excluding all households that drink from standpipes, the percentage of households drinking water from a protected source was not significantly higher for more-affluent households (40.2 per cent) than it was for less-affluent households (38.8 per cent).

Reasons for preferring one water source over another

When asked why they preferred to drink from a particular source of water, 40.2 per cent (including 56.4 per cent of those who drank unprotected water) said that they did so because they had no choice. One-third (33.3 per cent) of respondents (including only 6.5 per cent of those who drank from a non-protected source but 65 per cent of those who drank from a protected source) said that they preferred their water source because it was healthy (see Figure 2). Fewer than 10 per cent of respondents gave each of the other possible reasons (cost, quantity, taste, proximity).

Figure 2: Reason why the principal water source is preferred



Almost half (44.8 per cent) of respondents said that their main source of drinking water was fewer than 30 metres away. However, analysis of the GPS data (see below) shows that, often, distance to a water source was underestimated significantly.

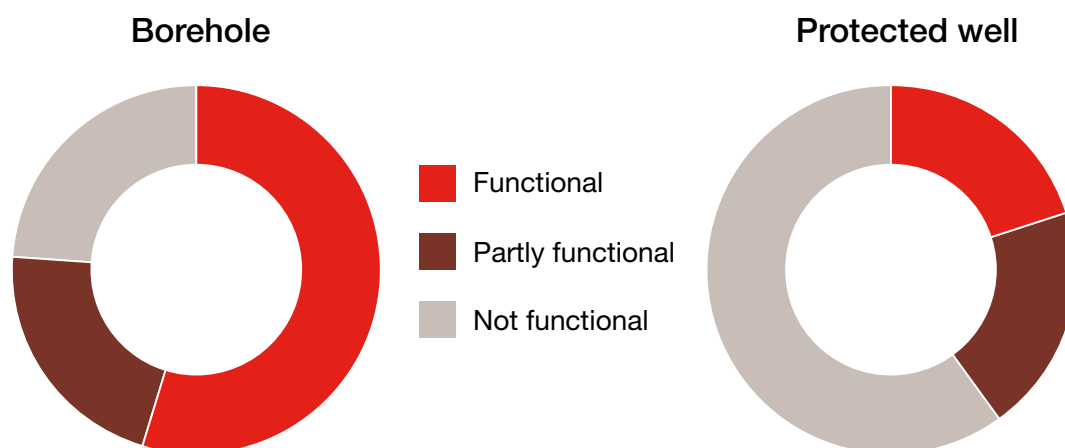
Survey of water points (boreholes and protected wells with pumps)

Records were completed on 41 boreholes and 16 protected wells with pumps.

Photographs were uploaded via Magpi for 29 of these 57 water points surveyed (for most of the remaining water points, photographs were taken and recorded directly on the tablets).

Fifty-four point eight per cent of the borehole pumps and 20.0 per cent of the pumps on top of protected wells were fully functional. Another 21.4 per cent of the borehole pumps and 20.0 per cent of the pumps on top of protected wells were partly functional. This left 23.8 per cent of borehole pumps and 60.0 per cent of pumps on top of protected wells that were non-functional (see Figure 3).

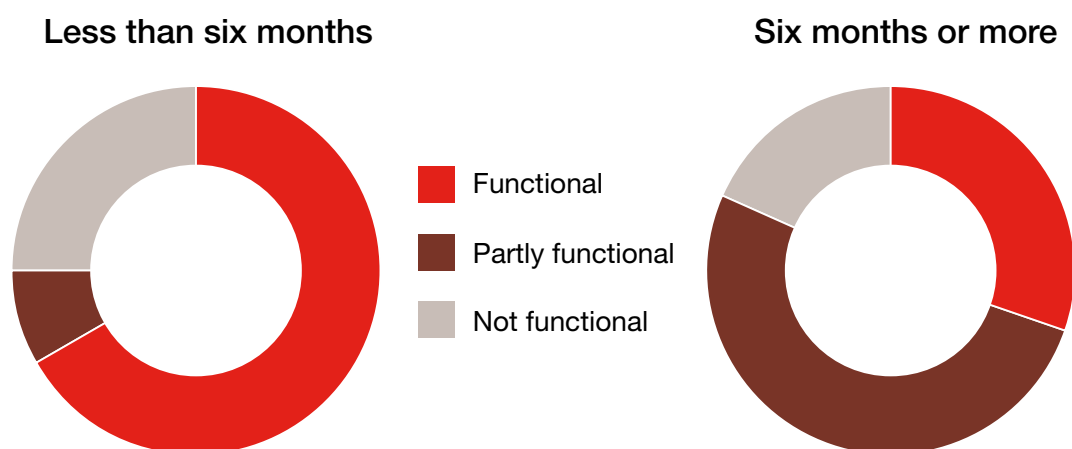
Figure 3: Functionality of hand/foot pumps – boreholes versus protected wells



According to the village informant, 42.9 per cent of borehole pumps and 40.0 per cent of pumps on top of protected wells had been repaired in the last six months.

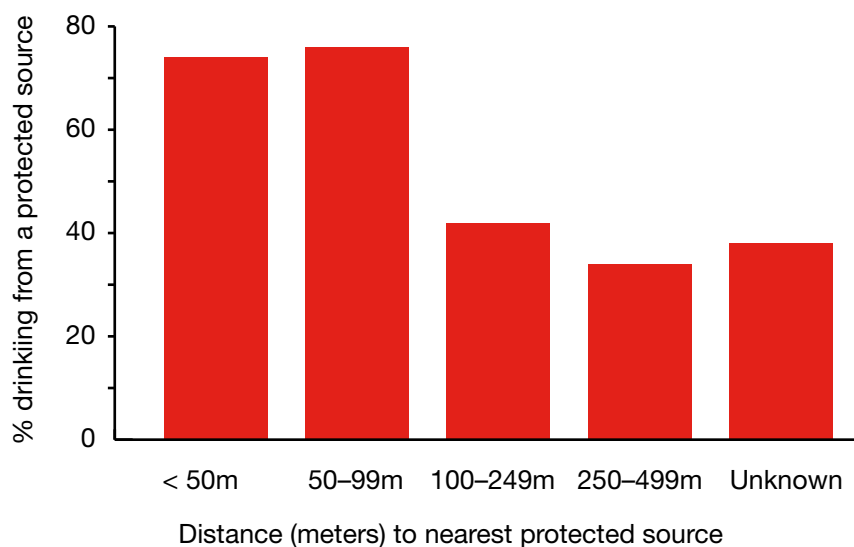
Compared to pumps not repaired in the last six months (30.3 per cent), a significantly higher percentage of pumps repaired in the last six months (66.7 per cent) were functional (see Figure 4 – a difference that is statistically significant with $p < 0.002$).

Figure 4: Functionality of pumps by time elapsed since the last repair



Half of households that take their drinking water from a borehole live within 105 metres of the borehole. When households taking drinking water from a standpipe were excluded, the percentage of households drinking from a protected source dropped sharply as the distance to the nearest pump increased beyond 100 metres (see Figure 5).

Figure 5: Percentage of households drinking water from a protected source as a function of distance to the nearest protected water source, excluding households drinking water from a standpipe



Forty-three per cent of informants using a pump estimated that the pump was fewer than 30 metres from their house. However, 85 per cent of these households were actually more than 50 metres from the nearest pump.

Volume of drinking water reported to be consumed each day by the household

For purposes of the analysis, one child who is younger than five years of age is assumed to consume one-quarter of the amount consumed by an adult while a child of five to 14 years of age is assumed to consume one-half of the amount consumed by an adult. In this way, using the number of persons of each age that was reported to stay in each household, the number of 'adult equivalents' was estimated for each household.

The 20 per cent of households reporting the highest consumption of drinking water reported that they drank more than 10 times as much (more than 40 litres per adult equivalent per day) as the 20 per cent of households reporting the lowest consumption of water (< four litres per adult per day).

In conclusion, the data recorded regarding reported consumption of drinking water cannot be interpreted meaningfully. Estimates of each village's requirements for drinking water should be based upon a **reliable** estimate of the village's population (which has yet to be determined) and a research-based estimate for consumption of drinking water by a person living in the humid tropics.

Who collects the water?

For 80 per cent of households, only females (women and girls) collect the water.

Village water committees and maintenance of water points

Household informants were asked three interrelated questions regarding village-level maintenance of pumps:

- Is there a functioning village water committee?
- Does the household pay for the pump water it consumes?
- Who pays for the maintenance of the pumps? (The type of response that was anticipated was: "Each family that uses the water pays to maintain the pumps".)

Informants consuming pump water gave varying responses but, within a given village, there was usually enough consistency to conclude that villages varied greatly as to whether they had functional water committees and whether there were systems in place for households to pay for the water they consumed.

Overall, forty-three per cent of household informants reported that there was a village water committee in their village. This average obscures the fact that the great majority (> 80 per cent) of informants in nine villages reported that there was a water committee whereas the great majority of informants in five other villages reported that there was no water committee.

Among households taking drinking water from a protected well, an overall average of 60 per cent said that they paid for the water. This average includes data from nine villages, in which every household surveyed that drank from a protected well reported paying for it, as well as data from another four villages where no one drinking from a protected well reported paying for it.

Among households taking drinking water from a protected well, an overall average of 60 per cent (somewhat different households from those which reported paying daily fees but the same percentage) said that each household that consumes pump water pays to maintain the pump. This average includes data from seven villages in which the great majority of households that drank from a protected well reported this approach to financing of pump maintenance as well as data from another eight villages where very few (fewer than 20 per cent) households drinking from a protected well reported that each household pays for pump maintenance.

Responses to these three questions are clearly interrelated. For example, in villages where the great majority of households reported that there was a water committee, 90.9 per cent (95 per cent CI = 81.0 per cent – 100.0 per cent) of households consuming pump water reported that they paid a fee for it and 90.7 per cent (80.7 per cent – 100.0 per cent) reported that “each family that consumes pump water pays to maintain the pump”. In contrast, in villages where few households reported that there was a water committee, 28.1 per cent (6.0 per cent – 50.0 per cent) of households consuming pump water reported that they paid a fee for it and 28.0 per cent (5.6 per cent – 50.3 per cent) reported that users paid to maintain the pumps. These differences between villages with water committees and villages without were statistically significant.

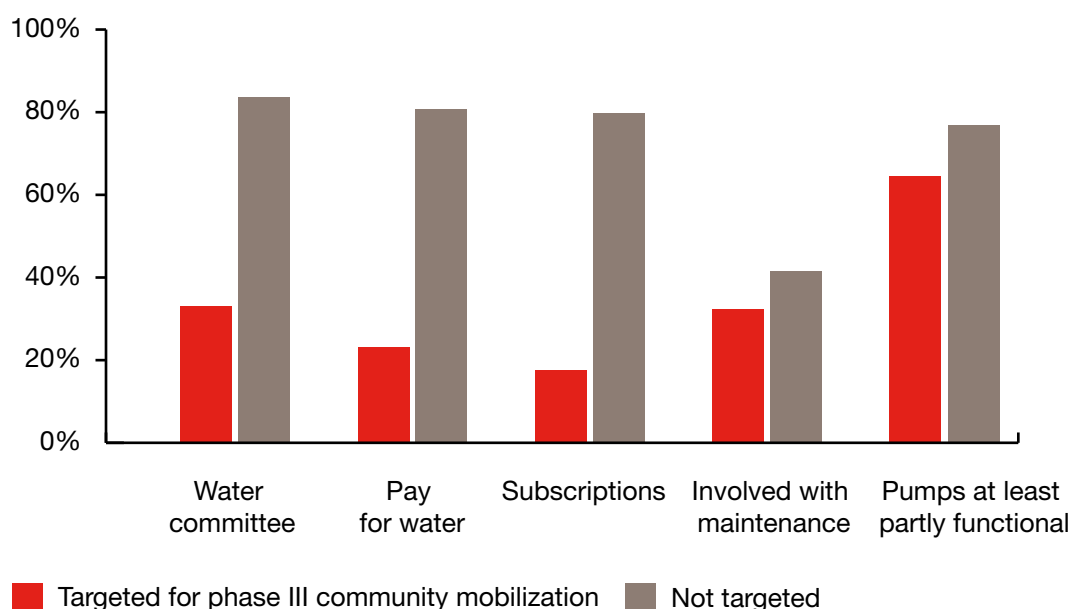
Why are findings related to these three questions important? Village-level financing is important for sustainable maintenance of pumps. This is suggested by the finding that, in villages where the great majority of informants reported that “each household that consumes pump water pays to maintain the pump”, 71.2 per cent (42.2 per cent – 100.0 per cent) of pumps were functioning. In contrast, in villages where few households reported that users paid to maintain the pumps, only 45.8 per cent (15.1 per cent – 76.5 per cent) of the pumps were functioning.

Such findings are intuitive and suggest that the data are internally consistent. What is surprising, however, is that, among households drinking water from a protected well (see Figure 6):

- A much higher percentage of households reported that there was a village water committee, if they were not targeted for phase III community mobilization (83.5 per cent; 64.4 per cent – 100.0 per cent; 86 households) than if they were targeted for phase III community mobilization (33.0 per cent; 5.2 per cent – 60.8 per cent; 46 households). This difference is also statistically significant.
- A much higher percentage of households reported paying for their water, if they were not targeted for phase III community mobilization (80.8 per cent; 65.5 per cent – 96.1 per cent; 95 households) than if they were targeted for phase III community mobilization (22.9 per cent; 0 per cent – 48.0 per cent; 49 households). This difference is also statistically significant.
- A much higher percentage of households reported that that “each family which uses the water pays to maintain the water source”, if they were not targeted for phase III community mobilization (79.8 per cent; 66.8 per cent – 92.9 per cent; 95 households) than if they were targeted for phase III community mobilization (17.5 per cent; 0 per cent – 44.2 per cent; 42 households). This difference is also statistically significant.

- A somewhat higher percentage of households participated in activities to maintain the water points, if they were not targeted for phase III community mobilization (41.4 per cent; 26.8 per cent – 55.9 per cent; 198 households) than if they were targeted for phase III community mobilization (32.3 per cent; 18.6 per cent – 46.0 per cent; 198 households).¹³ This difference, however, was not statistically significant.
- The percentage of pumps that were fully functional or at least partly functional in villages targeted for phase III community mobilization (50.0 per cent and 65.4 per cent respectively) was similar to the percentages in villages not yet targeted for community mobilization (50.2 per cent and 76.8 per cent respectively). These differences were not statistically significant.

Figure 6: Among households drinking from a borehole or protected well, the percentage of households reporting support for village-level maintenance of pumps, in villages targeted for phase III community mobilization versus villages not yet targeted



Together, these findings suggest either that phase III community mobilization did little to strengthen village-level maintenance of water points or that the villages targeted for phase III community mobilization were particularly resistant to efforts to promote development of water committees and village-level financing of the maintenance of water points.

In at least one major respect, the villages targeted for phase III community mobilization are fundamentally different from the other villages included for phase IV: they are much larger. The average estimated population of villages targeted for phase III community mobilization is 3,695. This is more than twice the average estimated population of villages not targeted for phase III community mobilization (1,561). It is plausible that community mobilization would be less effective in larger villages. Given the established value of village water committees and their subscriptions, if these findings are confirmed during baseline assessment of other project villages, the project should consider developing and implementing alternative approaches to mobilization in larger communities.

¹³ Taking all households together, women appeared to be somewhat more likely than were men to participate in activities to maintain village water points. This difference was not, however, statistically significant: 22.6 per cent (15.7 per cent – 29.5 per cent) versus 16.2 per cent (9.8 per cent – 22.6 per cent).

Alternative sources of water

Of those households now using protected water (standpipe, borehole, eau courante, protected well), 40.8 per cent sometimes drink water from non-protected sources.

Satisfaction with the current source of water

The percentage of households dissatisfied with their current water source varied from 24.5 per cent of those drinking from a protected water source to 47.5 per cent of those drinking from a non-protected water source.

Informants drinking from a non-protected water source who were not satisfied with their source gave the following reasons for dissatisfaction: the water did not taste good (23.8 per cent); the water source was dirty/cloudy/red (52.4 per cent); the water source was not protected (47.6 per cent); there was, sometimes, an insufficient quantity of water.

Remarkably, while a lower percentage of informants drinking from a borehole were dissatisfied with their water source, those who were dissatisfied gave reasons for dissatisfaction that were similar to those given by informants who were dissatisfied with non-protected water: the water did not taste good (20.5 per cent); the water source was dirty/cloudy/red (59.8 per cent); the water source was not protected (31.3 per cent); there was, sometimes, an insufficient quantity of water (4.8 per cent); the pump was sometimes broken (9.5 per cent).

Sources of water for bathing, laundry, cooking and dishwashing

A large majority (more than 80 per cent) of households drinking water from a protected source take their water for bathing, laundry, cooking and dishwashing from the same protected source. This helps to explain why informants find it so difficult to estimate the volume of drinking water they consume each day.

Storage of drinking water

Overall, 45.7 per cent of households store their drinking water in a clean container with a cover. Another 40.7 per cent store their drinking water in a clean container without a cover; 13.6 per cent store their drinking water in a dirty container (with or without a cover).

Among households drinking from a protected source, 44.4 per cent store their drinking water in a clean container with a cover and another 43.3 per cent store their drinking water in a clean container without a cover. Twelve point three per cent store their drinking water in a dirty container.

Serving drinking water

A great majority (91.6 per cent) of households serve their drinking water by dipping a cup into the water storage container. Only 0.9 per cent of households serve their drinking water from a container with a spigot. Another 7.5 per cent obtain their drinking water by pouring it from a container.

The percentage of households serving their drinking water in these ways is roughly the same among households drinking water from a protected source: 90.8 per cent of households serve their drinking water by dipping; 1.5 per cent of households use a container with a spigot; 7.6 per cent pour drinking water from a container.

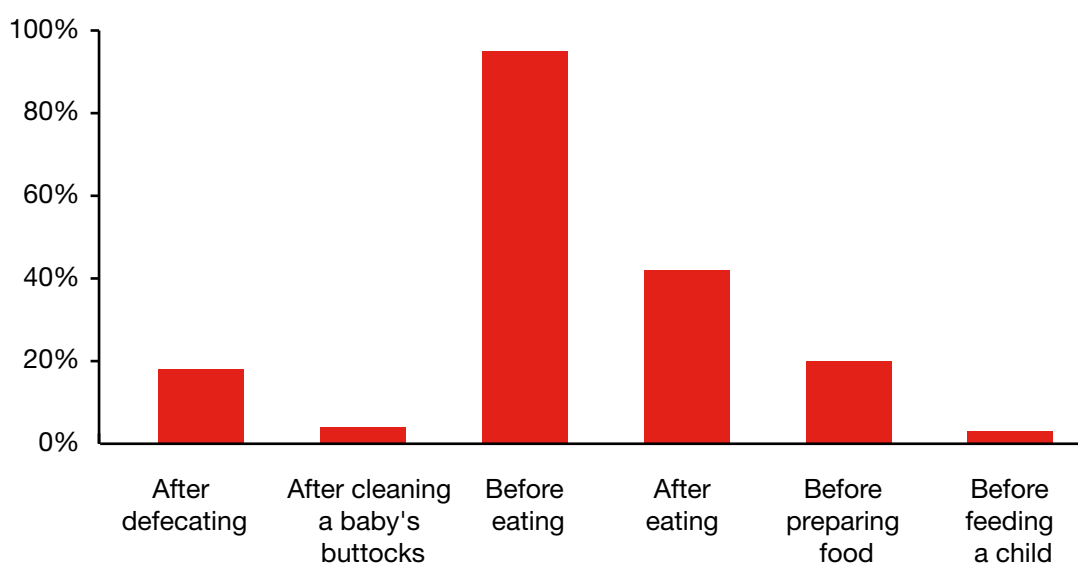
Water treatment

Only 26.7 per cent of households drinking protected water and 19.9 per cent of households drinking non-protected water reported that they ever treat water when it may be unsafe. The most common methods of treatment include filtration (11.0 per cent of households) and addition of chlorine (7.3 per cent of households).

Hand-washing

While almost all informants reported that they wash their hands before eating, only 17.6 per cent said that they do so after defecating (see Figure 7).

Figure 7: Percentage of household informants reporting that they wash their hands at key times

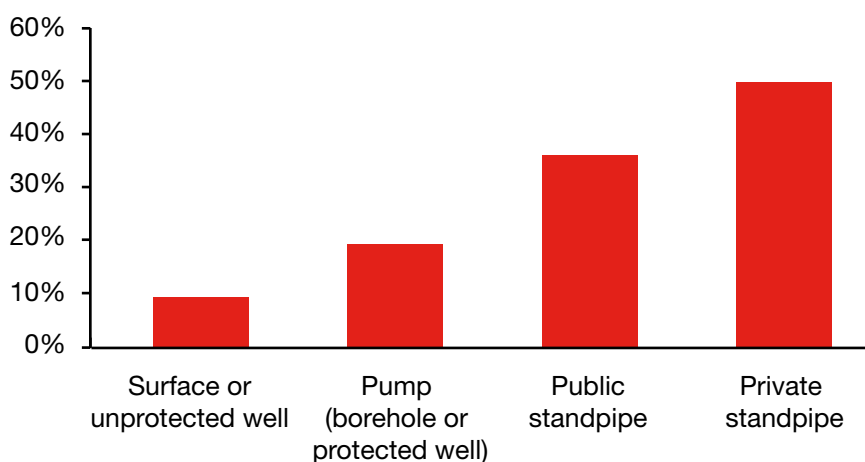


Among female respondents, a somewhat higher percentage reported hand washing after cleaning a baby's buttocks (4.6 per cent), before preparing food (30.9 per cent) and before feeding a child (5.1 per cent).

Informants in households in communities targeted for phase III community mobilization (17.7 per cent) were no more likely than those in communities not yet targeted for community mobilization (17.4 per cent) to report hand washing after defecation.

Hand-washing requires water and hygiene practices are linked to preferences for protected water (see Figure 8).

Figure 8: Percentage of household informants reporting that they wash their hands after defecation, by source of water



Surveyors observed the hand-washing techniques of household informants. Only 1.6 per cent of informants followed all of the 'ten steps'¹⁴ when washing their hands.¹⁵ Fifty-two point four per cent (43.0 per cent – 61.9 per cent) of household informants were observed to wash their hands with a technique that was at least adequate (with clean water and soap). Almost half (47.5 per cent) of household informants were observed to wash their hands poorly (without clean water or without soap).

The percentage of respondents who washed their hands poorly was not significantly different in phase III community mobilization villages (45.6 per cent) from what it was in other villages (47.1 per cent).

Two-thirds (66.8 per cent) of respondents said that they washed their hands to avoid illnesses. The percentage appears to be somewhat higher in villages exposed to phase III community mobilization (72.1 per cent; 61.9 per cent – 82.3 per cent) than in villages not yet exposed to Red Cross community mobilization (62.3 per cent; 51.6 per cent – 73.0 per cent). However, this difference is not statistically significant.

Use of latrines

According to household informants, the adults of 52.7 per cent of households (95 per cent CI = 41.1 per cent – 64.3 per cent) defecated in a latrine. The percentage of households where adults used a latrine varied from 63.6 per cent (95 per cent CI = 44.0 per cent – 83.1 per cent) of more-affluent households to 51.1 per cent (95 per cent CI = 39.2 per cent – 63.0 per cent) of less-affluent households.

14 The ten steps are: 1) wet your hands with clean water; 2) apply soap on all of the surface of each hand; 3) rub together the palms of the hands; 4) rub the palm of each hand against the back side of the other hand; 5) rub the sides of the intercrossed fingers; 6) rub the back side of the fingers of each hand with the palm of the other hand; 7) rub each thumb inside of the palm of the other hand; 8) rub the tips of the fingers of each hand in the palm of the opposite hand; 9) rinse the hands with clean water; and 10) let the hands dry before touching anything.

15 Note: In many cases the surveyor did not insist that the informant get up and go to a hand-washing location to demonstrate the hand washing. In such cases, the informant merely imitated and described their hand-washing technique.

The percentage of households where adults used a latrine appeared to be somewhat lower in villages exposed to phase III community mobilization (45.8 per cent; 29.4 per cent – 62.2 per cent) than it was in villages not yet exposed to WASH community mobilization (59.6 per cent; 44.2 per cent – 75.1 per cent). However, (as can be seen by the overlapping CI) this difference was not statistically significant.

According to informants, children older than four years of age in 36.1 per cent of households defecated in a latrine. This was clearly related to whether the household had access to a latrine. Children were reported to defecate in a latrine in 68.1 per cent of households where adults used a latrine.¹⁶ Similarly, responding to a separate question, only 71.2 per cent of informants in households with access to a latrine said that children were authorized to use the latrine. Children living in villages targeted for phase III community mobilization (65.4 per cent; 55.3 per cent – 75.4 per cent) were no more likely than were children in villages not yet exposed to community mobilization (70.7 per cent; 62.9 per cent – 78.5 per cent) to defecate in a latrine.

Reasons for not using a latrine

When informants in households not using a latrine were asked why they didn't, 64.0 per cent said latrines are too expensive, 11.2 per cent said that latrines are difficult to dig, 2.0 per cent said that they lacked materials to construct one and 2.5 per cent said that they lacked space for a latrine.

Reasons for using a latrine

When informants in households using a latrine were asked why they did, 55.2 per cent said they used a latrine to prevent disease, 21.3 per cent to provide privacy, 17.0 per cent for convenience/comfort, 13.0 per cent to prevent bad odours, 10.4 per cent to prevent flies and 6.1 per cent out of respect for the community. These statistics did not vary substantially between villages targeted for phase III community mobilization and villages not yet targeted.

Type, distance and condition of latrines

- 52.8 per cent of households had no latrine.
- 39.4 per cent of households had a latrine with a concrete slab.
- Another 7.2 per cent of households had a latrine without a concrete slab.
- Another 0.5 per cent of households claimed to have a latrine but the latrine was not observed.

¹⁶ In contrast, children were reported to defecate in a latrine in 1.0 per cent of households where adults did not use a latrine.

Fifty-two point seven per cent of latrines were private while 47.3 per cent were shared.

- 52.5 per cent of latrines were within the courtyards of their households.
- Another 24.2 per cent of latrines were within ten metres.
- 21.2 per cent of latrines were more than ten metres from the compounds they served.

All of 177 latrines that were observed were clearly in use.

- 17.1 per cent of latrines were clean, well maintained and covered.
- 57.5 per cent of latrines were clean but with several problems: they were uncovered or had cracks.
- 23.2 per cent of latrines were dirty, including 9.4 per cent which were “dirty and poorly maintained”.
- 2.2 per cent of latrines were not observed.

Women were responsible for cleaning 77.4 per cent of latrines, while men were responsible for 9.1 per cent and children were responsible for 6.5 per cent.

Waste disposal

Only 6.2 per cent of households deposited their household garbage into an approved waste depot that was observed. Another 9.1 per cent reported that they deposited household waste into an approved depot that was not observed. Three-quarters (74.9 per cent) of households admitted to throwing their waste into the fields or into illegal dumps. This percentage appeared to be lower in villages targeted for phase III community mobilization (67.3 per cent; 54.6 per cent – 80.0 per cent) than in villages not yet targeted for community mobilization (82.4 per cent; 72.8 per cent – 92.0 per cent). However, the difference was not statistically significant.

Use of a rack for drying dishes

Informants were asked where dishes were left to dry after they had been washed.

- Only 4.4 per cent left their dishes to dry on a rack.
- Another 1.6 per cent placed their dishes on a shelf.
- 87.3 per cent left dishes in a basin, typically near the ground where they could be soiled.
- 3.2 per cent left dishes on a plastic sheet.
- 1.8 per cent actually left the dishes to dry on the ground.

The percentage of households reporting use of a dish rack did not vary significantly between those villages exposed to phase III community mobilization (4.0 per cent; 0.9 per cent – 7.2 per cent) and those villages not yet exposed (4.6 per cent; 1.0 per cent – 8.3 per cent).

Reported incidence of childhood diarrhoea during the last two weeks

The two-week incidence of diarrhoea in children under five ranged from zero (for 10 villages) to 36.8 per cent (Gragbadagolilie). Twelve (40 per cent) of the 30 villages have a two-week incidence among children of greater than 10 per cent.

The two-week incidence of childhood diarrhoea appeared to be lower in households with a latrine (6.3 per cent; 2.5 per cent – 10.0 per cent) than in households without a latrine (12.2 per cent; 6.2 per cent – 18.2 per cent). However, this difference is not statistically significant. On the other hand, for reasons that cannot be explained, the two-week incidence of childhood diarrhoea appears to be higher in households with improved water supply (12.9 per cent; 5.6 per cent – 20.2 per cent) than in households without improved water supply (6.6 per cent; 2.9 per cent – 10.2 per cent). Again, this difference was not statistically significant.

Knowledge of the causes of diarrhoea

Informants were asked to identify what they thought were the causes of diarrhoea.

- 59.6 per cent said contaminated food.¹⁷
- 43.2 per cent said contaminated water.
- 4.8 per cent said poor hand-washing practices.
- 1.6 per cent said outdoor defecation.
- 2.7 per cent said germs.

The mean number of correct responses (out of seven¹⁸) was 1.3 (1.1 – 1.5). Overall, 14.5 per cent (9.4 per cent – 19.7 per cent) of respondents could not specify a correct cause of diarrhoea. These statistics were not significantly better for respondents in villages targeted for phase III community mobilization (1.3 correct responses; 15.5 per cent of respondents could not name any correct response) than they were for respondents not yet targeted (1.3; 13.6 per cent).

Exposure to community-level hygiene promotion

Phase III community mobilization activities ended in December 2013. This was reflected in the finding that only 18.1 per cent (7.7 per cent – 28.3 per cent) of respondents could recall a home visit and only 16.3 per cent of respondents could recall a community meeting in the last six months to promote improved water, sanitation or hygiene. These statistics were no better in villages targeted for phase III community mobilization (10.9 per cent for a home visit; 6.9 per cent for a community meeting) than they were in villages not yet targeted (24.6 per cent for a home visit; 24.9 per cent for a community meeting).¹⁹

¹⁷ Some surveyors appeared to have entered this response ("contamination of food") when the respondent actually said that diarrhoea could be caused by foods that were spicy or otherwise not suitable for children. Hence, with future questionnaires and future trainings, it will be important to distinguish environmental contamination of food from foods that are inherently prone to cause diarrhoea.

¹⁸ The seven responses were: 1) contaminated food; 2) contaminated water; 3) open-air defecation; 4) flies; 5) careless disposal of garbage; 6) inadequate hand washing; and 7) germs.

¹⁹ While the percentages for villages not yet targeted appear to be higher, the differences between them and villages targeted for phase III community mobilization were not statistically significant.

Findings from the survey of schools and school latrines

The schools surveyed

The school survey took place from 23 February to 13 March 2015. Twenty-eight schools were surveyed in 25 villages.²⁰ The schools varied in size from 142 to 600 students. In each school, one teacher was interviewed (typically, the head teacher) and at least two students were interviewed. A total of 147 students was interviewed.

Hygiene promotion in schools

Thirteen (46.4 per cent) of 28 schools were reported to have functional hygiene clubs. Teachers at only six (21.4 per cent) schools said that there had been any meeting at the school in the last six months to promote improved water supply, sanitation or hygiene.

Sources of water for the schools

Nineteen (67.9 per cent) of the 28 schools had no source of drinking water. Five (17.9 per cent) schools had water supplied by borehole (within the courtyards of two schools). Four (14.3 per cent) schools collected drinking water from an unprotected well without a pump. Another school reported taking drinking water from an unprotected surface source more than 500 metres from the school.

Only 15.7 per cent of the students interviewed said that they obtained drinking water, while at school, from the school's water source.

When asked who finances the maintenance of the school's water supply, hand-washing stations and latrines, nine (32.1 per cent) of 28 teachers said "the school", two (7.1 per cent) said "the community", one (3.6 per cent) said "a non-governmental organization", none (0 per cent) said the government and 17 (58.6 per cent) gave some other response.

²⁰ Usually one school per village is surveyed with the exception of the following three villages where two schools were surveyed: Gnéhiri, Krazandougou and Neko-Tiegba.

GPS coordinates were used to calculate the distance from each school to the nearest functioning or partly functioning protected pump (borehole or protected well with pump). As noted, two schools (7.1 per cent) had functioning pumps within their courtyards. Another two schools (7.1 per cent) had pumps within 100 metres. Eleven schools (39.3 per cent) had pumps 100 to 500 metres away. Seven schools (25 per cent) were more than 500 metres away from the nearest pump. Seven schools (25 per cent) were in villages without any functioning or partly functioning pump.

Satisfaction with sources of drinking water

Of the four schools said to be taking drinking water from unprotected sources, the informant for one school was satisfied. The other informants at the other three schools either complained of unclean water or insufficient quantity of water.

Of the five schools said to be taking drinking water from boreholes, the informants at three of the schools were satisfied. One teacher said that the borehole did not supply sufficient water and the teacher at another school said that the borehole was too far away (305 metres as measured by GPS).

School latrines

21 *A protected well is one that is adequately lined to sufficient depth to prevent surface water from infiltrating. When asked why they had locked the latrine, the teachers said that it could not be used because the school could not provide toilet paper or water for washing hands after defecation. At the same school the faucets of both of the hand-washing stations had broken rubber seals and stood empty and unused.*

22 *The most commonly observed fault with hand-washing stations was that an inexpensive rubber gasket had fallen off of the faucet, causing the water to leak out.*

23 *If what the teachers reported was correct, this would imply that the hand-washing stations were not actually in use except where the school had a source of water. Unfortunately, the questionnaire did not capture whether there was water in the hand-washing stations at the time of the survey.*

Twenty (71.4 per cent) of the 28 schools had latrines. Students were permitted to use these latrines at all 20 schools. Fourteen (70.0 per cent) of the 20 latrines that were inspected were clean and well maintained. Four (20.0 per cent) were dirty and poorly maintained. One (5.0 per cent) had been abandoned and was non-functional while one (5.0 per cent) had been locked inexplicably²¹ for more than a year and had not been used.

Hand-washing stations

Fifteen (53.6 per cent) of 28 schools had at least one hand-washing station each (see [Annex 7](#)). Twelve of these schools had two hand-washing stations while three had only one hand-washing station.

Of the 12 schools with two hand-washing stations, both functioned at seven schools, one was broken²² at four schools and both were broken at one school. Of the three schools with only one hand-washing station each, the device was functioning at all three schools. Thus, there was at least one functioning hand-washing station at 14 (50 per cent) of the schools surveyed.

Unfortunately, out of the 14 schools with at least one hand-washing station, teachers at 11 of them (78.5 per cent) said that there was no water source for the school.²³

Hand-washing practices

Figure 9 shows the percentages of teachers and students who said that they washed their hands at key times. Compared to household informants, the percentage of teachers who said that they washed their hands after defecating or after handling the faeces of a baby was substantially higher. In this respect, students' knowledge of when to wash their hands was intermediate between that of household informants and that of teachers.

Assessments of hand-washing technique²⁴ compare similarly: the techniques of the students were intermediate between those of household informants and those of teachers (see Figure 10).

Figure 9: Percentage of respondents reporting that they washed their hands at key times – household respondents versus students versus teachers

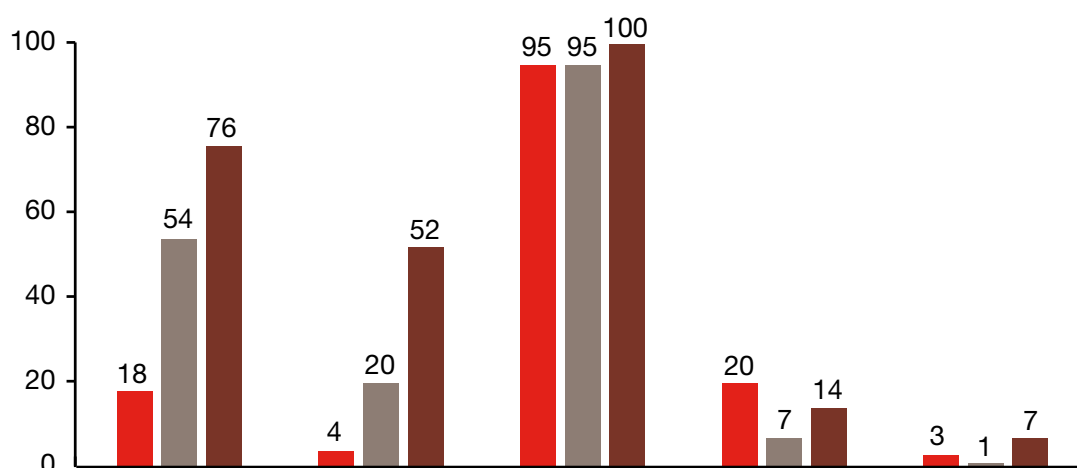
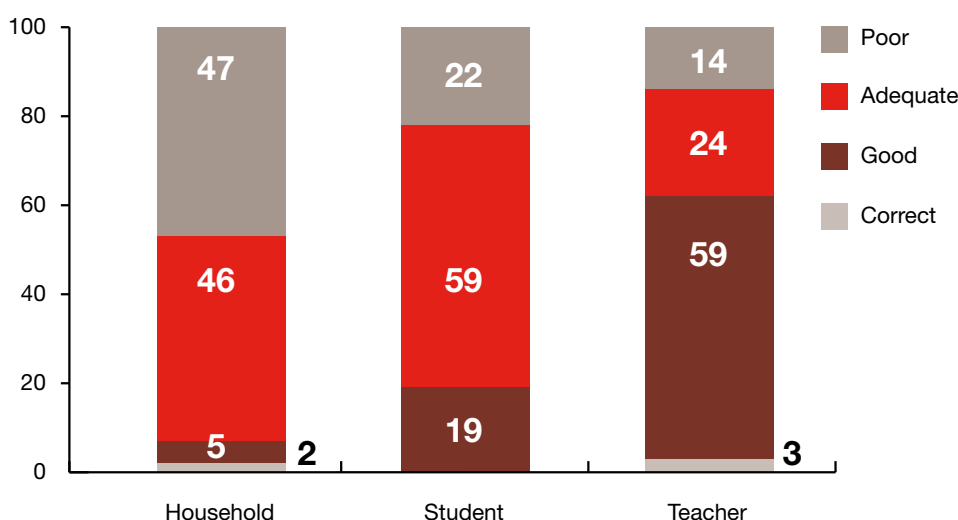


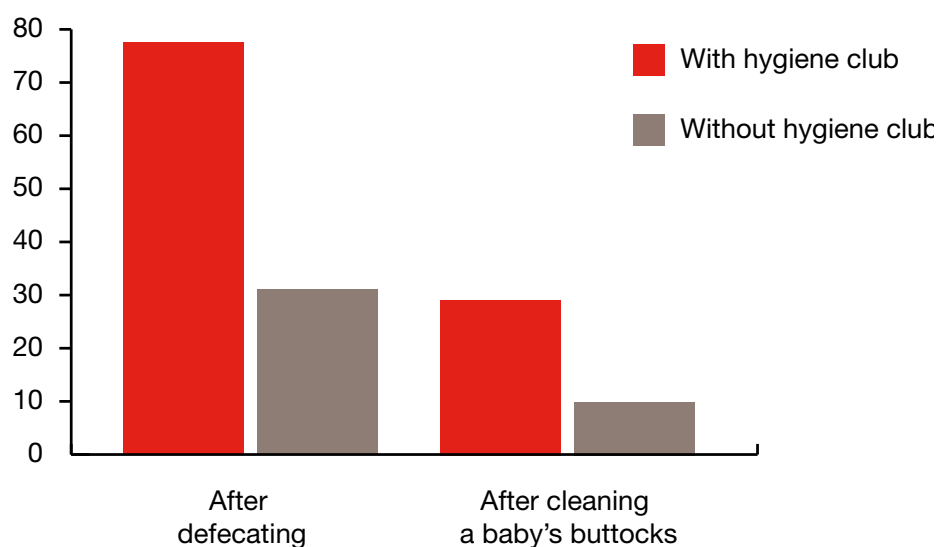
Figure 10: Percentage of informants by hand-washing technique – household informants versus students versus teachers



²⁴ Correct = followed all ten steps. Good = with clean water, soap and with rubbing the surface of the hands. Adequate = with clean water and soap. Poor = with unclear water or without soap.

Compared to students at schools without hygiene clubs, a higher percentage²⁵ of students at schools with hygiene clubs said that they washed their hands after defecating or after cleaning the buttocks of a baby (Figure 9).²⁶ Students at schools with hygiene clubs could cite an average of 2.1 priority times to wash hands;²⁷ students at schools without hygiene clubs cited an average of 1.4 times.²⁸

Figure 11: Percentage of students who say it is important to wash hands after key activities – schools with hygiene clubs versus schools without



The percentage of students with adequate hand-washing technique varied from 83.1 per cent in schools with hygiene clubs to 68.6 per cent in schools without hygiene clubs.²⁹

The school survey provides the following evidence that phase III community mobilization improved students' hygiene knowledge. The percentage of students who said it was important to wash hands after defecating ranged from 24.2 per cent of students in villages not yet targeted for community mobilization to 68.1 per cent in villages targeted for phase III community mobilization.²⁵ Also, the percentage of students with adequate hand-washing technique varied from 57.3 per cent in schools not yet targeted for community mobilization to 86.1 per cent in schools targeted for phase III community mobilization.

²⁵ If this had been a simple random selection of schools, the difference in hand washing after defecation would be statistically significant with a p-value of less than 5 per cent. However, the schools were selected at the same time as the villages in a manner that favoured the selection of schools in larger villages. The CI of such statistics (as a representation of all schools in the project villages) cannot be calculated.

²⁶ For this and other analyses of data from students, the unit of analysis was the school. Thus, the average for all the students interviewed at the school was calculated first. The graph shows the averages of the school averages. In this way, each school that was surveyed is weighted equally.

²⁷ Priority times for hand washing are: 1) before eating; 2) after defecating; 3) before preparing food; 4) before feeding a baby; and 5) after cleaning the buttocks of a baby. The hand-washing stations at the time of the survey.

²⁸ Again, this difference would be statistically significant if this had been a simple random selection of schools.

²⁹ The difference is not statistically significant even if we assume this is a simple random selection of schools.

Knowledge of how to prevent diarrhoea

Forty per cent of students could not name a correct way to prevent diarrhoea.³⁰ Another 20.4 per cent could name only one correct way to prevent diarrhoea. Thus, less than 40 per cent of students could give two or more ways.

The students in schools with hygiene clubs could cite an average of 1.6 correct ways to prevent diarrhoea; students in schools without hygiene clubs could cite an average of only 0.8 correct ways.²⁴

The students in schools targeted for phase III community mobilization could cite an average of 1.4 correct ways to prevent diarrhoea compared to students in schools not yet targeted who could cite an average of only 0.8 correct ways.²⁵

Use of a latrine while at school

Seventy-eight per cent of students claimed to use a latrine to defecate while at school. Remarkably, even at schools with latrines, only 88.2 per cent of students said that they used them. Also, remarkably, even at schools with no latrine, 53.8 per cent of students claimed to use a latrine when they needed to defecate while at school. The percentage of students who reported using the school latrine to defecate while at school did not vary significantly as a function of whether there was a hygiene club (86.7 per cent with a club versus 89.7 per cent without) or whether the village had been targeted for phase III community mobilization (86.7 per cent with phase III community mobilization versus 92.7 per cent without).

Satisfaction with Red Cross support

Seventeen (60.7 per cent) of the teachers interviewed said that their school had previously benefited from Red Cross activities. All 17 were satisfied with this assistance and no complaints were reported.

³⁰ Ways to prevent diarrhoea are: 1) drink clean water; 2) treat water before drinking it; 3) wash hands before eating; 4) wash hands with soap; 5) wash food before eating it; 6) protect food from flies; and 7) protect water from excrement.

Recommendations for subsequent monitoring and evaluation of the phase IV project

Recommendations for project monitoring

1. During the execution of this survey project, staff members have demonstrated their mastery of the tools and techniques for using tablets and Magpi software for capturing project data. These tools and techniques are equally well suited to project monitoring. Recommendations for the design of such a project monitoring system are the subject of a separate report.
2. Preparations for this survey have raised significant questions about the reliability of the estimated populations of project villages (see [Annex 2](#) of this report). Without reliable estimates of population, it is not possible to plan the resources to be devoted to each community. Hence, a top priority during the initial stages of the project will be to conduct a rapid count of compounds or households in each village. Recommendations for such a rapid census are included with the separate report on design of the project monitoring system.

31 Consider the following three key indicators: (1) percentage of informants with adequate hand-washing technique = 52 per cent (95 per cent CI = 43 per cent – 62 per cent); (2) percentage of households where adults defecate in a latrine = 52 per cent (95 per cent CI = 41 per cent – 64 per cent); (3) percentage of households drinking water from a protected source = 46 per cent (95 per cent CI = 32 per cent – 60 per cent).

Recommendations for the end-of-project survey

1. This baseline survey provides estimates of key indicators with a CI of approximately ± 9 per cent to 14 per cent.³¹ If, as a result of project interventions, these key indicators can be increased by 20 to 30 percentage points (e.g., the percentage of households using a protected water source increases from 46 per cent at baseline to 76 per cent at the end of the project) then an end-of-project survey with a comparable random sample size should be able to demonstrate

a statistically significant improvement. If the impact of the project is anticipated to be smaller than this, then a larger random sample will be needed for the end-of-project survey, if it is to show a statistically significant improvement.

2. If a random sample is selected for the end-of-project survey, then this survey will need to repeat the same process for random selection of villages and random selection of households within each village. Google Earth images could be used once again to segment each village (see the Method section of this report). Alternatively, surveyors could rely exclusively on the 'EPI random-walk method' (again, described in the Method section of this report). Another alternative, which would save time while increasing the chances of finding a statistically significant difference between the two surveys, would be to survey in the same villages as those selected for the baseline survey and to use geo-coordinates and Google Earth imagery to relocate and resurvey the same (or almost the same) households.

Annex 1

The sampling frame

Total population = 181,656

Sampling interval = $181,656/30 = 6,055$

Random number selected between one and 6,055 = 4,964

After the clusters had been selected and the training had begun, three of the selected clusters (Bangueuhi, Brabodougou and Kobouo) were determined to be eligible only for school-level interventions. For the household survey, these three villages were replaced with the three villages of the most similar size in the same Départements (Tobly, Beman Kouassikro and Amanikro, respectively).

Note: Aerial photos were blurred and could not be used to estimate the area of 12 of the villages.

No.	Department	Village	Population estimate	Area (ha)	Population from area	Population for the frame	Cum pop	Selected cluster
1	Kouibly	Tobly	1,500	4.6	499	1,500	1,500	
2	Kouibly	Onséa	3,228	27	2,891	2,891	4,391	
3	Kouibly	Datouzon	1,400	11	1,217	1,217	5,609	4,964
4	Bangolo	Sehidrou	612	5.8	635	635	6,243	
5	Bangolo	Koulouan	709	39	4,207	709	6,952	
6	Bangolo	Blaisékro	376	3.0	326	326	7,279	
7	Bangolo	Koffikro	415	2.9	313	313	7,592	
8	Bangolo	Teadí	713			713	8,305	
9	Duekoué	Telably	835	7.2	783	783	9,087	
10	Duekoué	Sioville	784	8.7	947	947	10,034	
11	Duekoué	Krazandougou	4,643	85	9,283	4,643	14,677	11,056
12	Duekoué	Fouedougou	839	50	5,476	839	15,516	
13	Duekoué	Banguehi	N/A	20	2,141	2,141	17,657	17,148
14	Duekoué	Pomply	N/A	21	2,249	2,249	19,906	
15	Bonon	Ourebota	3,985	21	2,333	2,333	22,239	
16	Bonon	N'Dri Atchakro	1,200			1,200	23,439	23,240
17	Sinfra	Gorékro	226	0.89	97	97	23,536	
18	Sinfra	Koffikro	322	1.4	149	149	23,684	
19	Sinfra	Fofanakro	300	2.4	261	261	23,945	
20	Sinfra	Djibofla 2 et 3	177	4.9	533	533	24,478	
21	Sinfra	Chantier (Yaokankro)	300	0.76	83	83	24,561	
22	Sinfra	Djibofla 1	273	0.30	33	33	24,593	
23	Daloa	Bocanda Akkésékro	N/A	4.8	525	525	25,118	
24	Daloa	Mahounou	N/A	15.5	1,683	1,683	26,801	
25	Abengourou	Kouassi Beniekro	1,000	11	1,161	1,161	27,962	
26	Abengourou	Anougbakro	1,700	24	2,652	2,652	30,614	29,332
27	Abengourou	Kouadiokro	700	5.7	622	622	31,236	
28	Abengourou	Améakro	1,000	13	1,362	1,362	32,597	
29	Abengourou	Elinso 2	1,700	39	4,207	1,700	34,297	
30	Abengourou	Tahakro	2,500	28	3,037	3,037	37,334	35,424
31	Abengourou	Dramanekro	747	7.9	859	859	38,193	
32	Abengourou	Dalo	1,225	8.2	891	891	39,084	
33	Guity	Babakon	4,712	13	1,372	4,712	43,796	41,516

Annex 1 The sampling frame

No.	Department	Village	Population estimate	Area (ha)	Population from area	Population for the frame	Cum pop	Selected cluster
34	Guitry	Gnamboisso	1,211	9.0	978	1,211	45,007	
35	Guitry	Piakro	1,424			1,424	46,431	
36	Guitry	Braheri	1,519	4.8	522	1,519	47,950	47,608
37	Guitry	N'Dri Koffikro	2,344	1	1,632	2,344	50,294	
38	Guitry	Mossikro	1,197			1,197	51,491	
39	Guitry	Kouta	746	6.5	703	746	52,237	
40	Guitry	Petit Khorogo	947	9.0	982	947	53,184	53,700
41	Guitry	Tiegba II	739	11	1,152	739	53,923	
42	Guitry	Yobouekro	356	1.1	122	356	54,279	
43	Guitry	Tehiri	600	5.8	630	630	54,910	
44	Guitry	Betta	181	1.1	115	115	55,025	
45	Guitry	Campement Gustave	99	0.81	88	88	55,113	
46	Guitry	Yayadougou	840	7.7	837	837	55,950	
47	Guitry	Aboulayedjan	330	3.0	321	321	56,271	
48	Guitry	Brahimakro	420	0.98	107	107	56,377	
49	Guitry	Germaindougou	190	2.2	234	234	56,611	
50	Divo	Dagrom	1,735			1,735	58,346	
51	Divo	Gnéhiri	2,917	24	2,641	2,641	60,987	59,792
52	Divo	Dougako	2,410	25	2,728	2,728	63,716	
53	Divo	Gnaoualilié	920	15	1,609	1,609	65,324	65,884
54	Divo	Boko	2,093	10	1,087	2,093	67,417	
55	Divo	Kpérédi	2,392	33	3,617	3,617	71,035	71,976
56	Divo	Grobiakoko (Gabiakoko)	4,823	49	5,326	5,326	76,361	
57	Divo	Gly	744	10	1,099	1,099	77,460	78,068
58	Divo	Grozo	546	1.4	149	546	78,006	
59	Divo	Sur les rails	2,576	33	3,634	3,634	81,639	
60	Divo	Godillilié	891		0	891	82,530	
61	Divo	Yobouekro	356		0	356	82,886	
62	Divo	Brabodougou	N/A	7.6	826	826	83,712	84,160
63	Divo	Beman Kouassikro	946	1.6	176	946	84,658	
64	Divo	Djekro	744	0.64	70	744	85,402	
65	Divo	Siokro	436	0.15	16	436	85,838	
66	Divo	Zérédougou	2,437	25	2,689	2,689	88,528	
67	Divo	Petimpé	1,700	16	1,734	1,734	90,261	90,252
68	Divo	Issiakakro	498	2.6	283	498	90,759	
69	Divo	Siata Carrefour	650	9.7	1,054	1,054	91,814	
70	Divo	Kpatasso	500	3.9	420	420	92,233	
71	Divo	Cailloukro	300	0.60	65	65	92,298	
72	Divo	Doumbaro 1	2,000	26	2,872	2,872	95,170	
73	Divo	Konandankro	150	1.9	201	201	95,371	96,344
74	Divo	Bertinkro	350	1.4	153	153	95,524	
75	Divo	M'Brakro	400	1.8	191	191	95,716	
76	Divo	Koffikro	954	1.1	122	954	96,670	
77	Divo	Yaokankro	987	4.3	471	471	97,140	
78	Divo	Paulkro	200	1.9	205	205	97,346	
79	Divo	Baroko Manoua 1	800	5.2	565	565	97,911	
80	Lakota	Gragbadagolilié	2,394	33	3,576	3,576	101,487	102,436
81	Lakota	Moussadougou 1	5,230	49	5,376	5,376	106,863	
82	Lakota	Djidjé	644	9.9	1,076	1,076	107,939	108,528

Côte d'Ivoire water, sanitation and hygiene promotion project report:

Baseline survey for phase IV

No.	Department	Village	Population estimate	Area (ha)	Population from area	Population for the frame	Cum pop	Selected cluster
83	Lakota	Djimon	3,835	43	4,641	4,641	112,581	
84	Lakota	Zozo-Oliziriboué	4,724	47	5,076	5,076	117,657	114,620
85	Lakota	Goboué	862			862	118,519	
86	Lakota	Gazolilié	760	20	2,217	760	119,279	
87	Lakota	Neko-Tiégba	2,758	26	2,815	2,815	122,094	120,712
88	Lakota	Tagolilié	5,971	45	4,902	4,902	126,996	126,804
89	Lakota	Kazérébéry	N/A	20	2,207	2,207	129,203	
90	Lakota	Adama Kouamékro	2,500	7.3	793	2,500	131,703	
91	Lakota	Niambré	691	13	1,402	691	132,394	132,896
92	Gagnoa	Djikikro	133			133	132,527	
93	Gagnoa	Tanohkro	150	1.8	200	150	132,677	
94	Gagnoa	Jbkro	133	1.8	200	133	132,810	
95	Gagnoa	Yaokouassikro	184	1.6	170	184	132,994	
96	Gagnoa	Thimothékro	140			140	133,134	
97	Gagnoa	Kouamékro	1,694			1,694	134,828	
98	Gagnoa	Doukouyo	3,885	47	5,127	3,885	138,713	138,988
99	Gagnoa	Nagadougou	7,840	67	7,304	7,840	146,553	145,080
100	Gagnoa	Téhiri (Balépahoua?)	5,957	53	5,772	5,957	152,510	151,172
101	Gagnoa	Yopohué	5,103	56	6,043	5,103	157,613	157,264
102	Gagnoa	Zibouyaokro	3,000	4.7	511	3,000	160,613	
103	Gagnoa	Joachimkro	280	1.5	165	165	160,778	
104	Gagnoa	Paulkro 2	800	1.5	161	800	161,578	
105	Gagnoa	Allakro	1,100	0.34	37	1,100	162,678	163,356
106	Gagnoa	Koffikro Jérusalem	850	4.4	478	478	163,156	
107	Gagnoa	Kobouo	N/A	54	5,891	5,891	169,047	169,448
108	Gagnoa	Amanikro (Serihio)	1,500	3.9	428	1,500	170,547	
109	Gagnoa	Etiennekro	720	1.2	126	720	171,267	
110	Gagnoa	Danielkro	1,000			1,000	172,267	
111	Gagnoa	Djonankro	126	3.6	395	126	172,393	
112	Gagnoa	Gokoffikro	249	0.70	76	249	172,642	
113	Gagnoa	Yao Kouakoukro	200			200	172,842	
114	Gagnoa	Chantier	350	15	1,682	350	173,192	
115	Gagnoa	Mama-Koffikro	799	5.5	601	601	173,793	
116	Gagnoa	Djagomenou	800			800	174,593	175,540
117	Gagnoa	Zokouhio	2,000	5.6	609	2,000	176,593	
118	Gagnoa	N'Drikro	600	4.1	450	450	177,043	
119	Gagnoa	Yaokro Kobouo	500			500	177,543	
120	Gagnoa	Alphonsekro	900			900	178,443	
121	Gagnoa	Konankro	450	0.86	93	450	178,893	
122	Gagnoa	Tano Kouassikro	110			110	179,003	
123	Gagnoa	Akoundou Kouassikro	287	0.72	78	287	179,290	
124	Gagnoa	N'Zuékro-Téhiri	370	2.0	217	370	179,660	
125	Gagnoa	N'Da Kouakoukro	250	1.5	161	161	179,821	
126	Gagnoa	Yao Zankro	160	2.6	283	283	180,104	
127	Gagnoa	Zigopa	1,100	2.4	263	1,100	181,204	181,632
128	Gagnoa	Boyan Koffikro	250	1.9	207	207	181,410	
129	Gagnoa	Koffikro	246			246	181,656	

Annex 2

Surface area not consistent with population projections

Figure 12: Amanikro – aerial photograph suggests that the true population is less than the estimate of 1,500.



Figure 13: Koulouan – this aerial image suggests that the true population is more than the estimate of 709.



Annex 3

Segmentation of a village using a Google Earth image

Figure 14: Segmentation of Krazandougou.

The polygon tool of Google Earth was used to define three large segments (outlined in yellow). Then, the Earth Point website (www.earthpoint.us/Shapes.aspx) was used to estimate the surface area (hectares) of each segment and these surface areas were used to compile a sampling frame for selection of one segment, with a probability of selection proportional to surface area. Then, the large segment at the top was divided into six sub-segments (excluding areas with no structures). With the resulting sampling frame, the sub-segment outlined in black was selected.



Figure 15: A zoomed-in view of the selected segment. Surveyors found it easy to use such photographs to locate the selected segment and map all households.



Annex 4

The questionnaires

Household survey (Form: A_WatSan_CI_Menage_C)

1. Informed consent. Explain the following to the respondent: “I work with the Red Cross Society of Côte d'Ivoire. I am visiting households in this community to ask questions about health and hygiene practices. It will take about 20 minutes to ask the questions. The information will help us to plan a water, sanitation and hygiene project. I will use a tablet to record the information that you give me. You can choose not to reply to any particular question if you wish. All your answers will remain confidential”.

2. Ask: “Do you agree to take part in this survey?” Choose one response.

- ☐ Yes
- ☐ No (skip to question 71)
- ☐ Nobody home (skip to question 71)

3. Select your name from the drop-down menu below Choose one response.

- ☐ ZAHITI Bi Vadian Frédy
- ☐ ATTEBI Zama Hervé Villard
- ☐ DJAPO Appolinaire
- ☐ KOUASSI Affoué Angèle
- ☐ KPADJIKE Péhé Achille
- ☐ TIEU Yonan Olivier
- ☐ KOUAME N'dri Emmanuel
- ☐ MAIN Gildas Kouiahon
- ☐ GBOHO Doh Lucien
- ☐ GNAOUE Gbaré Charlotte
- ☐ FAITAIE Koffi Stéphane
- ☐ ZOUNDI Gérard
- ☐ Other 1
- ☐ Other 2
- ☐ Other 3
- ☐ Other 4

4. Select the community from the drop-down menu below Choose one response.

- ☐ Abengourou - Anougbakro
- ☐ Abengourou - Tahakro
- ☐ Bonon - N'Dri Atchakro
- ☐ Divo - Béman Kouassikro
- ☐ Divo - Gly
- ☐ Divo - Gnaoualilié
- ☐ Divo - Gnéhiri
- ☐ Divo - Konandankro
- ☐ Divo - Kpérédi
- ☐ Divo - Petimpé
- ☐ Duekoué - Krazandougou
- ☐ Duekoué - Tobly
- ☐ Gagnoa - Allakro
- ☐ Gagnoa - Amanikro
- ☐ Gagnoa - Djagomenou
- ☐ Gagnoa - Doukouyo
- ☐ Gagnoa - Nagadougou
- ☐ Gagnoa - Téhiri
- ☐ Gagnoa - Yopohué
- ☐ Gagnoa - Zigopa
- ☐ Guitry - Babakon
- ☐ Guitry - Braheri
- ☐ Guitry - Petit Khorogo
- ☐ Kouibly - Datouzon
- ☐ Lakota - Djidjé
- ☐ Lakota - Gragbadagolilié
- ☐ Lakota - Neko Tiégba
- ☐ Lakota - Niambré
- ☐ Lakota - Tagolilié
- ☐ Lakota - Zozo Oliziriboué
- ☐ Other 1
- ☐ Other 2
- ☐ Other 3
- ☐ Other 4
- ☐ Other 5

5. Household number

6. Observe the main material the exterior walls are made of Choose one response.

- ☐ Mud
☐ Brick

7. Ask: "How are you related to the head of household?" The respondent is the...

Choose one response.

- ☐ Head of household (female or male)
 (skip to question 12)
☐ Wife of the head of household
☐ Husband of the head of household
☐ Son of the head of household
☐ Daughter of the head of household
☐ Father of the head of household
☐ Mother of the head of household
☐ Other (man)
☐ Other (woman)

8. Ask: "What is the name of the head of household?"

.....

9. Ask: "Is the head of household a man or a woman?" Choose one response.

- ☐ Man
☐ Woman

10. Ask: "What level of education does the head of household have?" Choose one response.

- ☐ No schooling (skip to question 15)
☐ Primary education (skip to question 15)
☐ Secondary education (skip to question 15)
☐ Higher education (skip to question 15)
☐ Don't know (skip to question 15)

11. Ask: "What is your name?"

.....

12. Observe: Is the head of household a man or a woman? Choose one response.

- ☐ Man
☐ Woman

13. Ask: What level of education do you have?"

Choose one response.

- ☐ No schooling
☐ Primary education
☐ Secondary education
☐ Higher education

14. Ask: "How many people live in this household, including infants?"

.....

15. Ask: "How many people over the age of 15 live in this household?"

.....

16. Ask: "How many children aged between 5 and 15 live in this household?"

.....

17. Ask: "How many children under the age of 5 live in this household?"

.....

18. Water**19. Ask: "What has been the main source of drinking water for the members of your household this week?" If the main source was a water seller, ask the source of the water supplied by the water seller.** Choose one response.

- ☐ Well without pump
☐ Uncased well with pump
☐ Cased well with pump
☐ Borehole with hand/foot pump
☐ Piped water on premises
☐ Piped water at a distance from dwelling
☐ Protected source
☐ Unprotected source
☐ Rainwater
☐ Lake/river/dam/pond
☐ Bottled/sachet water
☐ Don't know

20. Ask: "Why do you prefer this water source?"

Do not read the following options out loud to the respondent. Check all appropriate boxes according to responses given. Check all options that apply.

- ☐ It is the only water source available
☐ There is a sufficient supply
☐ We prefer the taste of this water
☐ The water is safe to drink
☐ The water source is nearby
☐ The water source belongs to us
☐ The water is free
☐ Other

21. Ask: "Approximately how far is it to this water source?" Choose one response.

.....

- ☐ In the yard
- ☐ Less than 30 metres
- ☐ 30 to 100 metres
- ☐ 100 to 500 metres
- ☐ Over 500 metres
- ☐ Don't know

22. Ask: "Who normally fetches water for domestic use in your household?"

Check all options that apply.

- ☐ Girl(s)
- ☐ Boy(s)
- ☐ Woman/women
- ☐ Man/men

23. Observe. Ask to see the container (jerry can, pot, etc.) used to fetch drinking water daily. Record the SIZE (IN LITRES) of the container.

.....

24. Ask: "How many containers (point to container) of drinking water does this household consume each day?"

.....

25. Ask: "Does the household pay for drinking water?" Choose one response.

- ☐ Yes
- ☐ No (skip to question 28)

26. Ask: "How much does the household pay per day for the water it consumes?"

Don't know = 98

The answer must be > 3 and < 9999

27. Ask: "Are there periods when the household has a different main source of drinking water from the one you just mentioned? For example, at another time of year." Choose one response.

- ☐ Yes
- ☐ No (skip to question 30)

28. Ask: "What is the main source of drinking water during those periods?"

Choose one response.

- ☐ Well without pump
- ☐ Uncased well with pump
- ☐ Cased well with pump
- ☐ Borehole with hand/foot pump
- ☐ Piped water on premises
- ☐ Piped water at a distance from dwelling

- ☐ Protected source
- ☐ Unprotected source
- ☐ Rainwater
- ☐ Lake/river/dam/pond
- ☐ Bottled/sachet water
- ☐ Don't know

29. Ask: "Are you satisfied with your main source of drinking water?" Choose one response.

- ☐ Yes (skip to question 32)
- ☐ No

30. Ask: "Why aren't you satisfied with it?"

Do not read the following options out loud to the respondent. After each response, ask "Are there any other problems?" Check all options that apply.

- ☐ It smells bad
- ☐ It does not taste good
- ☐ Cloudy / dirty / red
- ☐ Source is not protected
- ☐ Expensive
- ☐ Dangerous - crime, wild animals
- ☐ Sometimes the supply is insufficient
- ☐ Sometimes the pump is broken
- ☐ Other problem

31. Ask: "What is the main water source used by household members for personal hygiene?"

Choose one response.

- ☐ Well without pump
- ☐ Uncased well with pump
- ☐ Cased well with pump
- ☐ Borehole with hand/foot pump
- ☐ Piped water on premises
- ☐ Piped water at a distance from dwelling
- ☐ Protected source
- ☐ Unprotected source
- ☐ Rainwater
- ☐ Lake/river/dam/pond
- ☐ Bottled/sachet water
- ☐ Don't know

32. Ask: "What is the main water source used by household members for washing clothes?"

Choose one response.

- ☐ Well without pump
- ☐ Uncased well with pump
- ☐ Cased well with pump
- ☐ Borehole with hand/foot pump
- ☐ Piped water on premises
- ☐ Piped water at a distance from dwelling
- ☐ Protected source
- ☐ Unprotected source

- ☐ Rainwater
- ☐ Lake/river/dam/pond
- ☐ Bottled/sachet water
- ☐ Don't know

33. Ask: "What is the main water source used by household members for cooking?"

Choose one response.

- ☐ Well without pump
- ☐ Uncased well with pump
- ☐ Cased well with pump
- ☐ Borehole with hand/foot pump
- ☐ Piped water on premises
- ☐ Piped water at a distance from dwelling
- ☐ Protected source
- ☐ Unprotected source
- ☐ Rainwater
- ☐ Lake/river/dam/pond
- ☐ Bottled/sachet water
- ☐ Don't know

34. Ask: "What is the main water source used by household members for washing dishes?"

Choose one response.

- ☐ Well without pump
- ☐ Uncased well with pump
- ☐ Cased well with pump
- ☐ Borehole with hand/foot pump
- ☐ Piped water on premises
- ☐ Piped water at a distance from dwelling
- ☐ Protected source
- ☐ Unprotected source
- ☐ Rainwater
- ☐ Lake/river/dam/pond
- ☐ Bottled/sachet water
- ☐ Don't know

35. Ask: "Could you please show me the container (can, clay pot, tank, etc.) where you store your drinking water?" Observe the container and choose a description, choose one response.

Choose one response.

- ☐ Clean container with cover
- ☐ Clean container without cover
- ☐ Dirty container with cover
- ☐ Dirty container without cover
- ☐ The container was not observed

36. Ask: "Could you please show me how you use the water from the container?"

Observe and choose one response.

- ☐ Pouring the water from the container into a cup
- ☐ Dipping the cup into the container
- ☐ Dipping and pouring

- ☐ The container has a tap
- ☐ Not observed

37. Ask: "What do you do if you have no drinking water?" Check all options that apply.

- ☐ Boil
- ☐ Filter/decant
- ☐ Use chlorine tablets
- ☐ Use untreated water

38. Hand-washing

39. Ask: "When do you wash your hands?"

Do not read the following options out loud. Check all appropriate boxes according to responses. After each response, ask **"Are there any other times when you wash your hands?"**

Check all options that apply.

- ☐ Before cooking / preparing food
- ☐ Before eating
- ☐ After eating
- ☐ Before feeding a baby
- ☐ After defecation
- ☐ After handling a child's faeces or cleaning a baby's bottom
- ☐ Other

40. Ask: "Could you please show me how you wash your hands?" Observe the ten steps and choose a response.

Ten steps for hand washing (DO NOT READ OUT LOUD):

- 1) Wet your hands with clean water;
- 2) Apply soap, covering the entire area of both hands;
- 3) Rub the palms of your hands together vigorously;
- 4) Rub the palm of one hand over the back of the other hand;
- 5) Rub your hands together, palm to palm, with fingers interlocked;
- 6) Rub the backs of your fingers against the palm of the other hand;
- 7) Rub each thumb in the palm of the other hand;
- 8) Rub your fingertips against the palm of the other hand in circular movements;
- 9) Rinse your hands thoroughly;
- 10) Allow your hands to dry before touching anything.

Choose one response.

- ☐ Hands washed correctly, following the ten steps
- ☐ Hands washed well, with clean water, soap and rubbing the surfaces of the hands

- ☐ Hands washed fairly well, with clean water and soap
- ☐ Hands not washed well, without clean water or without soap

41. Ask: “Why do you wash your hands?”

Check all options that apply.

- ☐ To be clean
- ☐ To prevent diseases
- ☐ No response
- ☐ Other

42. Latrines**43. Ask: “How do you dispose of the stools of young children?”** Check all options that apply.

- ☐ They are left in the yard
- ☐ They are placed in a plastic bag
- ☐ They are dumped in the fields/bush
- ☐ They are thrown into a river/pond/lake
- ☐ They are disposed of in a latrine
- ☐ Don't know
- ☐ There are no young children in the household

44. Ask “Where do the children (over-fives) living in this household relieve themselves?”

Check all options that apply.

- ☐ Field/bush
- ☐ River/pond/lake
- ☐ Latrine
- ☐ Other
- ☐ Don't know

45. Ask “Where do the adults living in this household relieve themselves?”

Check all options that apply.

- ☐ Field/bush
- ☐ Latrine
- ☐ Other

46. Observation (do not read out loud): According to the response to the previous question, do the adults living in this household sometimes use a latrine? Choose one response.

- ☐ Yes (skip to question 49)
- ☐ No

47. Ask: “Why do you not have a latrine for this household?” Check all options that apply

- ☐ Too expensive (skip to question 57)
- ☐ No need for one (skip to question 57)

- ☐ Not traditionally accepted (skip to question 57)
- ☐ Problems with digging (skip to question 57)
- ☐ Lack of construction materials (skip to question 57)
- ☐ No room (skip to question 57)
- ☐ Other (skip to question 57)

48. Ask: “For what reasons do you use a latrine?”

Check all options that apply.

- ☐ So that the house smells nice
- ☐ To prevent diseases
- ☐ To prevent flies
- ☐ Out of respect
- ☐ Privacy
- ☐ Comfort
- ☐ Other

49. Ask: “Is the latrine private or shared with another household?” Choose one response.

- ☐ Private
- ☐ Shared

50. Ask: “How far away is the latrine?”

Choose one response.

- ☐ Latrine is in the yard
- ☐ Latrine is less than 10 m from the yard
- ☐ Latrine is between 10 and 100 metres from the yard (skip to question 55)
- ☐ Latrine is more than 100 from the yard (skip to question 55)
- ☐ Don't know how far the latrine is (skip to question 55)

51. Observe the latrine. Indicate the type of latrine. Choose one response.

- ☐ Simple latrine without concrete slab
- ☐ Latrine with concrete slab
- ☐ Latrine with septic tank
- ☐ Latrine with soak pit
- ☐ Latrine not observed

52. Observe the latrine.

Does it seem to be in use? Choose one response.

- ☐ Yes
- ☐ Might be
- ☐ Might not be
- ☐ No

53. Observe the latrine. Choose one of the following descriptions: Choose one response.

- ☐ Clean, well maintained and enclosed
- ☐ Clean, but with some defects (cracks, open, etc.)

- ☐ Dirty
- ☐ Dirty and poorly maintained
- ☐ Not observed

54. Ask: "Who in this household is allowed to use the latrine?" Do not read the following options out loud. Check all options indicated in the response. Check all options that apply.

- ☐ Men
- ☐ Women
- ☐ Children
- ☐ Everyone

55. Ask: "Who sees to cleaning the latrine?"

Check all options that apply.

- ☐ Everyone who uses the latrine
- ☐ A woman
- ☐ A man
- ☐ A child
- ☐ Don't know

56. Environmental hygiene

57. Ask: "Could you please show me where you dispose of your household waste?" Observe the disposal site and check one or more of the following options. If the disposal site cannot be observed, ask the respondent to describe it. Check all options that apply.

- ☐ Observed; in a nearby refuse pit
- ☐ Observed; in a ditch through which water runs
- ☐ Observed; in nearby fields / open dump site
- ☐ Observed; in the yard
- ☐ Waste is burned
- ☐ Waste is buried
- ☐ Not observed; waste disposal site
- ☐ Not observed; in fields / open dump site
- ☐ No specific site
- ☐ Other
- ☐ Don't know

58. Ask: "Where do you leave cooking utensils to dry after washing them?"

Choose one response.

- ☐ On canvas / plastic sheet
- ☐ In a bowl
- ☐ On a dish rack
- ☐ On a shelf
- ☐ On the ground
- ☐ Other

59. Incidence of diarrhoea

60. Ask: "How many members of your household have had diarrhoea in the past two weeks?"

Note: diarrhoea is the passing of two or more loose or watery stools a day.

If the respondent does not know, enter "98".

The answer must be > 0 and < 99

61. Ask: "How many children in your household under five years of age have had diarrhoea in the past two weeks?"

If the respondent does not know, enter "98".

The answer must be > and < 99

62. Ask: "What do you think causes diarrhoea?"

Do not read the following options out loud. Check all appropriate boxes according to responses given.

After each response, **ask: "And are there any other causes of diarrhoea?"**

Check all options that apply.

- ☐ Faeces disposal / defecation in the open
- ☐ Rubbish
- ☐ Contaminated water
- ☐ Contaminated food
- ☐ Poor hand washing practices
- ☐ Flies
- ☐ Germs, bacteria
- ☐ Don't know
- ☐ Other

63. Community participation in water, sanitation and hygiene activities

64. Ask: "Who pays for maintenance and repairs to water points in this community?"

Do not read the following options out loud.

Check all appropriate options according to the responses given. Check all options that apply.

- ☐ Our family pays to maintain its own wells
- ☐ Each household using a water point pays something
- ☐ Specific individuals living in the community (boss, chief, etc.)
- ☐ An NGO
- ☐ The government
- ☐ Nobody
- ☐ Don't know

65. Ask: "Is there a committee in this community that organizes activities to maintain water points?" Choose one response.

- ☐ Yes
- ☐ No
- ☐ Don't know

66. Ask: “Do any members of this household take part in activities to maintain water points?”

Choose one response.

- ☐ Yes
- ☐ No (skip to question 69)
- ☐ Don't know (skip to question 69)

67. Ask: “Who in this household participates in such activities?” Check all appropriate options according to the responses given. Check all options that apply.

- ☐ Man/men
- ☐ Woman/women
- ☐ Don't know
- ☐ Nobody

68. Ask: “In the past six months, has a community agent visited this household to talk about any of the following subjects?”

Read each option out loud. Check all the options for which a “yes” response is given.

Check all options that apply.

- ☐ How to improve the water supply
- ☐ Latrines
- ☐ Hand washing
- ☐ Nobody has visited to promote water supply improvements, latrines or hand washing
- ☐ Don't know

69. Ask: “In the past six months, has a meeting been held in this community at which someone talked about any of the following subjects?”

Read each option out loud. Check all the options for which a “yes” response is given.

Check all options that apply.

- ☐ How to improve the water supply
- ☐ Latrines
- ☐ Hand washing
- ☐ There have been no meetings addressing any of these subjects
- ☐ Don't know

70. This is the end of the interview. Thank the respondent for his or her cooperation. Try twice, at least, to enter GEOGRAPHIC COORDINATES. Then slide your finger across the screen to finish/upload data and go to next household.

Water survey

(Form: A_WatSan_CI_Eau)

1. Welcome to the village water point mapping form. Meet with the community water point manager. Ask him/her to join you to map water points in the village.

2. Village (Department - village)

Choose one response.

- ☐ Abengourou - Anougbakro
- ☐ Abengourou - Tahakro
- ☐ Bonon - N'Dri Atchakro
- ☐ Divo - Brabodougou
- ☐ Divo - Gly
- ☐ Divo - Gnaoualilié
- ☐ Divo - Gnéhiri
- ☐ Divo - Konandankro
- ☐ Divo - Kpérédi
- ☐ Divo - Petimpé
- ☐ Duekoué - Banguehi
- ☐ Duekoué - Krazandougou
- ☐ Gagnoa - Allakro
- ☐ Gagnoa - Djagomenou
- ☐ Gagnoa - Doukouyou
- ☐ Gagnoa - Kobouo
- ☐ Gagnoa - Nagadougou
- ☐ Gagnoa - Téhiri
- ☐ Gagnoa - Yopohué
- ☐ Gagnoa - Zigopa
- ☐ Guitry - Babakon
- ☐ Guitry - Braheri
- ☐ Guitry - Petit Khorogo
- ☐ Kouibly - Datouzon
- ☐ Lakota - Djidjé
- ☐ Lakota - Gragbadagolilié
- ☐ Lakota - Neko Tiégba
- ☐ Lakota - Niambéré
- ☐ Lakota - Tagolilié
- ☐ Lakota - Zozo Oliziriboué
- ☐ Other 1
- ☐ Other 2
- ☐ Other 3
- ☐ Other 4
- ☐ Other 5

3. Type of water point

Choose one response.

- ☐ Borehole with hand/foot pump
- ☐ Protected well with pump

4. GPS coordinates

.....

5. State

Choose one response.

- ☐ Working
- ☐ Not working
- ☐ Partially working

6. Observe and ask the manager:

What are the main problems?

Check all options that apply.

- ☐ Need for repairs or maintenance
- ☐ Unfinished
- ☐ Poor water quality
- ☐ Low supply
- ☐ Pump too far away
- ☐ No problems

7. Ask the manager: Date of last repair.

Don't know = "01/01/01"

.....

Latrines survey

(Form: A_WatSan_CI_Latrines)

1. Welcome to the public latrine mapping form.

Observation: Normally, the only public latrines in a village are the school latrines.

2. Community

Choose one response.

- ☐ Abengourou - Anougbakro
- ☐ Abengourou - Tahakro
- ☐ Bonon - N'Dri Atchakro
- ☐ Divo - Brabodougou
- ☐ Divo - Gly
- ☐ Divo - Gnaoualilié
- ☐ Divo - Gnéhiri
- ☐ Divo - Konandankro
- ☐ Divo - Kpérédi
- ☐ Divo - Petimpé
- ☐ Duekoué - Banguéhi
- ☐ Duekoué - Krazandougou
- ☐ Gagnoa - Allakro
- ☐ Gagnoa - Djagomenou
- ☐ Gagnoa - Doukouyo
- ☐ Gagnoa - Kobouo
- ☐ Gagnoa - Nagadougou
- ☐ Gagnoa - Téhiri
- ☐ Gagnoa - Yopohué
- ☐ Gagnoa - Zigopa
- ☐ Guitry - Babakon
- ☐ Guitry - Braheri
- ☐ Guitry - Petit Khorogo
- ☐ Kouibly - Datouzon
- ☐ Lakota - Djidjé
- ☐ Lakota - Gragbadagolilié
- ☐ Lakota - Neko Tiégba
- ☐ Lakota - Niambré
- ☐ Lakota - Tagolilié
- ☐ Lakota - Zozo Oliziriboué
- ☐ Other 1
- ☐ Other 2
- ☐ Other 3
- ☐ Other 4
- ☐ Other 5

3. GPS coordinates

.....

4. Number of latrine stances

The answer must be > 0 and < 15

.....

5. State

Choose one response.

- ☐ In working order, well maintained
- ☐ Out of order, abandoned
- ☐ In working order, poorly maintained

Teacher survey (Form: A_WatSan_CI_Enseigt)

1. Explain the following to the head of the school: You work with the Red Cross Society of Côte d'Ivoire. You are visiting the school to ask questions about water, sanitation and hygiene. It will take about 10 minutes to ask the questions. The information will help us to plan a water and sanitation project. Explain that they can choose not to reply to a particular question if they wish and that their answers will remain confidential.

2. Ask: "Do you agree to take part in this survey?" Choose one response.

- ☐ Yes
☐ No (skip to question 33)

3. Select your name from the drop-down menu below. Choose one response.

- ☐ ZAHITI Bi Vadian Frédy
☐ ATTEBI Zama Hervé Villard
☐ DJAPO Appolinaire
☐ KOUASSI Affoué Angèle
☐ KPADJIKE Péhé Achille
☐ TIEU Yonan Olivier
☐ KOUAME N'dri Emmanuel
☐ MAIN Gildas Kouiahon
☐ GBOHO Doh Lucien
☐ GNAOUE Gbaré Charlotte
☐ FAITAIE Koffi Stéphane
☐ ZOUNDI Gérard
☐ Other 1
☐ Other 2
☐ Other 3
☐ Other 4

4. Select the community from the drop-down menu below. Choose one response.

- ☐ Abengourou - Anougbakro
☐ Abengourou - Tahakro
☐ Bonon - N'Dri Atchakro
☐ Divo - Béman Kouassikro
☐ Divo - Gly
☐ Divo - Gnaoualilié
☐ Divo - Gnéhiri

- ☐ Divo - Konandankro
☐ Divo - Kpérédi
☐ Divo - Petimpé
☐ Duekoué - Banguéhi
☐ Duekoué - Krazandougou
☐ Gagnoa - Allakro
☐ Gagnoa - Djagomenou
☐ Gagnoa - Doukouyo
☐ Gagnoa - Amanikro
☐ Gagnoa - Nagadougou
☐ Gagnoa - Téhiri
☐ Gagnoa - Yopohué
☐ Gagnoa - Zigopa
☐ Guitry - Babakon
☐ Guitry - Braheri
☐ Guitry - Petit Khorogo
☐ Kouibly - Datouzon
☐ Lakota - Djidjé
☐ Lakota - Gragbadagolilié
☐ Lakota - Neko Tiégba
☐ Lakota - Niambéré
☐ Lakota - Tagolilié
☐ Lakota - Zozo Oliziriboué
☐ Other 1
☐ Other 2
☐ Other 3
☐ Other 4
☐ Other 5

5. Name of school

.....

6. GPS coordinates

.....

7. Ask: "How many classes does this school have?" The answer must be > 1 and < 25

.....

8. Ask: "How many teachers work at this school?" The answer must be > 1 and < 25

.....

9. Ask: "How many students are there at this school?" The answer must be > 1 and < 2500

.....

10. Ask: "What is the source of the school's water supply?" Choose one response.

- ☐ School has no water source (skip to question 14)
- ☐ Well without pump
- ☐ Uncased well with pump
- ☐ Cased well with pump
- ☐ Borehole with hand/foot pump
- ☐ Piped water on premises
- ☐ Piped water at a distance
- ☐ Protected source
- ☐ Unprotected source
- ☐ Rainwater
- ☐ Lake/river/dam/pond
- ☐ Bottled/sachet water
- ☐ Don't know

11. Ask: "Approximately how far is the drinking water supply from the school?"

Choose one response.

- ☐ In the schoolyard
- ☐ Less than 100 metres away
- ☐ Between 100 and 500 metres away
- ☐ Over 500 metres away
- ☐ Don't know

12. Ask: "Are you satisfied with your main drinking water source?" Choose one response.

- ☐ Yes (skip to question 14)
- ☐ No
- ☐ Uncertain

13. Ask: "Why are you not satisfied?"

Do not read the following options out loud.

Check all appropriate boxes according to responses given. After each response, ask "And are there any other problems?" Check all options that apply.

- ☐ It is too far away
- ☐ It smells bad
- ☐ It does not taste good
- ☐ Cloudy / dirty / red
- ☐ Source is not protected
- ☐ Expensive
- ☐ Dangerous - crime, wild animals
- ☐ Sometimes the supply is insufficient
- ☐ Sometimes the pump is broken

14. Ask: "Does the school have a latrine in working order?" Choose one response.

- ☐ Yes
- ☐ No (skip to question 19)

15. Ask: "Who is allowed to use the latrines?"

Check all options that apply.

- ☐ Teacher(s)
- ☐ Students
- ☐ Others

16. Ask: "How far is the latrine from the school?" Choose one response.

- ☐ Latrine is in the yard
- ☐ Less than 10 metres away
- ☐ Between 10 and 100 metres away
- ☐ Between 100 and 500 metres away
- ☐ Over 500 metres away
- ☐ Distance to the latrine is not known

17. Ask: "Could you please show me the latrine?"

Observe the latrine. How many latrine stances are there? The answer must be > 1 and < 25

.....

18. Observe the latrine. Select one of the following descriptions: Choose one response.

- ☐ Clean and well maintained
- ☐ Clean, but with some defects (cracks, etc.)
- ☐ Dirty and poorly maintained
- ☐ Latrine not observed

19. Ask: "Does the school have a refuse bin?"

Choose one response.

- ☐ Yes
- ☐ No

20. Ask: "Does the school have a hand-washing facility?" Choose one response.

- ☐ Yes
- ☐ No (skip to question 24)

21. Ask: "Could you please show me the hand washing facility?" Observe the facility.

How many hand washing stations are there? The answer must be > 1 and < 25

.....

22. Observe the hand washing facility.

How many of the hand washing stations are in working order? The answer must be > 1 and < 25

.....

23. Observe the hand-washing facility.

Select one of the following descriptions:

Choose one response.

- ☐ Clean and well maintained
- ☐ Clean, but with some defects (leaky tap, etc.)
- ☐ Dirty and poorly maintained
- ☐ Hand washing facility not observed

24. Ask "When do you wash your hands?"

Do not read the following options out loud. Check all appropriate boxes according to responses given. After each response, ask "And are there any other times when it is important to wash your hands?" Check all options that apply.

- ☐ Before cooking / preparing food
- ☐ Before eating
- ☐ Before feeding a baby
- ☐ After defecation
- ☐ After handling a child's faeces or cleaning a baby's bottom
- ☐ Don't know

25. Ask: "Could you please show me how you wash your hands?" Observe the ten steps and

Choose one response.

Ten steps for hand-washing (DO NOT READ OUT LOUD):

- 1) Wet your hands with clean water;
- 2) Apply soap, covering the entire area of both hands;
- 3) Rub the palms of your hands together vigorously;
- 4) Rub the palm of one hand over the back of the other hand;
- 5) Rub your hands together, palm to palm, with fingers interlocked;
- 6) Rub the backs of your fingers against the palm of the other hand;
- 7) Rub each thumb in the palm of the other hand;
- 8) Rub your fingertips against the palm of the other hand in circular movements;
- 9) Rinse your hands thoroughly;
- 10) Allow your hands to dry before touching anything.

Choose one response.

- ☐ Hands washed correctly, following the ten steps
- ☐ Hands washed well, with clean water, soap and rubbing the surfaces of the hands

- ☐ Hands washed fairly well, with clean water and soap
- ☐ Hands not washed well, without clean water or without soap

26. Ask: "Does the school have a hygiene or health club in operation?" Choose one response.

- ☐ Yes
- ☐ No

27. Ask: "In the past six months, has there been a meeting at the school at which someone talked about any of the following subjects?"

Read each option out loud. Check all the options for which a "yes" response is given.

Check all options that apply.

- ☐ How to improve the water supply
- ☐ Latrines
- ☐ Hand washing
- ☐ There have been no meetings addressing any of these subjects
- ☐ Don't know

28. Ask: "Do any teachers take part in community activities and decision-making concerning water point and environmental management in the community?" Choose one response.

- ☐ Yes
- ☐ No

29. Ask: "Who finances repairs to the school's water, sanitation and hygiene facilities (latrines, water point, hand washing stations, etc.)?" Choose one response.

- ☐ The school
- ☐ The community
- ☐ The government
- ☐ An NGO project
- ☐ Other

30. Ask: "Has the school benefited from Red Cross activities?" Choose one response.

- ☐ Yes
- ☐ No (skip to question 33)

31. Ask: "Are you satisfied with the activities carried out with the Red Cross?"

Choose one response.

- ☐ Yes (skip to question 33)
- ☐ No

32. Ask: “If not, which activities are you not satisfied with?”

Check all options that apply.

- ☐ Hygiene promotion/awareness
- ☐ Hand washing stations
- ☐ Water point repair/rehabilitation
- ☐ Latrine construction/rehabilitation
- ☐ Training /workshop

33. This is the end of the interview. Thank the teacher for his or her cooperation. Then slide your finger across the screen to finish/upload data and go to the questionnaire for students.

Student survey

(Form: A_WatSan_CI_Eleve)

1. Welcome to the student survey. Select the student nearest the door from each of the school's classes (up to 5 classes) and ask him/her the following questions.

2. Select your name from the drop-down menu below. Choose one response.

- ☐ ZAHITI Bi Vadian Frédy
- ☐ ATTEBI Zama Hervé Villard
- ☐ DJAPO Appolinaire
- ☐ KOUASSI Affoué Angèle
- ☐ KPADJIKE Péhé Achille
- ☐ TIEU Yonan Olivier
- ☐ KOUAME N'dri Emmanuel
- ☐ MAIN Gildas Kouiahon
- ☐ GBOHO Doh Lucien
- ☐ GNAOUE Gbaré Charlotte
- ☐ FAITAIE Koffi Stéphane
- ☐ ZOUNDI Gérard
- ☐ nolabel3811390
- ☐ nolabel3811391
- ☐ nolabel3811392
- ☐ nolabel3811393

3. Select the community from the drop-down menu below. Choose one response.

- ☐ Abengourou - Anougbakro
- ☐ Abengourou - Tahakro
- ☐ Bonon - N'Dri Atchakro
- ☐ Divo - Béman Kouassikro
- ☐ Divo - Gly
- ☐ Divo - Gnaoualilié
- ☐ Divo - Gnéhiri
- ☐ Divo - Konandankro
- ☐ Divo - Kpérédi
- ☐ Divo - Petimpé
- ☐ Duekoué - Tobly
- ☐ Duekoué - Krazandougou
- ☐ Gagnoa - Allakro
- ☐ Gagnoa - Djagomenou
- ☐ Gagnoa - Doukouyo
- ☐ Gagnoa - Amanikro
- ☐ Gagnoa - Nagadougou
- ☐ Gagnoa - Téhiri
- ☐ Gagnoa - Yopohué
- ☐ Gagnoa - Zigopa
- ☐ Guitry - Babakon
- ☐ Guitry - Braheri

- ☐ Guitry - Petit Khorogo
- ☐ Kouibly - Datouzon
- ☐ Lakota - Djidjé
- ☐ Lakota - Gragbadagolilié
- ☐ Lakota - Neko Tiégba
- ☐ Lakota - Niambéré
- ☐ Lakota - Tagolilié
- ☐ Lakota - Zozo Oliziriboué
- ☐ Other 1
- ☐ Other 2
- ☐ Other 3
- ☐ Other 4
- ☐ Other 5

4. Name of school

.....

5. Class

Choose one response.

- ☐ CP1 (1st year primary)
- ☐ CP2 (2nd year primary)
- ☐ CE1 (3rd year primary)
- ☐ CE2 (4th year primary)
- ☐ CM1 (5th year primary)
- ☐ CM2 (6th year primary)

6. GPS coordinates

.....

7. Ask: "You have diarrhoea when you pass loose or watery stools several times a day. Can you please tell me three ways of preventing diarrhoea?" Check all appropriate boxes according to responses given. Check all options that apply.

- ☐ Drink clean water
- ☐ Treat water chemically before drinking it
- ☐ Wash your hands before eating
- ☐ Wash your hands after going to the toilet
- ☐ Wash with soap
- ☐ Wash food before eating it
- ☐ Protect food from flies
- ☐ Protect water sources from excreta
- ☐ Use latrines regularly and maintain them
- ☐ Other
- ☐ Don't know

8. Ask: "When do you wash your hands?"

Do not read the following options out loud.

Check all appropriate boxes according to responses given. **After each response, ask**

"And are there any other times when it is important to wash your hands?"

Check all options that apply.

- ☐ Before cooking / preparing food
- ☐ Before eating
- ☐ After defecation
- ☐ Before feeding a baby
- ☐ After handling a child's faeces or cleaning a baby's bottom
- ☐ Other
- ☐ Don't know

9. Ask: "What is the source of water drunk at school?" Water drunk at school is from...

Choose one response.

- ☐ Home
- ☐ School water point
- ☐ No source

10. Ask: "When you are at school, where do you relieve yourself?" Check all options that apply.

- ☐ Field/bush
- ☐ River/pond/lake
- ☐ Latrine
- ☐ Other

11. In preparation for the interview, choose a location close to the school which can be used to set up a hand washing station.

Place the following items there: a plastic jug filled with water, a bowl of water, a bar of soap on a dish and a towel. If the school has a hand washing device, use that instead of the jug of water.

12. Invite the student to go to the hand washing station. Ask: "Could you please show me how you wash your hands?"

Observe the ten steps and choose a response.

Ten steps for hand washing (DO NOT READ OUT LOUD):

- 1) Wet your hands with clean water;
- 2) Apply soap, covering the entire area of both hands;
- 3) Rub the palms of your hands together vigorously;
- 4) Rub the palm of one hand over the back of the other hand;
- 5) Rub your hands together, palm to palm, with fingers interlocked;

- 6) Rub the backs of your fingers against the palm of the other hand;

- 7) Rub each thumb in the palm of the other hand;

- 8) Rub your fingertips against the palm of the other hand in circular movements;

- 9) Rinse your hands thoroughly;

- 10) Allow your hands to dry before touching anything.

Choose one response.

- ☐ Hands washed correctly, following the ten steps
- ☐ Hands washed well, with clean water, soap and rubbing the surfaces of the hands
- ☐ Hands washed fairly well, with clean water and soap
- ☐ Hands not washed well, without clean water or without soap

13. Ask: "Why do you wash your hands?"

Check all options that apply.

- ☐ To be clean
- ☐ To prevent diseases
- ☐ No response
- ☐ Other

14. This is the end of the interview.

Thank the student for his or her cooperation. Then slide your finger across the screen to finish/upload data.

Annex 5

Photographs captured and uploaded using Magpi questionnaires

Figure 16: The only functional borehole of Krazandougou. This image was captured as the Magpi questionnaire was administered and later uploaded automatically to the Magpi server when the rest of the data were uploaded.



Figure 17: The phase III school latrine in Babakon. This latrine was clean and in good condition but had not been used for more than a year because the teachers had, inexplicably, locked it up.



Annex 6

Google Earth image showing the location of data collected

Figure 18: This image indicates the households and pumps surveyed in Krazandougou. P1 is the location of the only fully functional pump. P2 is a partially functional well with a pump. P3 is a non-functional pump.



Annex 7

Photograph of a student using a hand-washing station



Unfortunately, the device is no longer functional because the rubber gasket has fallen off.

The Fundamental Principles of the International Red Cross and Red Crescent Movement

Humanity The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield, endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all peoples.

Impartiality It makes no discrimination as to nationality, race, religious beliefs, class or political opinions. It endeavours to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

Neutrality In order to enjoy the confidence of all, the Movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

Independence The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.

Voluntary service It is a voluntary relief movement not prompted in any manner by desire for gain.

Unity There can be only one Red Cross or Red Crescent Society in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.

Universality The International Red Cross and Red Crescent Movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.

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