



# Use of rapid mobile phone-based system for monitoring:

Phase IV Côte d'Ivoire water, sanitation and hygiene promotion project

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***Use of rapid mobile phone-based system for monitoring: Phase IV Côte d'Ivoire water, sanitation and hygiene promotion project 1294000 08/2015 E***

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# Use of rapid mobile phone-based system for monitoring:

## Phase IV Côte d'Ivoire water, sanitation and hygiene promotion project

The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest volunteer-based humanitarian network. Together with our 189 member National Red Cross and Red Crescent Societies worldwide, we reach 97 million people annually through long-term services and development programmes as well as 85 million people through disaster response and early recovery programmes. We act before, during and after disasters and health emergencies to meet the needs and improve the lives of vulnerable people. We do so with impartiality as to nationality, race, gender, religious beliefs, class and political opinions.

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.

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# Acknowledgements

The Côte d'Ivoire water, sanitation and hygiene promotion (WASH) project is implemented by the Red Cross Society of Côte d'Ivoire in collaboration with the International Federation of Red Cross and Red Crescent Societies (IFRC).

The survey would not have been possible without the generous support of officials at the national and branch (especially Divo and Gagnoa) offices of the Red Cross Society of Côte d'Ivoire.

The survey was designed by a team consisting of Zachari Issa (IFRC's regional coordinator for water and sanitation), Jacques Apollinaire (IFRC's water and sanitation delegate for Côte d'Ivoire), Jean-Claude Guedé (Red Cross Society of Côte d'Ivoire's coordinator for water and sanitation), Robert Fraser (IFRC's global water and sanitation coordinator), Rania Alerksoussi (IFRC's coordinator of Rapid Mobile Phone-based 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

CHAST	Child hygiene and sanitation transformation
CLTS	Community-led total sanitation
IFRC	International Federation of Red Cross and Red Crescent Societies
GPS	Global Positioning System
GWSI	Global Water and Sanitation Initiative
PHAST	Participatory hygiene and sanitation transformation
RAMP	Rapid Mobile Phone-based system
WASH	Water, sanitation and hygiene promotion

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# Glossary

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**Monitoring survey** enables the value of key indicators to be measured over time. This includes gathering data on household knowledge, attitudes and practices *during* rather than *after* project implementation. With this method, at the time of each visit to a village, project staff visit a sample of households to speak with residents. The main objective of the household visit might be to promote improved household practices.

**Participatory hygiene and sanitation transformation** is an approach promoted by the World Health Organization, the United Nations Development Programme and other partners to promote hygiene behaviours, sanitation improvements and community management of water and sanitation facilities using specifically developed participatory techniques.

**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.

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# 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 123 villages in-country (see [Figure 1](#)). Further details are provided in the report on the baseline survey and other project documents.

The results presented in this report and *Côte d'Ivoire water, sanitation and hygiene promotion project report: Baseline survey for phase IV* serve as a guide for National Societies for monitoring and evaluation and presents an example of a baseline line exercise. This is the first step in process that will evolve based on further learning and experience.



# Design of a monitoring system: What is to be measured?

## A framework for monitoring the project

Design of a project monitoring system should start with an understanding of the objectives of the project and the activities planned to achieve these goals. The core objectives on any water and sanitation project are to: increase access to a protected source of water; improve sanitation behaviours; and improve hygiene behaviours. In the case of phase IV of the Côte d'Ivoire WASH project, these objectives are to be achieved through a combination of:

- rehabilitation of pumps
- community mobilization to promote improved water supply (including strengthening of capacity for village-level maintenance), sanitation (including household latrine construction) and hygiene (including PHAST<sup>1</sup> training)
- school-based interventions to construct school latrines (and hand-washing stations) and support school-based hygiene promotion (including CHAST<sup>2</sup> training).

A variety of ancillary objectives and activities are also proposed: promotion of waste disposal pits, dish-drying racks, showers, subsidy of latrines for disadvantaged families, etc. An initial draft of the list of indicators for the project featured numerous *input, process and output indicators* to track progress with the full range of activities (see [Annex 1](#)). With such an extensive list of indicators there is a risk that project staff and community members would not focus sufficiently on the most important project *outcomes*. Collection and management of data on such a diverse array of indicators might also compromise the quality and use of the information.

For these two reasons (to keep the project focused and to support the collection of high-quality data), development of a model system for project monitoring should begin with a framework that specifies a more limited set of key indicators and a realistic means of regularly measuring them. Such a framework is shown in [Table 1](#) (also see [Annex 19](#)). This includes not only indicators for tracking progress with key activities (listed in the second column) but also indicators for measuring key outcomes (also listed in the second column in blue).

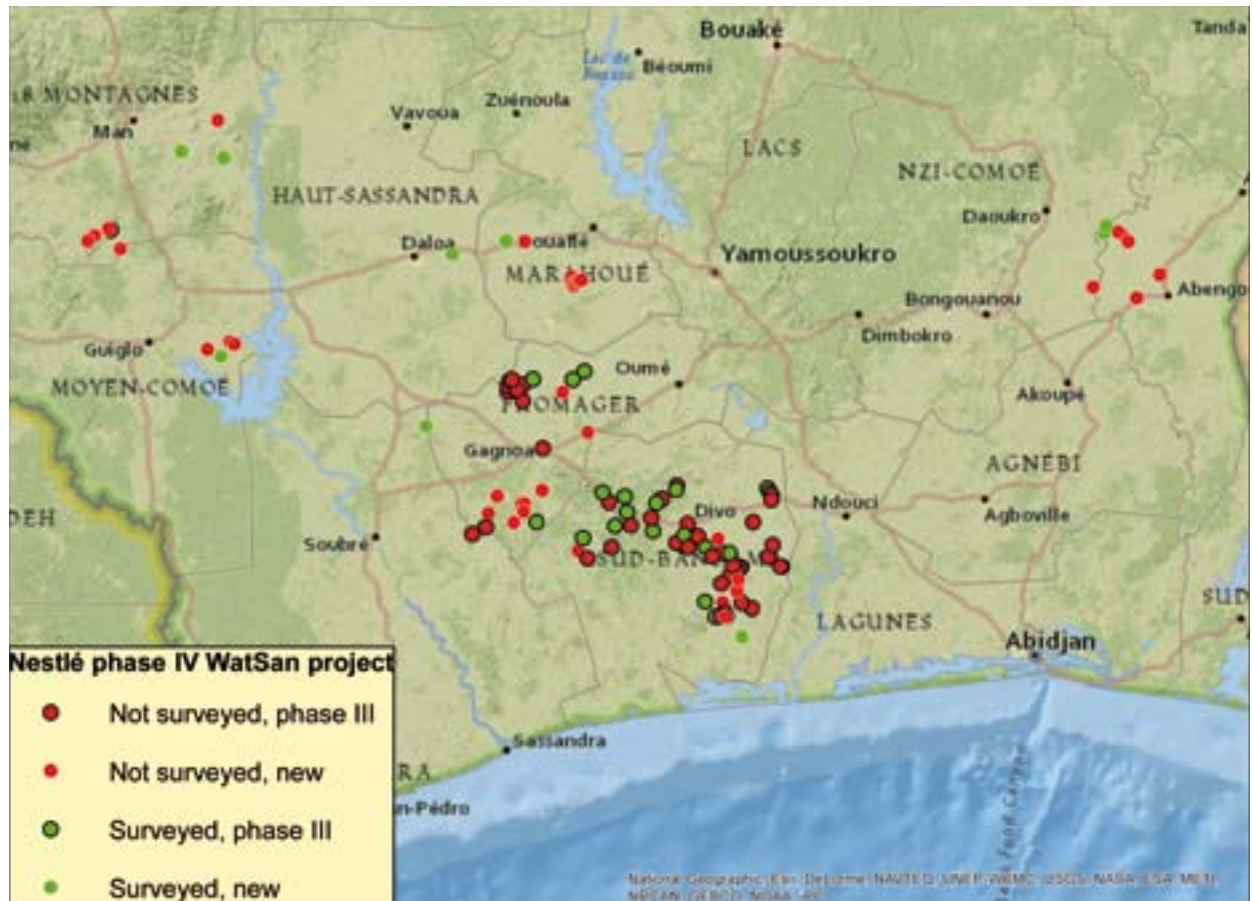
The two columns on the right of Table 1 discuss the means for measuring each of the proposed key indicators. This is discussed further in the next section of this report.

**1** PHAST stands for participatory hygiene and sanitation transformation. It is an approach promoted by the World Health Organization, the United Nations Development Programme and other partners to promote hygiene behaviours, sanitation improvements and community management of water and sanitation facilities using specifically developed participatory techniques. See [www.who.int/water\\_sanitation\\_health/hygiene/envsan/phast/en/](http://www.who.int/water_sanitation_health/hygiene/envsan/phast/en/)

**2** Child hygiene and sanitation transformation



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



**Table 1: A framework for monitoring phase IV of the Côte d'Ivoire WASH project**

Objective	Activity	Main indicators	Means of verification	Data collection/transmission method/note
<b>1. Increase access to a protected source of water</b>	Outcome indicators	Number of additional persons with access to a protected source = 500 x the number of water points which have been rehabilitated under this project and are still functional	Inspection of water points during each visit by project staff	<b>Pump form</b> Note: A more rigorous estimate of access will be obtained from measurement of use of the protected sources and from calculation of the % of households in the village that are less than 250 metres from a functioning, protected water source
		% of households that drink from a protected water source	Sampling of five households during select visits to the village by project staff	<b>Households form</b> Note: During select visits to the village, a sample of households will be asked <i>What is your principal source of drinking water?</i>
	a) Rehabilitation of water points	% of dysfunctional water points fully rehabilitated	Inspection of each water point at completion of rehabilitation	<b>Pump form</b>
	b) Build village capacity for maintenance	% of protected pumps in the village which have been maintained in the last 12 months	Inspection of each protected pump (including non-project pumps) at least once every six months	Information from the <b>pump maintenance log</b> will be entered into the <b>summary of village visit</b>

**Use of rapid mobile phone-based system for monitoring**

Phase IV Côte d'Ivoire water, sanitation and hygiene promotion project

Objective	Activity	Main indicators	Means of verification	Data collection/ transmission method/note
<b>2. Improve household and school sanitation behaviours</b>	Outcome indicators	% of households which use a latrine – based on a count of new latrines	Review of the new latrine log and data from the baseline census	<b>Summary of village visit</b>
	a) Construction of new household latrines	% of households which use a latrine – as measured by rolling survey	Sampling of five households during each visit to the village by project staff	<b>Households form</b>
	b) Construction of school latrines	% of target schools for which a latrine has been constructed/ rehabilitated	Inspection of a school latrine that is under construction/ rehabilitation	<b>School form</b> Note: A new/ rehabilitated school latrine will not be considered completed until: a) The building is completed; and b) Two functioning hand-washing stations and a latrine cleaning kit have been supplied
		% of schools with a functional latrine	Inspection of the school latrine	<b>School form</b> Note: The latrine must be actively used and well maintained to qualify as functional
<b>3. Improve household and school hygiene behaviours</b>	Outcome indicators	% of household respondents washing their hands with water and either soap or ash	Sampling of five households during each visit to the village by project staff	<b>Households form</b>
		% of students washing their hands with water and either soap or ash	Sampling of two students during each school inspection	<b>School form</b>
	a) PHAST training	Number of PHAST graduates per thousand population	This can be estimated from review of the PHAST training log and the baseline census of households	<b>Summary of village visit</b>
		% of schools which have completed the CHAST training for all students	Interview of head teachers	<b>School form</b>

# Design of a monitoring system: How to collect and analyse data?

## The baseline survey trained project staff to use RAMP to collect data

From 17 February to 13 March 2015 a team of project staff completed a baseline survey of households, protected pumps (boreholes with pumps or protected wells with pumps) and schools in a representative sample of 30 of the project villages. The survey was carried out using Samsung tablets equipped with Magpi software and GPS devices. Field staff were trained using a modified version of the IFRC RAMP guide.<sup>3</sup> All data were uploaded each day to the Magpi server.<sup>4</sup> During the survey, project staff demonstrated their mastery of the tools and techniques for using the tablets and Magpi software to rigorously collect and manage project data.

## How best to analyse the data and produce reports

Magpi, while permitting collection of the data, has limited capabilities for analysis. The raw data can be viewed (see [Annex 2](#)). The frequency of each response is plotted ([Annex 3](#)). A map can be viewed of the locations from which data have been collected ([Annex 4](#)). For adequate analysis and presentation of findings the data have to be downloaded to excel spreadsheets ([Annex 5](#)).

### Excel and Google Maps

From excel, the geo-coordinates of all villages, all households interviewed, all protected pumps and all latrines can be placed on Google Maps to visualize the location of these features ([Annex 6](#)). The geo-coordinates were used to calculate the distance of each pump from the households and schools ([Annex 7](#)). Those who are proficient in the use of excel could use this software to also carry out further analysis and prepare graphs. Staff from the Côte d'Ivoire WASH project may ultimately decide to use this approach.

<sup>3</sup> [www.ifrc.org/ramp](http://www.ifrc.org/ramp)

<sup>4</sup> <http://home.magpi.com/>

## Pre-written Stata programmes for standardized tables and graphs

For analysis of the survey data, however, this was performed by transferring the data from excel to Stata. For the survey the Stata programming was carried out by an external consultant, in coordination with staff from the IFRC secretariat.<sup>5</sup> Stata is complex software that takes time to learn and the short-term staff did not attempt to train project staff in Stata programming. But, before departing from Abidjan, they trained select project staff to download excel spreadsheets from the Magpi server, load the data into Stata and run the software using pre-written Stata programmes called 'DO files'. An example of a Stata DO file is shown in [Annex 8](#), together with some output generated by the programme. Project staff found it simple to master these steps. This demonstrated that, as long the structure of the questionnaires and the Stata programming itself did not change, sophisticated analyses could be performed and standardized tables and graphs could be produced by project staff.

## Components of a system for subsequent project monitoring

The baseline survey therefore provided training and proof of concept for a project monitoring system consisting of the following:

1. Paper-based record forms are kept in each village and completed by village volunteers.
2. Magpi questionnaires have been downloaded to each of the 12 tablets – one for each community mobilizer or field supervisor. The project staff will use these tablets to submit monitoring data by completing one or more of the questionnaires each time they visit a village. This includes entry of select data recorded on the paper-based record forms. Data will be uploaded to the Magpi server each day.
3. The raw data, the frequency of various responses and the location of data collection can be viewed on the Magpi website.
4. Data will be downloaded from the Magpi server to excel spreadsheets.
5. Some analysis can be carried out using the raw data and excel (e.g., with pivot tables).
6. Excel data with geo-coordinates can be visualized using Google Maps.
7. More sophisticated, standardized analysis can be undertaken by running a pre-written Stata DO file – this can produce tables that present standard indicators and it can generate some standard graphs.
8. The cleaned and processed data file can then be exported from Stata to excel and further analysis can be done using excel.
9. A summary report of key findings should be prepared periodically and shared with project managers and project field staff (feedback). Less frequently, reports should be shared with the IFRC secretariat (which will have access to the raw data on the Magpi server) the donor and with other partners.

## Begin with baseline assessment in all project villages

Review of the available data suggested that many of the population estimates for the phase IV villages could be markedly inaccurate. This is discussed in detail in the report on the baseline survey. Effective water and sanitation project

<sup>5</sup> Stata programming was performed by Bob Pond with Rania Alerksoussi.



planning, as well as project monitoring, requires reliable estimates of not only the population of each village but also the number, condition and location of all protected pumps; the number of household latrines; and the number, condition and location of all school latrines. Such baseline data can best be collected through a combination of Magpi questionnaires (see [Annex 9](#) for the Magpi questionnaire for baseline assessment of pumps and [Annex 10](#) for the Magpi questionnaire for baseline assessment of school latrines) and a paper register (see [Annex 11](#) for a sample of a paper register for a rapid count of households and latrines).

Together with the findings of the baseline survey, this baseline data on all project villages will form the foundation for any future monitoring and evaluation of the project.

### Three paper forms and four Magpi questionnaires for monitoring of key project indicators

These indicators in the monitoring framework can be measured using a combination of the following:

- **Three logbooks (i.e., paper-based)** should be filled in by one or more community-based volunteers:
  - The [pump maintenance log](#): for each borehole and each protected well – a) date of last repair; b) repairs made; c) name and contact information of the mechanic.
  - The [new latrine log](#): for each new household latrine – a) name of the head of the household; b) whether the latrine is used and well maintained (note: use and maintenance of the latrine must be verified through observation by the person(s) who maintain(s) the new latrine log).
  - The [PHAST training log](#): for tracking the number of people who have completed the seven steps of PHAST training.

These three logbooks remain in the village. Project staff (community mobilizers, Red Cross and Red Crescent volunteers, and project coordinators) interview community-based volunteers, review these logbooks and transcribe key data into a Magpi questionnaire that is referred to as the [Summary of village visit](#).

- During select visits to the village, project staff use three other Magpi questionnaires to capture additional data on key indicators:
  - [Pump form](#) – for inspection of infrastructure work that is in progress (i.e., pumps that the project is paying to have rehabilitated; new school latrines that the project is paying to have constructed). This same form is also used later to inspect this completed infrastructure (Do the pumps still function? What is the date of the last maintenance/repair?).
  - [School form](#) – for interview of the head teacher, interview of two students, inspection of the school latrine and inspection of the hand-washing stations.
  - [Household form](#) – a very brief (seven questions) questionnaire should be administered to a sample of households (at least five households every three months). This monitoring approach is referred to as the *monitoring survey*. The *monitoring survey* will permit the value of key indicators to be measured over time. Values from the first year can be compared to values from the second year. The *monitoring survey* approach will substitute for a mid-term survey.

## The monitoring survey for periodic measurement of key outcomes

Ultimately, the success of any development project must be assessed not by the volume of project inputs (e.g., numbers of persons trained in PHAST) or outputs (e.g., numbers of persons participating in hygiene promotion activities) but by key project outcomes (e.g., percentage of people who wash their hands with clean water and soap).

However, outcomes are difficult to measure. It is possible to estimate the value of some outcome indicators by measuring the volume of services delivered. For example, as shown in the proposed [monitoring framework](#), one way to measure the percentage of adults using a latrine is to keep count of the number of new latrines installed in each village (from the new [latrine log](#)) and add this to the number of latrines in each village at the outset of the project (from the [baseline count of latrines](#)) then divide this by the population of each village (estimated from the [baseline count of households](#)). But it is not easy to assure reliable counts of services delivered (e.g., new latrines installed), especially when records are kept by community volunteers. Also, outcomes that depend upon changes in household behaviours and practices (e.g., use of a latrine or good hand-washing practices) often cannot be reliably measured simply by measuring the volume of services delivered.

The conventional approach to measuring changes in household knowledge, attitudes and practices is to conduct baseline and end-of-project household surveys. Yet such household surveys consume substantial resources and the findings from an end-of-project survey typically come too late to be used to make mid-course correction. Another drawback of household surveys is that, as a result of inadequate sample sizes, the changes found in key variables are frequently not statistically significant. The end result can be that sizeable resources are devoted to an evaluation approach that yields unclear findings or ones which come too late to be useful to project managers.

The *monitoring survey* is a method for gathering data on household knowledge, attitudes and practices *during* rather than *after* project implementation. With this method, at the time of each visit to a village, project staff visit a sample of households to speak with residents. The main objective of the household visit might be to promote improved household practices. At the outset of the visit, however, information can be collected about a small number of key practices (see [household form](#) for an example questionnaire). The number of questions (five to ten) and the number of households (five) are kept to a minimum to limit the time required. This enables project staff to complete their other tasks.

For such small samples to provide a sufficiently precise estimate of household knowledge, attitudes and practices, data from multiple small samples must be combined to make a larger sample. For example, if, during the first six months of the project, data were collected on a series of three visits and the data were grouped together, this would provide a sample of 15 households – the size of the sample used for the baseline survey for phase IV. In fact, if this approach is completed in all project villages, the total sample size (123 x 15) for the monitoring survey would be more than four times the total sample size for the baseline survey (30 x 15).

The challenge with this method is how to select these small samples in a way that they are best representative of the village. Given the time constraints, conventional approaches to random selection would probably be too time consuming to be practical.<sup>6</sup> By using aerial photographs, however, it is possible at

**6** *If the baseline census of households were conducted with GPS-capable mobile devices (tablet, smartphone or personal digital assistant), it would be quite practical to randomly select a given number of households then later use the mobile devices to navigate back to the selected houses during multiple visits. To limit the time required to walk from one selected house to another, selected houses could be grouped together based on their proximity to one another and one group of five selected households could be surveyed during each visit to the village.*

the outset of the project to divide each village into multiple small segments.<sup>7</sup> For each round of the monitoring survey a different segment of the village could be randomly selected and an aerial photograph of the segment used by project staff to locate it. The five houses closest to the centre of the segment could then be surveyed.<sup>8</sup> By capturing the geo-coordinates of each household surveyed, the dispersion of households throughout the village could later be assessed.

The data from three or four visits during the first months of the project can be compared with data from three or four visits during the second year of the project. In this way, managers need not wait until the end of the project to assess progress with key objectives. Corrective actions can be taken or lessons learned from villages where particularly promising results appear to be emerging.

As the data will be collected by those project staff directly responsible for project implementation, there will be a risk of biased reporting. Supervisors will have to watch out for such bias and take action to minimize it. As with all monitoring data, it will need to be supplemented by findings from an independent evaluation. However, the monitoring survey appears to be a promising addition to methods for the monitoring and evaluation of a community-based project.

<sup>7</sup> Refer to the report on the baseline survey for phase IV for further discussion of how to use Google Earth to access aerial photographs to randomly select segments with a probability of selection that is proportional to the surface area of each segment.

<sup>8</sup> As an alternative, instead of randomly selecting a series of segments, a series of starting points within the village could be randomly chosen. Two people could work together to select these points at random: one person would randomly place the aerial photograph on the table in front of the second, blindfolded person who would then drop a pen onto the table multiple times until the required number of starting points has been selected. For each round of the monitoring survey, the household at one starting point would be surveyed along with the four closest households.

## Annex 1

# Input, process and output indicators for phase IV of the Côte d'Ivoire water, sanitation and hygiene project

### Improved access to a protected water source

- Number of completed water points (rehabilitated, fenced, tested, in use)
- Number of water committees established or restructured that are functional (received hand pump repair kits)
- Number of members of water committees trained on water point management (roles; financial management)

### Improved household sanitation behaviours

- Number of new, non-subsidized family latrines completed
- Number of subsidized latrines completed for poor and disadvantaged families
- Number of household/communal refuse pits in use
- Number of dish-drying racks in use
- Number of new showers with soak-away pits in use

### Improved school sanitation behaviours

- Number of school latrines completed (built, equipped with hand-washing stations, used and correctly maintained)

### Improved household hygiene behaviours

- Number of project staff trained on PHAST, CHAST, community-led total sanitation (CLTS)
- Number of volunteers trained on PHAST and CHAST
- Number of key learning materials (PHAST, CHAST, CLTS) disseminated
- Number of target groups (school, public places, meetings) participating in hygiene promotion sessions
- Number of households visited

### Improved school hygiene behaviours

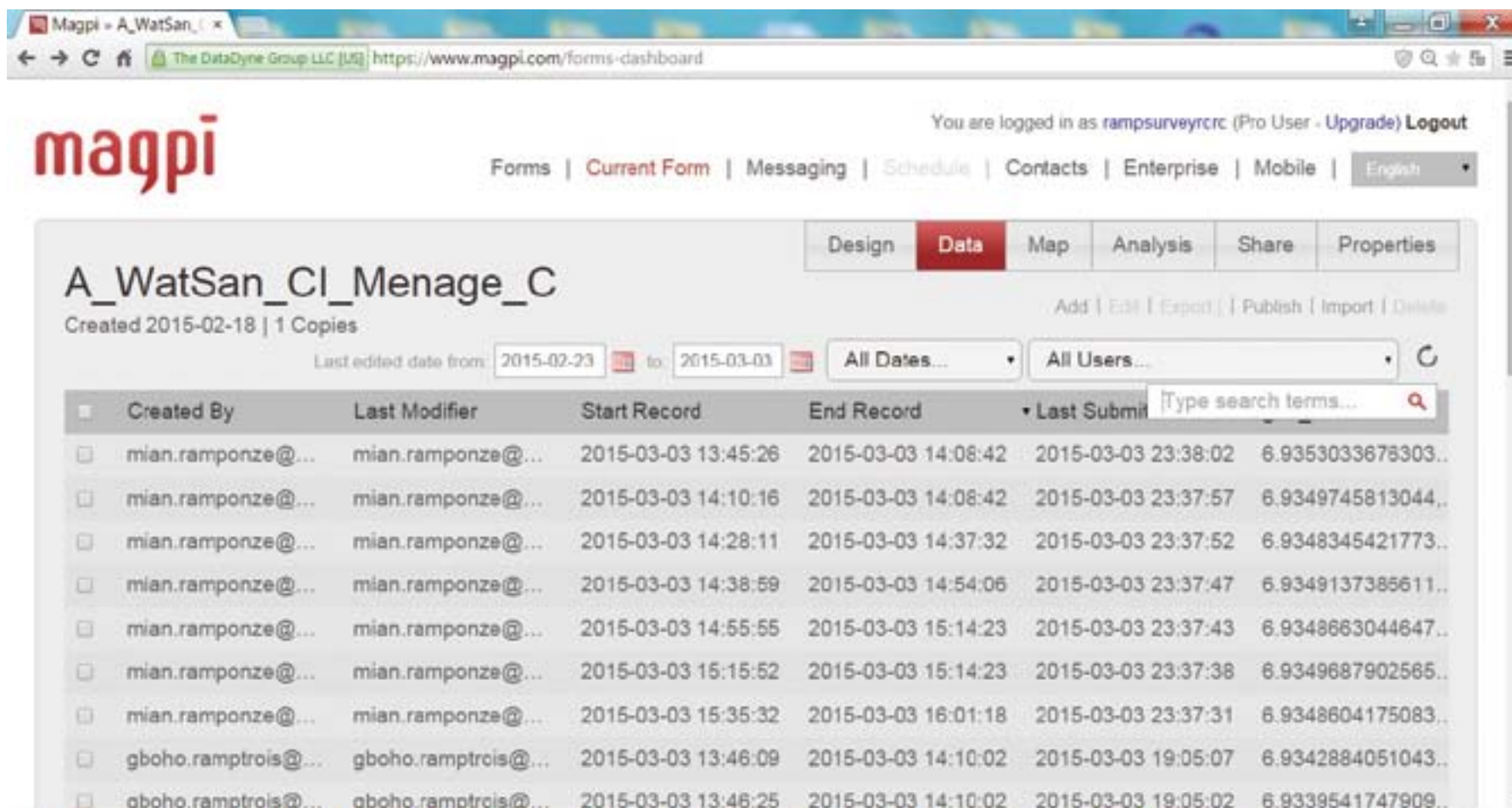
- Number of teachers trained on CHAST
- Number of hygiene clubs established or restructured, trained and functional

### Project management

- Number of National Society project staff capable of coordinating, monitoring and evaluating a similar water and sanitation project
- Number of project reports produced by the water and sanitation coordinator of the Red Cross Society of Côte d'Ivoire (one report every three months)
- Number of financial reports in line with IFRC procedures (one report every three months)
- Number of project staff trained on knowledge, attitude and practice and on the use of RAMP
- Use of RAMP and real-time reporting tools and mechanism established
- Number of steering committee meetings held at local level
- Number of steering committee meetings held at regional level
- Number of steering committee meetings held at national level

## Annex 2

### Raw Magpi data



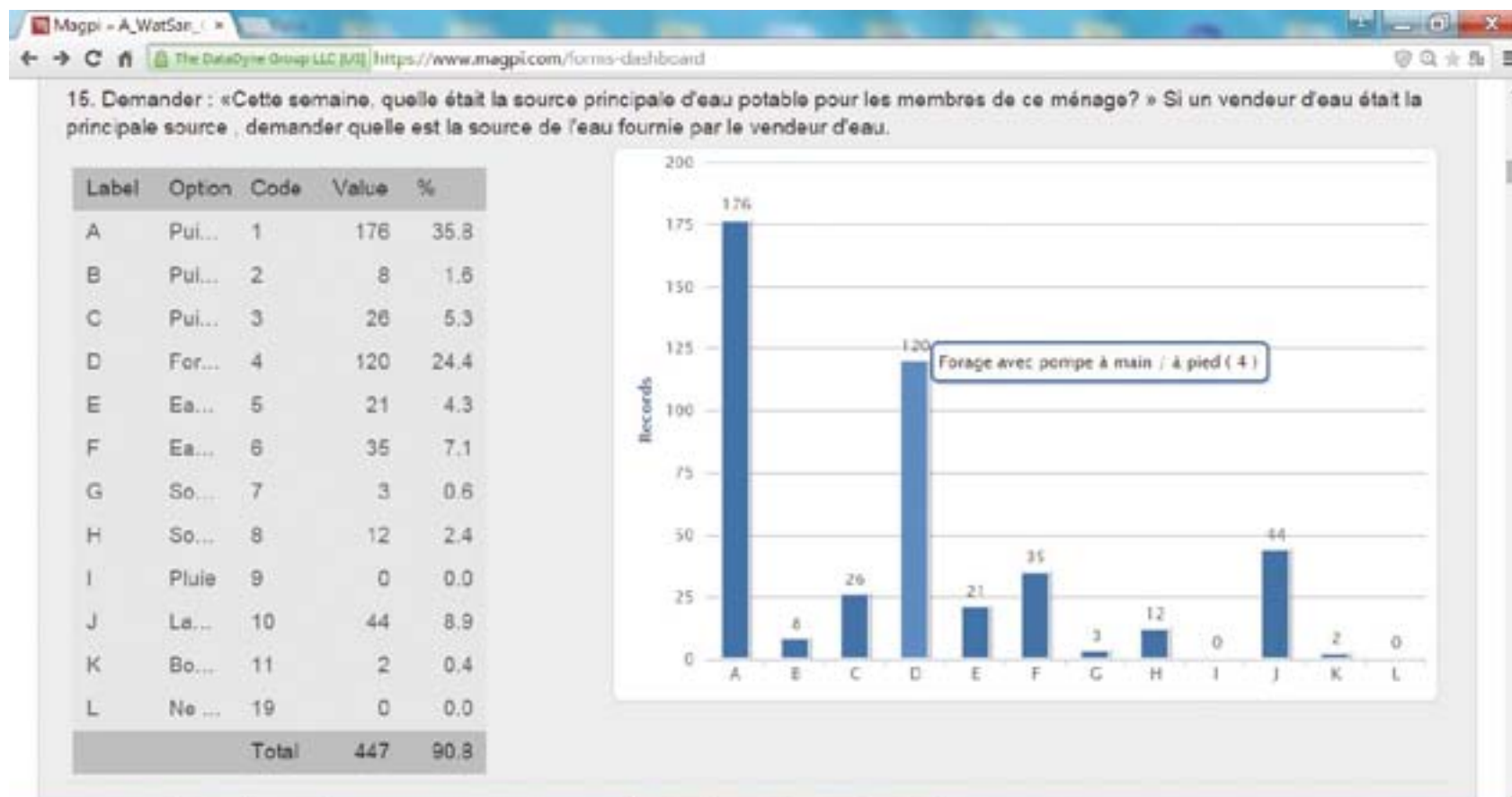
The screenshot shows the Magpi web application interface. The browser address bar displays 'https://www.magpi.com/forms-dashboard'. The user is logged in as 'rampsurveyrcrc (Pro User - Upgrade) Logout'. The main navigation bar includes 'Forms', 'Current Form', 'Messaging', 'Schedule', 'Contacts', 'Enterprise', 'Mobile', and 'English'. The 'Data' tab is selected in the sub-navigation bar. The form title is 'A\_WatSan\_CI\_Menage\_C', created on 2015-02-18 with 1 copy. The 'Last edited date from' is 2015-02-23 to 2015-03-03. The table below lists data records with columns: Created By, Last Modifier, Start Record, End Record, Last Submit, and a search bar.

Created By	Last Modifier	Start Record	End Record	Last Submit	
mian.ramponze@...	mian.ramponze@...	2015-03-03 13:45:26	2015-03-03 14:08:42	2015-03-03 23:38:02	6.9353033678303..
mian.ramponze@...	mian.ramponze@...	2015-03-03 14:10:16	2015-03-03 14:08:42	2015-03-03 23:37:57	6.9349745813044..
mian.ramponze@...	mian.ramponze@...	2015-03-03 14:28:11	2015-03-03 14:37:32	2015-03-03 23:37:52	6.9348345421773..
mian.ramponze@...	mian.ramponze@...	2015-03-03 14:38:59	2015-03-03 14:54:06	2015-03-03 23:37:47	6.9349137385611..
mian.ramponze@...	mian.ramponze@...	2015-03-03 14:55:55	2015-03-03 15:14:23	2015-03-03 23:37:43	6.9348663044647..
mian.ramponze@...	mian.ramponze@...	2015-03-03 15:15:52	2015-03-03 15:14:23	2015-03-03 23:37:38	6.9349687902565..
mian.ramponze@...	mian.ramponze@...	2015-03-03 15:35:32	2015-03-03 16:01:18	2015-03-03 23:37:31	6.9348604175083..
gboho.ramptois@...	gboho.ramptois@...	2015-03-03 13:46:09	2015-03-03 14:10:02	2015-03-03 19:05:07	6.9342884051043..
gboho.ramptois@...	gboho.ramptois@...	2015-03-03 13:46:25	2015-03-03 14:10:02	2015-03-03 19:05:02	6.9339541747909..

## Annex 3

### Analysis within Magpi

The Magpi website has an *analysis* tab which displays basic frequencies of each response given. Much more must be done with the data for them to be useful: data need cleaning, new variables need to be created and analysed and reported on.

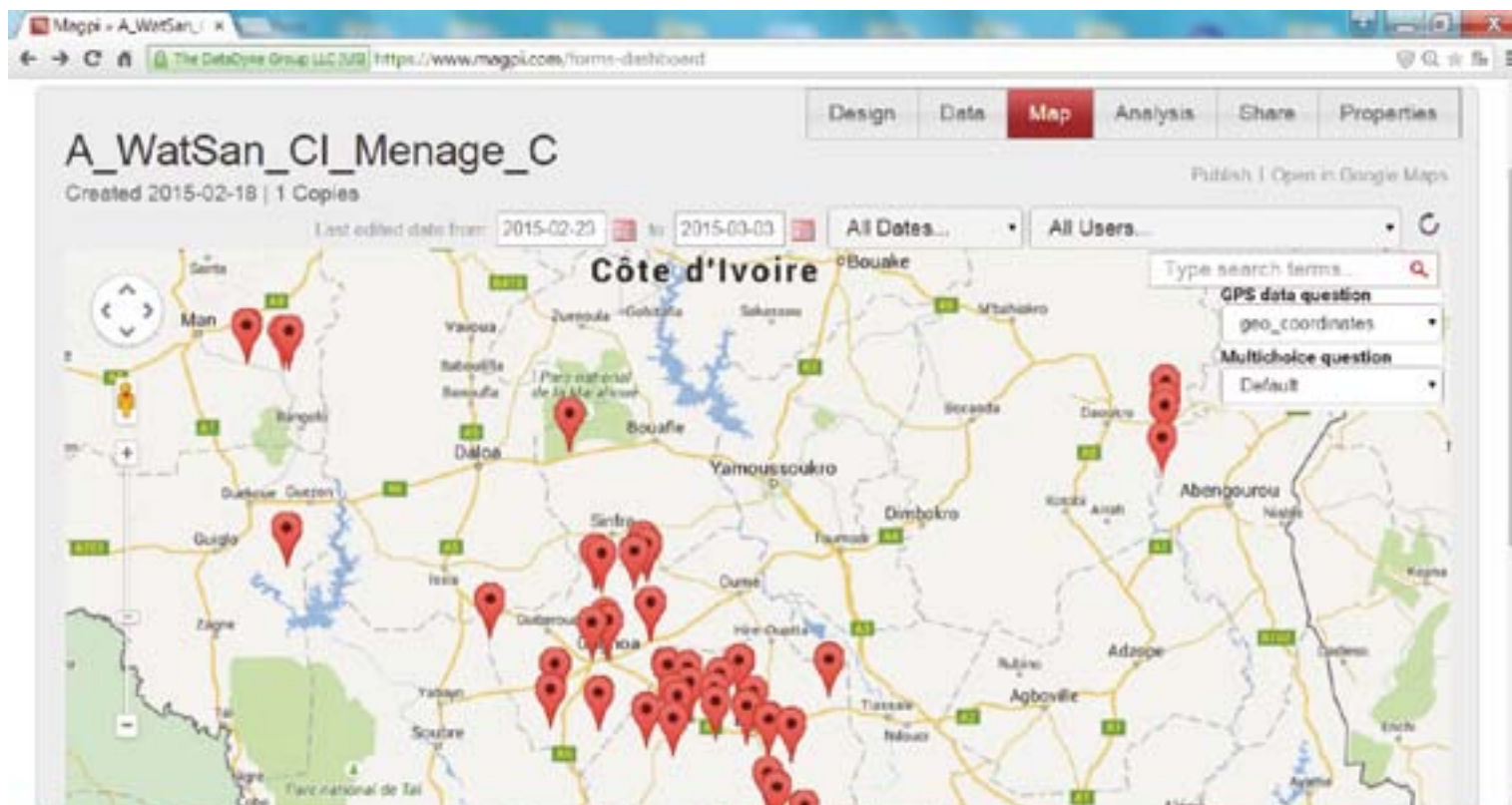




## Annex 4

# The Magpi website automatically maps records with geo-coordinates

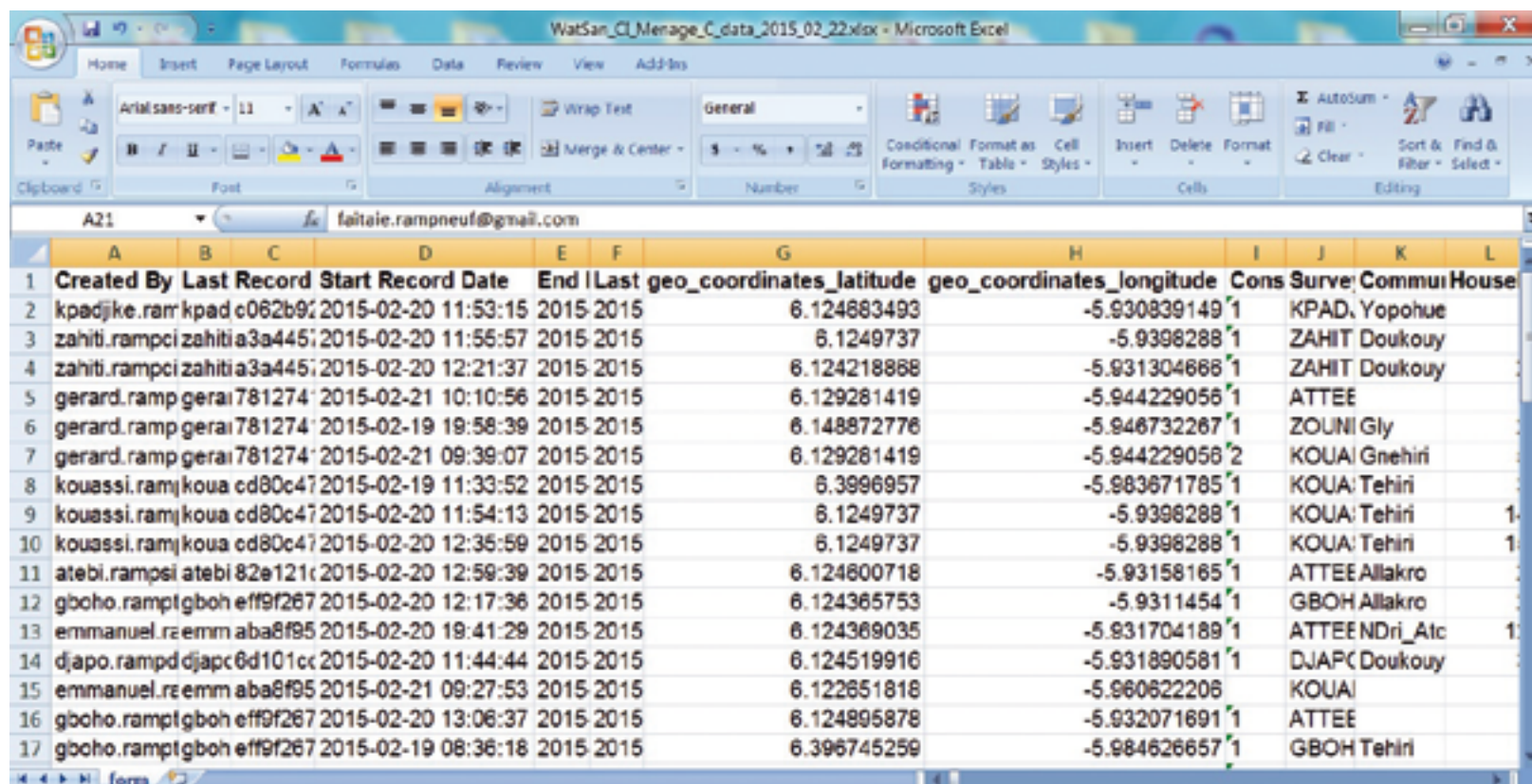
This mapping function is also limited. One layer is provided per questionnaire with one type of symbol.



## Annex 5

# The Magpi data downloaded to an excel spreadsheet

Notice the two columns of geo-coordinates (the latitude and longitude of each household surveyed).



	A	B	C	D	E	F	G	H	I	J	K	L
1	Created By	Last Record	Start Record	Date	End	Last	geo_coordinates_latitude	geo_coordinates_longitude	Cons	Surve	Comm	House
2	kpadike.ram	kpadi	c062b9f	2015-02-20 11:53:15	2015-2015		6.124883493	-5.930839149	1		KPAD	Yopohue
3	zahiti.rampci	zahiti	a3a445f	2015-02-20 11:55:57	2015-2015		6.1249737	-5.9398288	1		ZAHIT	Doukouy
4	zahiti.rampci	zahiti	a3a445f	2015-02-20 12:21:37	2015-2015		6.124218888	-5.931304688	1		ZAHIT	Doukouy
5	gerard.ramp	gerai	781274f	2015-02-21 10:10:56	2015-2015		6.129281419	-5.944229056	1		ATTEE	
6	gerard.ramp	gerai	781274f	2015-02-19 19:58:39	2015-2015		6.148872776	-5.946732267	1		ZOUNI	Gly
7	gerard.ramp	gerai	781274f	2015-02-21 09:39:07	2015-2015		6.129281419	-5.944229056	2		KOUA	Gnehiri
8	kouassi.ram	koua	cd80c4f	2015-02-19 11:33:52	2015-2015		6.3996957	-5.983671785	1		KOUA	Tehiri
9	kouassi.ram	koua	cd80c4f	2015-02-20 11:54:13	2015-2015		6.1249737	-5.9398288	1		KOUA	Tehiri
10	kouassi.ram	koua	cd80c4f	2015-02-20 12:35:59	2015-2015		6.1249737	-5.9398288	1		KOUA	Tehiri
11	atebi.rampsi	atebi	82e121c	2015-02-20 12:59:39	2015-2015		6.124800718	-5.93158165	1		ATTEE	Allakro
12	gboho.rampt	gboh	eff9f267	2015-02-20 12:17:36	2015-2015		6.124365753	-5.9311454	1		GBOH	Allakro
13	emmanuel.re	emm	aba8f95	2015-02-20 19:41:29	2015-2015		6.124369035	-5.931704189	1		ATTEE	NDri_Atc
14	djapo.rampd	djapc	6d101cc	2015-02-20 11:44:44	2015-2015		6.124519916	-5.931890581	1		DJAPC	Doukouy
15	emmanuel.re	emm	aba8f95	2015-02-21 09:27:53	2015-2015		6.122651818	-5.960622208			KOUA	
16	gboho.rampt	gboh	eff9f267	2015-02-20 13:06:37	2015-2015		6.124895878	-5.932071691	1		ATTEE	
17	gboho.rampt	gboh	eff9f267	2015-02-19 08:36:18	2015-2015		6.396745259	-5.984626657	1		GBOH	Tehiri



## Annex 6

# Google Earth image showing the location of data collected during the survey

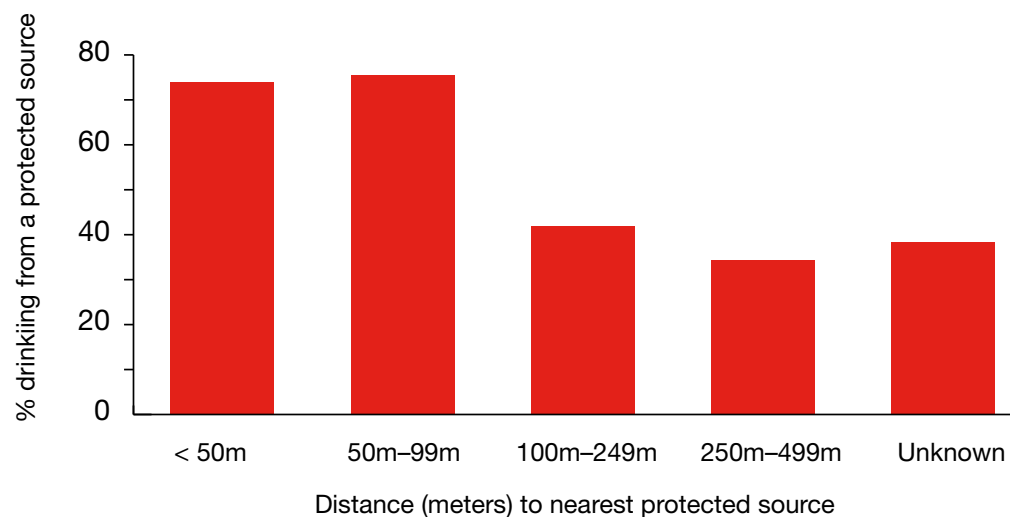
The households and pumps surveyed in Krazandougou. P1 is the location of the only fully functional pump. P2 is a partially functional well with pump. P3 is a non-functional pump.



## Annex 7

# Geo-coordinates permit analysis of distance and spatial distribution

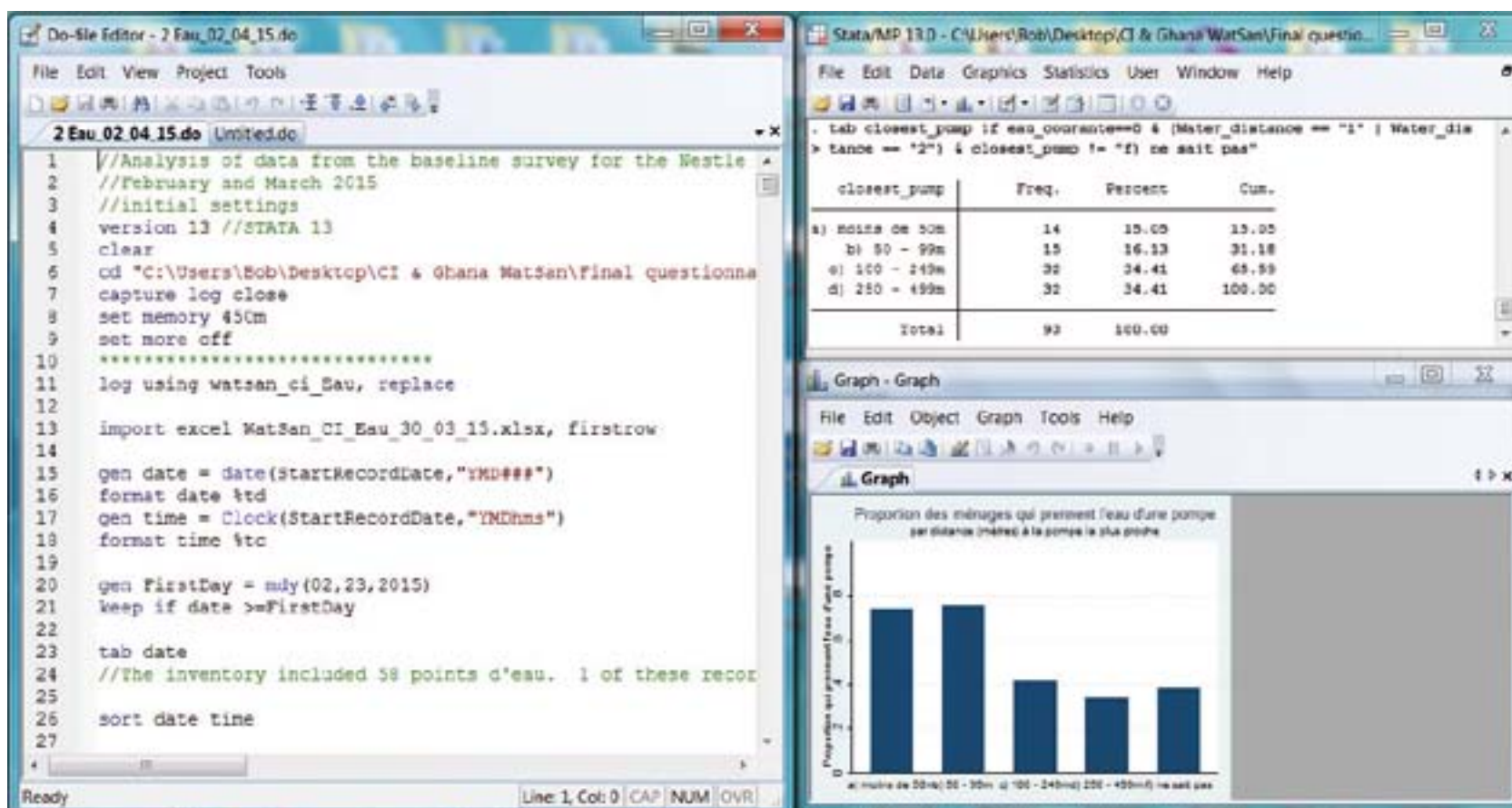
Percentage of households drinking water from a protected source as a function of distance to the nearest protected water source, excluding households drinking water from a standpipe (this shows that the use of a pump increases dramatically once distance from the pump increases beyond 100 metres).



## Annex 8

# A Stata DO file with output

Import the excel file into Stata and run pre-written analysis code to generate standard tables and graphs.



## Annex 9

A Magpi questionnaire for baseline assessment of all protected pumps in all project villages

### I. Magpi form for baseline assessment of protected pumps (“WatSan\_CI\_B1”)

**1.** Welcome to the form for baseline assessment of protected pumps (borehole with PMH pump; protected well with PMH pump). Meet with the village's community water point manager and ask him/her to join you on an inspection of all the protected pumps.

**2.** Red Cross staff/volunteer – drop-down menu:

.....  
.....

**3.** Village code (see list of village codes – Nestlé project phase IV):

.....  
.....

**4.** Type of protected pump (choose one response):

- ☐ No borehole or protected well in the village
- ☐ Borehole with hand/foot pump
- ☐ Protected well with pump

**5.** GPS coordinates:

.....  
.....

**6.** State -- Question Type = radio button (choose one response):

- ☐ Working
- ☐ Partially working
- ☐ Not working

**7.** Photograph:

.....  
.....

**8.** Ask the manager: Date of last repair (enter 11.11.1911 if the manager does not know):

.....  
.....

**9.** Have you already collected the required information on the water committee?

- ☐ Yes    ☐ No    (if yes, skip to question 12)

**10.** Is there a water committee in the village?

- ☐ Yes    ☐ No

**11.** Do the villagers pay for water?

- ☐ Yes    ☐ No

**12.** This is the end of the form.  
Go to next protected pump.

.....

## Annex 10

A Magpi questionnaire for baseline assessment of all school latrines and hand-washing stations in all project villages

### II. Magpi form for baseline assessment of school latrines and hand-washing stations (“WatSan\_CI\_B2”)

**1.** Welcome to the form for baseline assessment of school latrines and hand-washing stations.

**2.** Red Cross staff/volunteer – drop-down menu:

.....  
 .....

**3.** Village code (see list of village codes – Nestlé project phase IV):

.....  
 .....

**4.** GPS coordinates:

.....  
 .....

**5.** Name of school (text):

.....  
 .....

**6.** Photograph of latrine (outside view):

.....  
 .....

**7.** Number of latrine stances  
 (enter “0” if the school does not have a latrine):

.....

**8.** Is there a hand-washing station inside the latrine?

.....

**9.** State:

- ☐ In working order, in use and well maintained
- ☐ In working order and in use, but poorly maintained
- ☐ In working order, but not in use
- ☐ Out of order and abandoned
- ☐ No school latrine

**10.** Number of hand-washing stations: .....

**11.** Number of hand-washing stations in working order: .....

**12.** This is the end of the form.  
 Go to next protected pump.

## Annex 11

### Example of a paper form for a rapid count of households and latrines in all project villages

Note: Because such a census requires use of multiple data collectors working simultaneously and over several days in each village, this data will be collected on paper rather than on tablets.

### III. Baseline census register (on paper; not on Magpi)

Number	Name of head of household	Number of people who slept in the household last night (including infants)	Do you have a latrine for your household? (Yes/No)

## Annex 12

### The pump maintenance log (a paper form)

#### IV. Pump maintenance log (on paper; not on Magpi)

Source type (borehole or protected well); source location	Pump fault	Date fault detected	Date of repair or maintenance (enter date on Magpi form)	Name of pump mechanic	Mechanic's phone number



## Annex 13

### The new latrine register (a paper form)

#### V. New latrine register (on paper; not on Magpi)

Name of head of household (enter total number since the start of the project on Magpi form)	Location (neighbourhood, etc.)	Date latrine completed	Inspection (by village or project)		Date of inspection by project
			In use (Yes / No)	Well maintained (Yes / No)	



## Annex 14

### The PHAST training logbook (a paper form)

#### **VI. PHAST training logbook** (on paper; not on Magpi)

<b>Name of participant</b>	<b>Place of residence</b> (neighbourhood, nearby landmarks, etc.)	<b>Date of completion of the 7 steps by participant</b> (enter total number since the start of the project on Magpi form)

## Annex 15

# Summary of the visit to the village (a Magpi form)

## VII. Summary of the visit to the village (Magpi form "WatSan\_CI\_S1")

**1.** Welcome to the form "Summary of the visit to the village". Complete this form for each visit to a village.

**2.** Red Cross staff/volunteer – drop-down menu:

.....

.....

**3.** Village code (see list of village codes – Nestlé project phase IV):

.....

.....

**4.** GPS coordinates:

.....

.....

**5.** Is there a water committee operating in this village?

☐ Yes    ☐ No

**6.** Do the villagers pay for water?

☐ Yes    ☐ No

**7.** Is there a CLTS committee operating in this village?

☐ Yes    ☐ No

**8.** Examine the pump maintenance log. Has any new information been added to the log since you last checked it? If there has, note down on paper the date(s) of repairs made since the last check.

.....

.....

Do not forget to inspect the pump if maintenance/repair work has been carried out:

☐ Yes

☐ No

☐ Log not examined

**9.** Examine the new latrine register.

How many new latrines have been built since the start of the project? (enter "999" if the register is not examined): .....

**10.** Examine the PHAST training logbook.

How many people completed all seven steps of PHAST since the start of the project? (enter "999" if the register is not examined): .....

**11.** Are you going to inspect a pump or pumps today?

☐ Yes    ☐ No

(If yes, do not forget to complete the pump form)

**12.** Are you going to visit the Nestlé school today?

☐ Yes    ☐ No

(If yes, do not forget to complete the school form)

**13.** Are you going to conduct household interviews today?

☐ Yes    ☐ No

(If yes, do not forget to complete the household form)

**14.** This is the end of the form.

Go to other forms, as appropriate.

## Annex 16

# Pump form (a Magpi questionnaire)

## VIII. Pump form (Magpi form “WatSan\_CI\_S2”)

**1.** Welcome to the pump form. Meet with the village's community water point manager and ask him/her to join you on an inspection of all the PMH pumps in the village.

**2.** Red Cross staff/volunteer – drop-down menu:

.....  
.....

**3.** Village code (see list of village codes – Nestlé project phase IV):

.....  
.....

**4.** GPS coordinates:

.....  
.....

**5.** Type of water point (choose one response):

- ☐ Borehole with PMH pump
- ☐ Protected well with PMH pump

**6.** State (choose one response):

- ☐ Unfinished (rehabilitation work not completed: either the pump is not yet in operation or the wall has not yet been built around the pump)
- ☐ Working
- ☐ Partially working
- ☐ Not working

**7.** Photograph:

.....

**8.** Ask the manager (or examine the pump maintenance log): Date of last repair (enter 11.11.1911 if the manager does not know):

.....

**9.** This is the end of the form.  
Go to next pump or next form.

## Annex 17

# The school form (a Magpi questionnaire)

## IX. School form (Magpi form “WatSan\_CI\_S3”)

**1.** Welcome to the school form. Meet with a teacher from the school and ask the following questions.

**2.** Red Cross staff/volunteer – drop-down menu:

.....  
.....

**3.** Village code (see list of village codes – Nestlé project phase IV):

.....  
.....

**4.** GPS coordinates:

.....  
.....

**5.** Ask the teacher: “Does the school have an operating hygiene or health club?”

☐ Yes    ☐ No

**6.** Ask: “Have all the students at the school received CHAST training?”

☐ Yes    ☐ No

**7.** Ask: “Are you satisfied with the activities carried out with the Red Cross?”

☐ Yes

☐ No

☐ No Red Cross activities to date

**8.** Ask: “If not, which activities are you dissatisfied with?” Check all options that apply:

☐ Hygiene promotion/awareness

☐ Hand-washing station

☐ Water point repair/rehabilitation

☐ Latrine construction/rehabilitation

☐ Training/workshop

**9.** Ask: “Does the school have a latrine in working order?”

☐ Yes    ☐ No (skip to question 12)

**10.** Ask: “Who is allowed to use the school latrine?” (choose one response):

☐ Teacher(s)

☐ Teacher(s) and students

☐ Teacher(s), students and others

**11.** Ask the teacher: “Could you please show me the latrine?” Observe the latrine. How many latrine stances are there?: .....

**12.** Photograph of the latrine (outside view):

.....

**13.** Observe the state of the latrine:

☐ Unfinished (construction/rehabilitation not yet completed)

☐ In working order, in use and well maintained

☐ In working order and in use, but poorly maintained

☐ In working order, but not in use

☐ Out of order and abandoned

**14.** Is there a hand-washing station inside the latrine?

☐ Yes      ☐ No

**15.** Ask: "Does the school have hand washing stations?"

☐ Yes      ☐ No (skip to question 17)

**16.** Ask the teacher: "Could you please show me the hand-washing stations?"

Observe the hand-washing station(s).

How many stations are there? .....

**17.** How many working hand-washing stations are there? .....

**18.** Explain to the teacher that you would now like to ask two children some questions.

**19.** Select the student nearest the door in a CM1 or CM2 class (5th or 6th year of primary school) and ask him or her "When do you wash your hands?" Check all options that apply:

- ☐ Before eating (1)
- ☐ After eating (2)
- ☐ After defecation (3)
- ☐ After handling a child's faeces or cleaning a baby's bottom (4)
- ☐ Before cooking/preparing food (5)
- ☐ Before feeding a baby (6)
- ☐ Other (7)

**20.** Ask the student: "What do you wash your hands with?" (choose one response):

- ☐ Water
- ☐ Water and soap
- ☐ Water and ash
- ☐ Don't know

**21.** Select the student nearest the door in another of the school's CM1 or CM2 classes (5th or 6th year of primary school) and ask him or her "When do you wash your hands?"

Check all options that apply:

☐ Before eating (1)

☐ After eating (2)

☐ After defecation (3)

☐ After handling a child's faeces or cleaning a baby's bottom (4)

☐ Before cooking/preparing food (5)

☐ Before feeding a baby (6)

☐ Other (7)

**22.** Ask the student: "What do you wash your hands with?" (choose one response):

- ☐ Water
- ☐ Water and soap
- ☐ Water and ash
- ☐ Don't know

**23.** This is the end of the interview. Thank the teacher(s) and students.

## Annex 18

# The household form (a Magpi questionnaire)

During a visit to the village, project staff visit a small sample of households and pose five questions about water supply (question five), use of a latrine (question six), hand-washing (questions seven and eight) and satisfaction with Red Cross activities (question nine). Project staff may also use the visit to promote improved practices (if so, this is captured in question ten). The geo-coordinates of the household are also captured to map the households surveyed and determine the extent to which, over time, a broad diversity of neighbourhoods in the village are surveyed.

## X. Household form (Magpi form “WatSan\_CI\_S4”)

**1.** Welcome to the household form. Explain to the respondent why you have come and ask if he/she would mind answering five brief questions.

**2.** Red Cross staff/volunteer – drop-down menu:

.....  
.....

**3.** Village code (see list of village codes – Nestlé project phase IV):

.....  
.....

**4.** GPS coordinates of the household:

.....  
.....

**5.** Ask the respondent: “What has been the main source of drinking water for the members of your household this week?” (choose one response):

- ☐ Well without pump (1)
- ☐ Uncased well with pump (2)

- ☐ Cased well with pump (3)
- ☐ Borehole with hand/foot pump (4)
- ☐ Piped water on premises (5)
- ☐ Piped water at a distance from dwelling (6)
- ☐ Surface water: pond/lake/river/dam (7)
- ☐ Don't know (9)

**6.** Ask: “Where do the adult members of the household relieve themselves?”  
(choose one response):

- ☐ Field/bush
- ☐ Latrine
- ☐ Other

**7.** Ask: “When do you wash your hands?”  
Check all options that apply:

- ☐ Before eating (1)
- ☐ After defecation (2)
- ☐ After handling a child's faeces or cleaning a baby's bottom (3)
- ☐ Before cooking/preparing food (4)
- ☐ Before feeding a baby (5)
- ☐ After eating (6)
- ☐ Other (7)

**8.** Ask: "What do you wash your hands with?"  
(choose one response):

- ☐ Water
- ☐ Water and soap
- ☐ Water and ash
- ☐ Don't know

**9.** Ask: "Are you satisfied with Red Cross activities?"

- ☐ Not familiar with Red Cross activities
- ☐ Yes
- ☐ No

**10.** Did you discuss any of the following subjects  
during this home visit? Check all options that apply:

- ☐ improved water supply
- ☐ improved sanitation
- ☐ improved hand washing

**11.** This is the end of the form.

Thank the respondent. Go to next household  
(up to five) or go to next form, as appropriate.

## Annex 19

# Key project indicators and means of measurement

Objective	Activities	Key indicators	Means of measurement	Means of data collection and transmission; observations
<b>1. Increase access to protected water sources</b>		Number of additional people with “access” to a protected source = 500 x the number of protected sources rehabilitated under the project and still in use	Inspection of protected sources during each visit to the village by project staff	<b>Pump form</b> Observation: a more accurate estimate of access can be obtained by measuring the use of protected water sources and calculating the percentage of households in the village less than 250 metres from a protected water source.
		Percentage of households able to drink from a protected water source	Sampling of five households during visits to the village by project staff	<b>Households form</b> Observation: a sample of households will be asked “What has been the main source of drinking water for the members of your household this week?”
	a) Rehabilitation of water points by the project	Percentage of faulty pumps fully rehabilitated under the project	Inspection of each rehabilitated pump	<b>Pump form</b>
	b) Strengthen capacities in the village to maintain pumps	Percentage of protected pumps in the village maintained over the last 12 months	Inspection of the pump maintenance log	The dates of maintenance work recorded in the maintenance log should be entered in the “Summary of the visit to the village”.
		Percentage of protected pumps in working order in the village	Inspection of all protected pumps in the village (including pumps not rehabilitated under the project) at least once every six months	<b>Pump form</b>



Objective	Activities	Key indicators	Means of measurement	Means of data collection and transmission; observations
<b>2. Improve sanitation habits</b>	a) Promote the construction of new household latrines	Percentage of households using latrines – calculated as the number of new latrines + the number of existing latrines	Examination of the new latrine register and baseline census data	The total number of new latrines recorded in the new latrine register should be entered in the <i>“Summary of the visit to the village”</i> .
		Percentage of households using latrines – as measured in the “monitoring survey”	Sampling of five households per visit over several visits to the village	<b>Household form</b>
	b) Build new school latrines	Percentage of target schools at which latrines have been built/rehabilitated	Inspection of school latrines being built/rehabilitated	<b>School form</b> Observation: A new/rehabilitated school latrine should not be considered “finished” until a) completion of the building; and b) provision of two washing stations and a cleaning kit.
		Percentage of target schools with a working latrine	Inspection of school latrines	<b>School form</b> Observation: a working latrine is one that is in active use and well maintained.
		Percentage of household questionnaire respondents who wash their hands using water and soap or ash	Sampling of five households per visit over several visits to the village	<b>Household form</b>
		Percentage of school questionnaire respondents who wash their hands using water and soap or ash	Sampling of five households per visit over several visits to the village	<b>School form</b>
<b>3. Improve hygiene habits</b>	a) PHAST training	Number of people trained in PHAST per thousand inhabitants	Examination of PHAST training logbook	<b>Summary of the visit to the village</b>
	b) CHAST training	Percentage of schools that have completed CHAST training for all students	Interview with head of school	<b>School form</b>



# 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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