ASHWAS
Process Handbook

Planning and execution guide for participatory surveys of household water and sanitation

Arghyam
Safe, sustainable water for all

First published by Arghyam (India) in April 2011

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Citation: ASHWAS Process Handbook: Planning and execution guide for participatory surveys on household water and sanitation, Arghyam, Bengaluru March 2011

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on household water and sanitation

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Abbreviations

ANM	Auxilliary Nurse Midwife
ASER	Annual Status of Education Report
ASHA	Accredited Social Health Activist
ASHWAS	A Survey of Household Water and Sanitation
DDWS	Department of Drinking Water Supply
FGD	Focus Group Discussion
GoI	Government of India
GP	Gram Panchayat
HH	Households
IMIS	Integrated Management Information System
NGO	Non-Governmental Organisation
OCR	Optical Character Recognition
OMR	Optical Mark Recognition
PAC	Public Affairs Centre
PAHELI	People's Audit on Health, Education and Livelihoods
PPM	Parts per million
PPS	Population Proportinate to Size
PPS	Population Proportionate to Size
RDPR	Rural Development and Panchayati Raj Department
SHG	Self-Help Group
SPSS	Statistical Package for Social Sciences
SQL	Structured Query Language
TOR	Terms of Reference
TOT	Training of Trainers
VFC	Village Forest Committee
VHSC	Village Health and Sanitation Committee
VWSC	Village Water and Sanitation Committee
WATSAN	Water and Sanitation
ZP	Zilla Parishad / Panchayat

Preface

The ASHWAS Process Handbook is created as a result of several organisations expressing their interest in conducting an exercise similar to ASHWAS (A Survey of Household Water and Sanitation). The purpose of this handbook is to serve as a useful template for those wishing to carry out a similar effort. After our one and a half year effort in designing and running ASHWAS in Karnataka, we decided to put down our experiences and lessons learnt in the form of a structured manual, clearly outlining the steps and the sequence to be followed. The intention was to capture all the details along with issues that we faced and share this with others.

ASHWAS was a participatory effort that involved a number of organisations and hundreds of people. A number of unique features distinguished ASHWAS from other conventional surveys:

1. It was a people-centric citizen survey and placed a high premium on the perceptions of citizens.
2. An important objective of the survey was to go beyond mere collection of information to developing a layered analytical process to assess the status of water, sanitation and hygiene at the village, Gram Panchayat (GP), district and state levels.
3. ASHWAS went a full circle through its feedback mechanism by making the survey results available to the GPs and citizens, in the local language. Targeted reports to the district and state governments were also made available.
4. Finally, far from claiming to be the last word on the subject, the objective of the survey and the accompanying reports was to initiate a wider process of engagement to bring about change at the lowest tier of government and its citizens.

The participatory nature of the survey had several positive points:

- It increased the awareness levels of NGO partners as well as the Surveyors who conducted the survey. The feedback from several Surveyors suggest that they were able to create awareness amongst the people interviewed.
- It has increased the capacity of NGOs, who have been involved not just during the survey but also during the dissemination of results.
- The GP report and its dissemination acted like a mirror to several GPs, most of whom reacted positively. While this may not in itself, trigger a sudden change it has been satisfying to know that the dialogue has begun.
- Similarly, ASHWAS has appealed to policy makers as a tool by which citizens' perceptions can be collected without any bias.

This process document preparation extended over several months, involved discussions with stakeholders, extensive analysis and structuring of information. In the document, we have detailed out the scope of each activity along with the resources, skills and time needed at each stage. Questionnaires at various levels, other survey tools and planning forms are included.

We have also included tips for selection of water quality field testing kits, sample survey plans, agenda of training-of-trainer programmes, dissemination tools and a sample GP action plan preparation format which may come handy as you embark on an ASHWAS-like exercise.

We sincerely hope that this document will help you/your organization to plan more effectively as you embark on a water and sanitation initiative. And while doing so we hope that, the spirit of ASHWAS, as a genuine participatory effort to obtain citizens' perceptions, is celebrated.

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CEO, Arghyam

Acknowledgements

ASHWAS was a very enriching experience. Conducting an in-depth survey on citizen's perceptions of WATSAN was in itself a learning experience, as we had to innovate and ideate at several steps along the way. The idea of GP dissemination, in fact, came from the complaint from survey respondents that every organisation conducts surveys, but neither do the respondents get to hear the survey results nor do they experience any change as a result of the survey. The GP dissemination exercise gave the ASHWAS team an insight of how GPs actually function and under what constraints they operate. This process handbook is a compilation of all the steps that we followed, with the hiccups along the way.

This process handbook is put together by the ASHWAS team and credit goes to the entire team for recollecting and documenting all their experiences during the 18 months of ASHWAS.

The team that put together this handbook comprises Niteen Shastri, Dr. K. J. Parameswarappa, Radhika Kanniganti, Sonali Srivastava and Suresh Babu. Special thanks to Binayak Das for contributing to the document even though he has moved on from ASHWAS. Thanks to Ayan Biswas for the support in this effort.

We would like to thank Dr. Prabhakar Kollapudi, Dr. Meena Nair and Ms. Prarthana Rao from the Public Affairs Centre (PAC) for their contribution to the sampling methodology and the questionnaire revision. Our thanks is also extended to our local partners – Dr. Krishna Kothai from MAHE, Ms. Rajeswari from Sneha Kunj, Mr. Sunil Giraddi from Bhageerath, Mr. Srinivas from VIKASANA, Tarikere, Mr. M.N. Kulkarni from BAIF, and Mr. K.N. Srinivas from IDF, Bangalore for providing their valuable inputs to the revision of the questionnaire.

We extend our heartfelt gratitude to Mr. Ravi Narayanan (CBE) and Mr. S. Vishwanath, advisors Arghyam, for providing their valuable inputs and continuous support.

We thank Aniruddha Abhyankar and Girish T. S. for designing this handbook and making it reader friendly. We also thank Parul Baghel and Romi Mukker of New Concepts for proofreading this document.

We also thank Gopal Kulkarni and Vijay Krishna (Communications & Advocacy team, Arghyam), Sunita Nadhmuni (CEO, Arghyam) and Rohini Nilekani (Chairperson, Arghyam) for the encouragement and support.

- ASHWAS Team

Introduction

ASHWAS 2008-09 – A Survey on Household Water and Sanitation is a participatory survey conducted by Arghyam to ascertain the status of household water and sanitation in rural Karnataka from a citizen perspective.

The survey covered 17,200 households in 172 gram panchayats (GP) across 28 districts in Karnataka. ASHWAS was conducted by more than 300 people over 40 days – from December 2008 to January 2009. On an average, 100 households were surveyed in each GP. In addition, separate information was collected from Gram Panchayat officials and village elders.

In total, the entire process of ASHWAS, including planning and preparation before the survey dissemination and advocacy after the survey, took about 18 months. Through ASHWAS, Arghyam had set an ambitious goal to not just collect very detailed information from households, but also to ensure that the analysis of this data is shared with the GPs that were surveyed. In that sense, we did not want ASHWAS to be just another report, but to act as a tool to catalyse action – both at the GP and citizen levels and finally to influence the policy.

Overview of ASHWAS 2008–09

Here is the overview of skill, time and resources invested in ASHWAS (2008-09) conducted in Karnataka. Skill, time, resources that are presented in this section are for conducting ASHWAS, in its entirety, for 172 GPs and 17,200 households. Unit level break-ups have been provided, in individual chapters, wherever possible.

Skill Requirement

Following is the list of skill sets which forms the foundation of human resources utilised for ASHWAS. These skills and resources can be from within your organisation, or you could choose to partner with relevant organisations/consultants/freelancers.

People skills

- To manage a large team of surveyors, data entry operators, trainers etc
- To liaison with partners, it requires a person who can communicate easily
- To ensure a people-centric survey

Technical skills

- Designing questionnaires
- Representative sample design and selection
- Training and capacity building of surveyors
- Data management: Data entry and analysis (tools like excel, SPSS, SQL)

Communication skills

- Survey: During survey, it is important to have special skills for asking survey questions
- Report preparation: To articulate the findings of the survey in a report
- Dissemination: Communicating the findings of the survey to local community

Managerial skills

- Managing the entire programme, including interacting with partners, ensuring that deadlines and deliverables are met within the stipulated time, and so on
- Managing vendors and interacting with the consultants, part-time personnel, etc
- Interacting with the stakeholders

Strategising skills

- Ability to think ahead on the outcomes of the survey results at all levels of government and citizen groups
- Ability to provide direction to the survey keeping the big picture in mind
- Acumen to collect and present relevant data to various audiences
- Interacting with policy makers on the usability of the survey

Financial Requirement

The budget depends on many factors such as the size and spread of the sample and objectives of the survey. In Arghyam's survey, the expenditure (per household) for a sample of 17,200 households across 172 gram panchayats spread over 28 districts in Karnataka was on an average Rs 500. This excludes the cost of dissemination. (see Table 1 and 2)

Time Requirement

ASHWAS took approximately 18 months from beginning to end (see Table 3). We hope that similar efforts by other organisations will require less time as the methodology, questionnaires and templates are already presented in this document. Based on local specificities these could be customised.

Table1: Summary of phases, skills, time and resources

Phase	Skills	Time taken (months)	Total person months	Budget (Rs.)
Planning	Long term vision, planning and managerial	7	9	39,000
Preparatory	Technical, managerial and financial	2	26	18,51,658
Survey	People management, technical, communication	3	23	35,00,193
Data entry & data cleaning	Technical, managerial and planning	4	12	2,92,809
Data analysis & report writing	Technical, domain knowledge	7	22	7,09,651
Dissemination	Managerial, domain knowledge	8	19	6,52,072
Advocacy	Long term vision, communication	Ongoing	1.5	1,41,985
Total				**71,87,368**

* Does not include the time needed for vendor outsourcing
* Does not include the salary of Arghyam personnel involved in the project (93 person-months)

Table 2: Activity-wise cost allocation

11%	**Pre-survey (design, training)**	10%	**Training**	36%	**Survey**	4%	**Water quality testing**
4%	**Data entry and analysis**	7%	**Report production**	28%	**Programme management**		

Table 3: Time line for ASHWAS conducted by Arghyam

Activity	2008								2009												2010		
	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Planning	■	■	■	■	■	■	■																
Preparatory						■	■																
Survey								■	■	■													
Data entry and Data cleaning									■	■	■	■											
Data analysis and report writing										■	■	■	■										
Dissemination														■	■	■							
Advocacy																■	■	■	■	■	■	■	■

ASHWAS Process

ASHWAS process handbook is a compilation of the insights and knowledge gained from conducting ASHWAS. It is not meant to be the last word in conducting ASHWAS like surveys. We hope that it will provide the broad steps for conceptualising, implementing and analysing a rural water and sanitation (WATSAN) survey.

Salient Features

ASHWAS is a participatory process of capturing the perceptions of local community on the current status of water, sanitation, health and hygiene in the village. It can be utilised as a tool to assess the gaps and articulate the needs of the local community by facilitating participatory planning. It draws its strength from being inclusive.

ASHWAS involves ordinary citizens without any biases (gender or socio-economic) in understanding the current WATSAN situation. It does not end with a survey. ASHWAS begins with a survey, followed by analysis of data, discussion with local community and developing an action plan to address the core issues and gaps in a participatory manner.

Using ASHWAS Process

Arghyam intends this process document to be a guide to organisations that want to conduct surveys on the lines of ASHWAS. We believe it will benefit the following organisations/people;

- **Civil society, NGOs**
  To assess the state of WATSAN in their programme area, before and after their programmatic interventions
- **State governments, policy makers**
  To assess the ground level situation
  To develop participatory plans
  To evaluate the impact of ongoing programmes
- **Researchers**
  To get an in-depth understanding of the WATSAN issues

Using the Process Handbook

ASHWAS Process Handbook will provide a step-by-step guidance to 7 phases of the process (see fold-out for optimised ASHWAS process). However, we recognise that it is not necessary to undertake every phase. The phases can be selected depending on the survey objectives. Each phase has been treated individually as a separate chapter with details of the skills, time, resources and budget required for each.

Forms, templates and questionnaires that were used during ASHWAS have been provided as annexure. The questionnaires provided here had gone through several rounds of iterations after ASHWAS, in order to capture accurately the various levels of detail.

Embarking on a survey like ASHWAS, whether in part or as a whole requires a certain skill set, in addition to time, resources and budget. Details of these have been provided phase-wise in this process Handbook. However, it should be kept in mind that ASHWAS is a time-bound effort and the turn-around time between the survey and publishing the results should be kept to a minimum in order to ensure the integrity of data.

The process will become more robust and useful with practical experiences. Therefore, we would appreciate feedback based on your experiences while undertaking ASHWAS like survey.

1 Planning

1. Planning

1.1 Introduction

Planning and conceptualisation are critical to the success of undertaking an exercise like ASHWAS. The planning phase is where the objective of the survey is clearly specified: Is it to obtain a grassroots understanding of a situation? Is it to analyse the efficacy of a government programme? Is it to formulate policy? A combination of these? Planning lends clarity of purpose, scope, and scale besides laying a strong foundation as the organisation embarks on the next stages of the process. This phase also attempts at identifying the skills, resources (time and budget) required to execute the programme.

1.2 Objectives

The objectives of the planning phase are as follows:
- To articulate purpose; identify scope and scale
- To design questionnaires based on purpose and scale
- To examine in-house capacity, skills to conduct the survey
- To identify partners, if needed, to expand the skill sets

1.3 Tasks

1.3.1
DEFINING PURPOSE

A clearly defined purpose helps optimise resources and devise a comprehensive action plan.

The purpose of such a survey may be:
- To assess the ground level situation and generate baseline data on water, sanitation and health.
- To study local needs, gaps and strategies for new interventions or schemes.
- To understand local governance issues and identify gaps in implementation and assess the effectiveness of existing programmes/schemes.
- To gather information for advocacy to influence policy.

There could be other reasons to undertake an ASHWAS like exercise. But broadly based on the purpose, this exercise could be used as:

A simple survey: To assess the ground-level situation

A planning tool: To highlight local perceptions and needs, identify gaps and suggest strategies for ground-level implementation.

A feedback tool: To gauge the impact of existing programmes based on stakeholder perceptions, and/or enhance transparency and accountability in government programmes.

An advocacy tool: To influence policy

Table 4 explains the actions that differentiate and distinguish each of the above versions.

Table 4: Versions of an ASHWAS like survey

Versions	Survey with basic analysis	Data analysis	Dissemination and participatory planning	Advocacy*
Simple survey	■			
Planning tool	■		■	
Feedback tool	■	■		
Advocacy tool	■	■	■	■

* with District, State and/or Central Government

1.3.2
DEFINING SCOPE AND SCALE

Once the objectives of the survey are clear, the next step is to decide its scale and scope. Literature reviews and interaction with experts are good ways to decide on the scope of a survey and its alignment with the objectives. Thus, the scope of the survey will depend on the objectives, which in turn will decide which issues need to be covered during the survey. For example, water, sanitation, health, hygiene, governance, etc.

Scope is also determined by the breadth and depth of the survey. The breadth of a survey refers to the geographical boundaries within which it is conducted. ie., a community, GP, district, state and country.

Depth refers to the extent of detail in a survey. While surveying access to water, for example, the enquiry could be limited to water sources in use. On the other hand, it could even go into the micro level details such as the quantity, quality, time and duration of supply, reliability, etc. The latter would entail a more in-depth survey. However, while designing the questionnaire, the number of questions must be kept to a minimum while attempting to attain the maximum information (Section 1.3.2.1).

An important aspect to remember here is that the scale will be determined not only by the objectives but also the resources (time, finances and human resources) available at the organisation's disposal. For example, if the objective of the survey is to implement initiatives at the local level, then the scale of the survey would be limited to that particular geographical area. On the other hand, if the objective is to monitor a government programme that has been launched across the state, then the scale of the survey would be the entire state, assuming the organisation has the resources to conduct it.

Deciding the scale of the survey will help draw up a plan to optimise resources and plan budgets well in advance. For instance, if there are serious resource constraints, then conducting a household survey would be unviable. Alternately, a series of focus group discussions (FGDs) may be conducted to procure data from several households simultaneously. Such FGDs may also be conducted amongst different stakeholder groups (men, women, children, etc), thus enhancing the general understanding of the WATSAN situation in the study area. These FGDs will also act as cross-checks for accuracy of information collected at the household or GP level.

Break-up of time, resources invested during the survey phase of ASHWAS is given in Box 1 and Table 5. It shows that for surveying 100 households in a GP, six staff were involved for 3-6 days.

Box 1: Time and resources invested during the survey phase

This section provides a unit break-up of time and resources spent on the survey phase of ASHWAS to cover 100 households in a GP (Table 5). The activities include conducting surveys at the household level, FGDs at village level, interviewing the GP functionaries, conducting village transect and mapping of salient WATSAN features, water quality testing. Besides these, quality checks of the survey are also conducted by the supervisor. The estimates do not include the time and budget spent on training the survey team, or the preparatory efforts by Arghyam (the nodal organisation in this case) responsible for coordinating the survey.

Table 5: ASHWAS - Time and resources to survey 100 households in a GP*

People **	Six (1 Coordinator, 1 Supervisor, 4 Surveyors)
Time ***	Coordinator: 3.25 days; Supervisor & Surveyor: 6.25 days (4 days per GP + 2.25 days for travel and training) each
Finances ****	Rs. 18,000 (Honorarium: Rs. 15,000 + Overheads: Rs. 3,000)

* Survey cost only. Figures apply to ASHWAS and are meant to be indicative elsewhere. Extrapolation may not be linear

** Two teams under one Coordinator (each team with one Supervisor and 4 Surveyors) can cover eight GPs in 25 days including training and travel time

*** Estimate based on 21 days of work per coordinator covering eight GPs, and a team of five (1 Supervisor and 4 Surveyors covering 4 GPs each) persons. While actual survey days per GP were 4, Supervisors spent an average of another 2.25 days on training and travel. Coordinator spent 4 days on training-of-trainer and another 4 days on training the teams. Coordinating efforts (time and finances) of Arghyam during the survey are not included. Additional time and resources must be allocated for coordination during the survey

**** Daily honorarium: Coordinator (Rs. 600), Supervisor (Rs. 500) and Surveyor (Rs. 400)
The time taken to complete a 45 question household questionnaire in ASHWAS was approximately 45 minutes. In order to conduct a more in-depth survey, there will be an increase in the number of questions. According to experts who have conducted similar surveys, such as the Bangalore based Public Affairs Centre and other NGOs, a 45-minute timeframe is the maximum duration for which one can retain the interest levels of the interviewee. Hence, if an organisation wants to get a deeper understanding, it may be advisable to choose just one or two aspects, such as water and sanitation, water and health etc.

1.3.2.1
Designing the sample universe

Once the breadth of the survey has been established, a representative sample – a part that represents the whole – is selected. This technique is usually employed when dealing with the whole is either impractical or impossible (see Box 2). Partnering with or seeking advice from an organisation that has an understanding of sampling and statistics is advisable.

The purpose of a representative sample is to capture geographical, social and economic variations in the study area to the maximum extent possible. For example, if the study area is a state, selecting at least one or two samples per district, depending upon the size of the district, would be considered representative. Where there are wide variations in population/communities, samples are further narrowed down to be truly representative.

Picture 1: The objectives influence the selection of the sample universe of the survey

Box 2: Why Representative Sampling?

A representative sample facilitates extrapolating results across a study area without major errors in interpretation. However, a sample that is not representative, for example, selecting two districts to symbolise the entire state, will not provide an accurate picture of the situation in the state.
The degree of representation (extent of sampling) will depend upon the available resources and the purpose of the survey.

Box 3: Different Sampling Methods

Simple random sampling
Used when the population is homogeneous in nature
Stratified random sampling
Sometimes referred to as proportional or quota random sampling. It involves dividing the population into homogeneous sub-groups, then taking a simple random sample in each sub-group
Systematic random sampling
Here are the steps to be followed in order to achieve a systematic random sample,
Step 1: Number the units in the sample 1 to N
Step 2: Decide on the n (sample size)
Step 3: k = N/n = the interval size
Step 4: Randomly select any unit between 1 and k
Step 5: Select every k^{th} unit after the first
Cluster (Area) random sampling
If sample population is disbursed across a wide geographical area, to avoid logistical problems one can divide the population into clusters based on geographical boundaries and select them randomly
Multi stage sampling
Methods mentioned above are the simplest random sampling techniques. In applied social research, we would use sampling methods that are considerably complex than these simple variations. It is important to combine simple methods described earlier in a variety of useful ways to help address the sampling needs in the most efficient and effective manner possible. When we combine sampling methods, we call this multi-stage sampling.

1.3.2.1. a
The sample selection process in ASHWAS
In ASHWAS, multi stage sampling was followed, as the samples were spread across a wide geographical area. Different types of sampling techniques are explained in Box 3.

The talukas and GPs were selected by systematic random sampling. At the village level, cluster random sampling was followed by considering all the localities in a village. Sample size was allocated to each cluster based on its size (see Page 22 for PPS method). Again in each cluster, households were selected by adopting systematic random sampling. By considering all the clusters, ASHWAS ensured that all communities in the village were represented.

The sample for ASHWAS was selected based on the expected output. These outputs, as explained earlier, were based on the objectives. ASHWAS was expected to produce:
- A GP level analysis (critical requirement)
- A district level analysis
- A state level analysis

The following criteria formed the basis of selecting sample for ASHWAS survey:
- Representativeness: In order to provide a strong basis for output
- Practicality: Logistically possible to cover within the stipulated timeframe using the available resources

Selecting a representative sample of districts, talukas, GPs and households involved the following:

SELECTION OF DISTRICTS
ASHWAS covered 28 out of 29 districts in Karnataka (the exception being Bangalore urban, predominantly due to the urbanised nature of this district).

SELECTION OF TALUKAS
Two sampling options were considered to select 172 talukas in the 28 districts of Karnataka.

Select all talukas and one GP from each:
This sample size would be the same as the one provided by the second option (given below), while also offering a wider representation of GPs across the district. However, the logistics of such an operation were complex.

Select 50 percent of the talukas and two GPs from each: Logistically, this presented a far more feasible option. Arghyam began selecting the talukas by listing the 28 districts and their corresponding talukas in two separate columns. Starting randomly every alternate taluka was selected. This ensured that every district was represented proportionately without bias (see Box 4).

SAMPLING FOR GP

In each of the two talukas selected, two GPs were chosen for the survey. For this, the GPs in the selected talukas were listed in alphabetically ascending order. Following which, one GP was randomly selected. Subsequent selections were made following the procedure explained below:

For example, If the ninth GP in the list of 26 GPs is randomly selected, then the subsequent selections can be made as follows

- Calculate 'n'

n = (Total number of GPs) / (Number of samples) to be selected [n= (26)/(2) = 13]

This means every thirteenth GP has to be selected

The second selection would then be: 9 + 13 = 22 (the 22nd GP in the list)

SAMPLING FOR VILLAGES

ASHWAS covered all villages and hamlets in every selected GP because WATSAN services in the villages and hamlets might differ from the main GP village.

SAMPLING FOR HOUSEHOLDS

The household sample size was 100, spread across every village and hamlet in a selected GP. The number of households surveyed in each village was calculated as a function of the population in the village to the total population of the GP. Thus, the 100 households were distributed in proportion to their population.

Households for the survey were selected by following the process of village transect and preparing a map. During this exercise, households in a village were listed and the approximate number of households in each locality was noted. Care was taken to select households from all localities to ensure fair representation. The number of households covered in each locality was proportionate to the total number of households and the interval was decided based on the number of households in the locality. Thereafter, households were selected on the basis of the right hand rule. If a house was locked, the Supervisor was instructed to select an adjacent house. This approach is known as Population Proportionate to Size (PPS).

DATA SOURCE

All data for sample selection in ASHWAS were sourced from the Rural Development and Panchayat Raj (RDPR) Department, Government of Karnataka for the financial year 2003-2004 (http://stg1.kar.nic.in/samanyamahiti/SMEnglish_0607/default.htm).

In general, data on districts, talukas, GPs and households can be found on any of the following government websites: State Department of Rural Development and Panchayat Raj, Department of Drinking Water Supply, Census of India, National Family and Health Survey, etc.

Box 4: Random sampling of talukas

Random start in sampling methodology is the process where the first sample in a list is selected randomly. From the random start, every n^{th} sample is selected from the list, [where n = (Total no. of items in the list) / (No. of samples to be selected)]

In order to remove any bias in selecting the random start, there is a formula which can be inserted into an MS Excel spreadsheet:

+rand()*the total no. of items in the list

Typing this formula in a blank cell and pressing enter key will give a number, which can be used as the random start point for the sampling.

For example, applying this formula for 172 talukas, will give a number of 50. So, the starting point will be the 50^{th} taluka, and thereafter, selecting every alternate taluka (assuming 50 percent of the talukas are to be selected).

1.3.3 IDENTIFYING PARTNERS

As discussed earlier, an ASHWAS like exercise require technical, managerial, financial, communication and people management skills. A single organisation seldom has the in-house access to all the listed skills.Therefore, partnering with other individuals or organisations

to bring in the skills would be very useful. Such external expertise would facilitate smooth progress of the exercise through all its phases - survey design, implementation and dissemination.

It is however, important to note that, identifying and formalising partnerships with appropriate institutions/ individuals is often a time-consuming process and is best conducted in the planning stage. Managing these partnerships effectively throughout the exercise is essential to its success.

In the case of ASHWAS, initially Arghyam debated the possibility of partnering with a market research firm to conduct the entire survey but rejected the idea for the following reasons:
Transparency and accuracy: Managing the survey in-house would make it easier to monitor the process closely and ensure greater transparency and accuracy
Increasing the capacity of civil society organisation: At the institution level, Arghyam viewed ASHWAS as an invaluable learning opportunity. Through training on WATSAN and survey methodology, ASHWAS helped to build the capacity of partner NGOs by producing trained personnel/organisations for future endeavours. It was also seen as a great opportunity to network with individuals/organisations with common goals.

Criteria for selection of partners
One of Arghyam's main objectives was to work with people at the grassroots. To this end, it partnered with 15 local NGOs and citizen groups across Karnataka through grants. Partner organisations were selected on the basis of the following criteria:

- Grassroots experience and a good understanding of the social, cultural and, if relevant, political climate of the study area(s)
- Sector/domain knowledge
- Good representation of women to ensure an understanding of women's concerns about WATSAN, and the ability to articulate them
- Political neutrality, credibility, accounting practices. Other factors to be accounted for are detailed out as follows:

Selection Criteria for NGOs

A. Years of work experience in different fields
B. Experience in management of Indian and foreign funds
C. The geographical spread of work
D. Total number of staff and expertise in different fields
E. Selection criteria of staff
F. Project assessment/monitoring/evaluation done by NGO
G. Performance appraisal adopted by the NGO
H. Documentation of the work
I. Any special events organised by the NGO at regional, national and international level
J. Any awards won by the NGO
K. Is the organisation politically neutral?
L. Is the organisation confident to oversee survey work?
M. Financial audit undertaken

The selected partner, based on the mentioned criteria, coordinated the survey at local level. Each partner was responsible for the survey in one to three districts depending on their bandwidth and sphere of influence. Other partners were also involved in various activities of ASHWAS. Their role is detailed out in Table 6.

Besides conducting the field survey, Arghyam also formed partnerships for the following tasks:

Designing the survey, preparing the questionnaire
ASHWAS was conceived as a people-centric, activity-based survey. Surveys conducted by non-profit organisations such as Pratham's *People's Audit on Health, Education and Livelihoods* (PAHELI) and the *Annual Status of Education Report* (ASER) were people-centric

surveys adopting simple tools. On the other hand, the report cards by PAC followed a rigorous survey methodology, which included questionnaires, interviews, FGDs, etc. (PAC rates public services against benchmarks). Considering the above, Arghyam decided to improvise the strategy for ASHWAS using PAC's *Citizen Report Card* as a baseline, and combined the features of PAHELI and ASER.

The methodology demanded expertise and experience in identifying the key grassroots issues and designing the survey encapsulating them. In addition to consultations with subject experts and key stakeholders, Arghyam also partnered with PAC to design the sampling procedures.

Picture 2: Building partnerships for survey, training and dissemination is essential.

Table 6: Roles of organisations/vendors/volunteers involved in ASHWAS

S. No.	Organisation/Vendor	Purpose
1.	PAC, Bangalore	Technical inputs regarding surveys, reports, questionnaire design, sampling, FGDs
2.	OUTREACH, Bangalore	Preparation of training modules, trainings, FGDs
3.	15 local level NGOs	Survey, regional trainings, dissemination
4.	GMDS	Data entry
5.	Srishti School of Design, Bangalore	Designing the state, district and GP reports and preparing templates
6.	DTP Vendor	DTP
7.	SQL Programmer	SQL programming
8.	Volunteers	To prepare GP and district reports from the templates
9.	ASER Volunteers	Monitoring of survey
10.	Aakruti Printers	Printing
11.	Translators	Translations of various documents
12.	Anindita Sengupta	Editorial services
13.	Orbit Technologies, Hyderabad & LTEK, Nagpur	Water quality field testing kits

Training

ASHWAS incorporated a strong training component (Section 2.4.5) so that its spirit and methodology would percolate effectively from the organisation to the Surveyor level. Moreover, training was imparted in the local language so that it can be easily grasped. Arghyam's training partner for the survey was OUTREACH, an organisation specialised in grassroots training in the local language.

1.4 Skills and Time

Planning phase of the survey entails preparing an inventory of available skills, time, resources and budget (see Table 7 and 8).

1.5 Budget

Time spent in planning minimises unforeseen problems and uncertainties during the survey process. Planning stage of ASHWAS took two months. The tasks involved in this stage and their corresponding costs are listed in Table 9.

1.6 Suggested Planning Template

As discussed earlier, the planning stage entails taking stock of critical factors such as skills, time, resources and budgets required during different phases. These may or may not exist in-house. The template (see Table 10) will help to evaluate the above in the context of the depth and scale of the survey envisaged.

Table 7: Tasks and skills required in ASHWAS planning phase

Task	Skills/Knowledge	Comments
Articulating objectives	Clear vision, long-term goals	Should be an internal task, driven either by the project leader or by a consensus arrived at through brainstorming. Consultations with experts help in getting a clear perspective
Determining scale and sampling methodology	Sector knowledge to establish breadth and depth of survey, knowledge and experience in statistics would help in designing sample universe	Internal task determined by the organisation. External experts may be consulted during sample design
Designing questionnaire	Sector knowledge; practical field experience	External partners may be approached for this task
Coordination with partners	Project and people management skills	Internal and/or external task

Table 8: Tasks and time requirement, ASHWAS planning phase

Task	Time taken (months)	Outsourced resources	Arghyam personnel	Total person months*
Conceptualising, articulating objectives	6	None	Programme Manager (ASHWAS) plus1 person month of consultancy from experts	7
1. Identifying - Survey partners (15 NGOs) - Technical support agencies 2. One day consultation with partners	1	15 NGOs PAC OUTREACH	Programme Manager (ASHWAS) Programme Officer (Statistics & Survey)	2

* Does not include the 4-6 weeks taken to procure the kits

To use this tool, calculate the skills, time, resources and budget for each phase of the envisaged survey. This can then be compared with the skills, time, resources and budgets available with your organisation. Such an exercise will help arrive at feasible options for conducting the exercise.

Table 9: Finances required in ASHWAS planning phase

Tasks	Description	Cost* (Rs.)
Conceptualising, articulating objectives	Cost of visit to various partners + Cost of one person month of consultancy	Salary cost (Arghyam Staff)
Identifying survey partners and technical support agencies, one-day consultation with partners	Visits to partners across the state, one-day consultation with partners in Bangalore	15,000
Arghyam travel costs		24,000
Total		**39,000**

* Does not include salary costs of Arghyam staff

NOTE : In this phase, conceptualisation of the survey needs to be done before deciding the scale and scope of survey. Once your organisation has mapped out the skills required and available in-house, the exercise of identifying partners can be taken up

Table 10: Planning template

Activity	Skill required	Skill available	Time required	Time available	Person-month required	Person-month available	Budget required	Budget available
Planning								
Preparatory								
Survey								
Data entry & data cleaning								
Data analysis & report writing								
Dissemination								
Advocacy								

2 Preparatory phase

2. Preparatory phase

2.1 Introduction

Once the objectives and scale of the survey have been determined, preparatory tasks are undertaken to facilitate smooth implementation. While it might seem too early to carry out some of the preparatory tasks (such as database design), tackling them at the outset helps clarify the purpose and form in which the information is expected. Also, pre-survey time spent on planning and preparing for post-survey activities facilitates faster results. It also helps to maintain the integrity and validity of the data.

2.2 Objectives

The objectives of the preparatory phase are:

- To ensure smooth implementation of the survey by completing pre-survey tasks.
- To formulate a post-survey plan regarding collection, data entry and collation of questionnaires received from the field.

2.3 Checklist

Here is a checklist of activities (see table 11) that should be completed before embarking on the preparatory phase:

Table 11: Pre-preparatory activity checklist

S. No.	Task	Check
1	Setting objectives	☐
2	Determining depth and breadth of the survey	☐
3	Selecting sample size	☐
4	Identifying partners	☐
5	Scoping skills, time, budget and resources	☐

2.4 Tasks

After the foundations are laid in the planning phase, preparation for the survey begins with the following tasks:

2.4.1 PLANNING SURVEY TASKS

The tasks that will be conducted during the survey depend upon its objectives and the amount of information (depth and breadth of the survey) sought. The ASHWAS survey involved the following components:

- **Household interviews:** This was planned to obtain perceptions on WATSAN issues at the household. A household questionnaire (see Annexure A1) was drawn up for this purpose. FGDs may also be used, depending on the scope and objectives of the survey.

- **GP interviews:** A questionnaire (see Annexure A2) containing detailed questions on infrastructure and financing mechanisms for WATSAN was formulated. It is important to note that the household questionnaire sought water demand-supply related information from the user perspective. While the village questionnaire sought water supply related information from a management and governance point of view. It also tried to understand the issues related to 73rd constitutional amendment; status of decentralisation, devolution of power, function, functionaries, finances and the capacity gaps.

- **Village interviews:** Directed at the village elders, these interviews sought information on the local water issues. It was a good way to obtain collective information on the water systems, including the defunct ones in the village.

- **Village transects or observatory walks:** Transects or observatory walks through the village, were conducted to make representational/indicative maps (often not to scale) of water supply points, toilets, open defecation areas and garbage dumps. Presence of drains and general cleanliness of the village were also noted. This transect

also pinpointed the location of different communities and households selected for the survey. A village observation sheet was made available to the survey team, which acted as a guideline on the important points to observe. The village questionnaire cum information sheet is available in Annexure A3 (see Picture 3).

- **Water quality testing:** The Supervisors tested all the drinking sources in every village for fluoride, nitrate and bacterial contamination. ASHWAS selected these three parameters based on the secondary data sourced from the government. It is important that these parameters are decided on the basis of secondary data on most common contaminants in the region. In some parts of the country, there is considerable contamination of iron and arsenic. In such areas, these parameters need to be tested. A template of the water quality data sheet is given in Annexure A4.

- **Photographs:** Each survey team was equipped with a camera to photograph the survey process and the villages/GPs surveyed.

The team at Arghyam along with PAC spent considerable time in determining and deciding the number of Surveyors in each team as well as the number of days to be spent in each GP. Eventually, following criteria were used to arrive at the optimal numbers:

- Time taken to complete one household questionnaire: 45-60 minutes
- Surveyor output per day: 5-7 questionnaires
- Team output (four Surveyors) per day: 20-28 questionnaires
- Arghyam estimated that conducting these tasks for 100 households in a GP would take four days. This is the average number of days per GP. It rose to 16 days in some hilly regions where the houses are situated very far apart.
- The Supervisors needed another four days to complete the village transect and mapping, water quality testing, village and GP questionnaires.

Picture 3: Adopting multiple strategies to gather information

Proposed survey tasks must be field tested prior to its commencement as far as possible. This gives a reasonable indication of the timeframes. For more information on improving data quality from the questionnaires and lessons learnt, see Section 2.6

2.4.2 DESIGNING THE QUESTIONNAIRES

Preparing questionnaires for the survey is one of the key tasks during the preparatory phase. Embarking on this task after deciding the scope and scale of the survey, offers greater clarity with regard to the nature of information to be collected. Clear objectives help create a lean, precise questionnaire.

Some of the key questions that can help design the questionnaire include:

- ***Should the survey focus on a particular aspect of WATSAN?***

If the organisation undertaking ASHWAS exercise seeks detailed information on one or two aspects, it is worthwhile to focus on them. ASHWAS, on the other hand, sought a general overview of WATSAN issues, so it focussed on all relevant areas instead of a few.

- ***What level of detail should the survey entail?***

This depends upon the objectives (see Section 1.3.1). The ASHWAS questionnaire was structured to gather information on water, health and sanitation across the state to the extent possible. An attempt was made to ensure that the questionnaire was not unwieldy.

- ***Should the survey be restricted to households?***

The perspective of Panchayati Raj Institutions on WATSAN is essential for an accurate assessment of the situation within a GP. ASHWAS included a GP questionnaire for this purpose. A village questionnaire was also incorporated for collating inputs from the village elders to make the survey a truly participatory exercise.

- ***How long should the questionnaire be?***

While capturing the details, it is equally important to restrict the length of the questionnaire in order to retain the interest of both the interviewee and the Surveyor. ASHWAS had 45 questions, including several 'skip' questions (optional questions asked only if relevant to the respondent). ASHWAS experience shows that 30 to 45 minutes per questionnaire is a good duration.

- ***Who should you consult to validate the questionnaire?***

Inputs from stakeholders and experts help validate and refine the questionnaire so that the responses obtained are crisp and pertinent. The ASHWAS questionnaire was based on the approach adopted by the WATSAN section of the PAC's *Citizen Report Card*. Several experts were also consulted to ensure that all relevant aspects of WATSAN were incorporated. The final household questionnaire contained 45 questions while the GP questionnaire contained 26 questions. The questionnaires were translated to Kannada, the local language, and passed on to the Surveyors.

The questionnaires were developed (see Annexure A) as a result of extensive post-survey brainstorming. These were modified incorporating lessons learnt from all aspects, including surveying, data analysis and dissemination and re-designed to be precise and clear. They may be used in entirety or in part depending upon the objectives. Annexure A5 also states the purpose of each question and the objective it serves. Please note that the questionnaires are not exhaustive. They may be modified/improved to suit your specific requirements.

2.4.3
FINALISING PARTNERSHIPS

The terms of reference (ToR) were finalised and the agreement was endorsed with partner organisations and/or individuals for various stages of the survey. Agreements must be as explicit as possible (see Annexure B), in order to avoid ambiguity. For instance, during ASHWAS the ToRs were ambiguous in areas like composition of the team, number of days to be spent in each GP, tasks of the survey team in each GP, etc. It would be good to have clarity on these aspects.

2.4.4
FORMING TEAMS

This activity should follow finalising partnerships (see Section 2.4.3). Survey teams must be carefully constituted. The Surveyors must be articulate and sensitive to WATSAN issues. If the survey team consists of staff with domain knowledge, then half the battle is already won. In ASHWAS, partnerships with local NGOs were formed to conduct the survey. The size and qualifications of the survey team will be independent of whether the survey is conducted by the organisation itself or outsourced. Care must be taken to ensure adequate female representation in the survey teams. This is to make female respondents comfortable while discussing women's issues.

2.4.4.1
Team size

The number of members in a survey team depends upon the number of tasks that must be carried out in a village/GP. The team must be large enough to complete the tasks within the stipulated time but small enough to retain accountability and manageability. A typical team, for an ASHWAS like exercise, has three to five members. Such a team could cover one taluka or an entire district depending upon the process.The survey team comprised one Supervisor and four Surveyors, all of whom were allotted distinct roles and functions (see Section 2.4.4.3). This task also involves defining member profiles.

2.4.4.2
Team structure

While conducting ASHWAS, Arghyam took appropriate measures to ensure that there was a hands-on representation of the NGO partner in the survey teams to ascertain quality of data collection (see Figure 1).

The total number of field personnel included 30 Coordinators, 45 Supervisors and 200 Surveyors.

Each Coordinator supervised two survey teams, each comprising four Surveyors and a Supervisor. The Supervisor oversaw the village transect and selection of households. S/he was responsible for conducting GP interviews and field testing of village water quality. As a strategy for enhanced communication with the respondents and a better perspective of local issues, all the four Surveyors were selected from the local community. Given the gender sensitive nature of some of the questions, it was ensured that two of the four Surveyors (50 percent) in every team were women. Each survey team worked for 25 days (covering 4 GPs @ 4 days per GP, plus 4 days of regional training and 5 days travel time).

2.4.4.3
Desired qualifications of the team

Members of a survey team must possess a combination of educational qualifications, good people and communication skills.

Coordinator Profile

Coordinators may be recruited in-house or through a partner NGO.

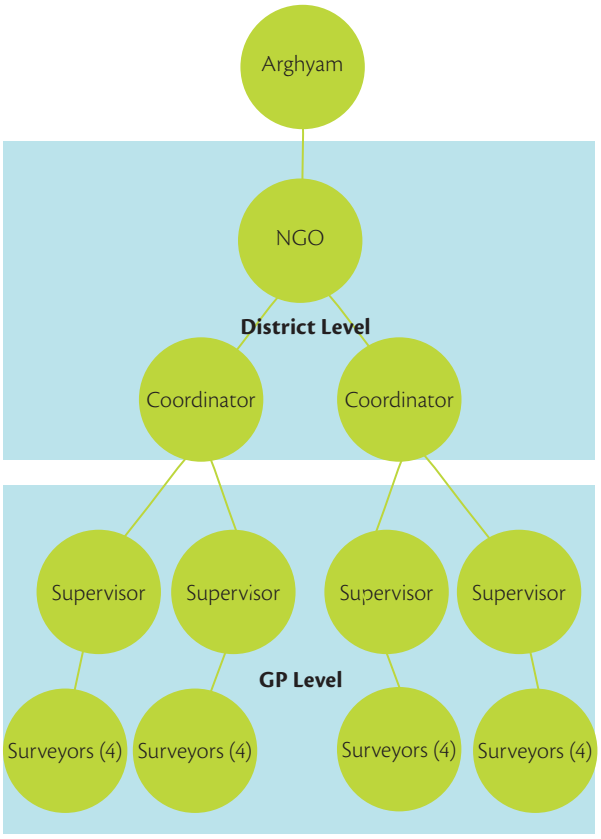
Qualifications:

- Understanding of WATSAN issues
- Ability to manage multiple teams conducting simultaneous surveys
- Good communication skills and the ability to clearly articulate the components of the survey to the team
- Well-versed with the prescribed sampling and survey methodology

Responsibilities:

- Selecting Supervisors and Surveyors from the community in accordance with the eligibility criteria prescribed for the positions
- Training the survey team on sampling and survey methodology
- Ensuring that the teams adhere to the survey plan
- Troubleshooting issues (transportation, sampling methodology, etc); tackling discrepancies that arise on the field (number of villages in a GP not tallying with the records, etc.)

Figure 1: Team structure



- Ensuring continuity of the survey team throughout the duration of the survey. If changes are unavoidable, then ensuring appropriate training of the new recruit(s)
- Conducting surprise visits to check the smooth progression of tasks as planned. The Coordinator also needs to check at least 10 percent of the completed questionnaires as part of the quality monitoring

Supervisor Profile

Qualifications:

- Passed Intermediate (PUC/Standard XII/Diploma)
- Preferably three years of field experience in the developmental/NGO sector
- A member of (or having worked in close association with) a Self Help Group (SHG), Village Water and Sanitation Committee (VWSC) or similar committee is an added advantage
- Ability to manage a team and ensure that tasks are completed within stipulated timeframe
- Basic understanding of WATSAN issues

Responsibilities:

- Interviewing GP members and completing the GP questionnaire
- Making village transects and drawing village maps
- Identifying households to be interviewed
- Conducting water quality field testing
- Checking every household questionnaire (100 percent) to make sure it is complete and error-free before the team proceeds to the next village.

Surveyor Profile

Qualifications:

- Passed Tenth Standard
- At least a year of field experience in development/ NGO sector
- A member of (or having worked in close association with) an SHG, VWSC or similar committees is an added advantage
- Basic understanding of WATSAN issues
- Ability to grasp new information well
- Ability to remain unbiased while conducting the survey

Responsibilities:

- Conducting the household surveys

2.4.5
TRAINING

Ensuring that the surveyors, (whether they are from the organisation coordinating the survey or from partner organisations), receive adequate training on the survey process. It ensures uniformity of implementation of survey methodology.

The basic components of an effective training module are listed below. Other categories may be added to this list depending on the specific objectives of the survey:

- Overview of WATSAN issues
- Objectives
- Scale
- Timeline
- Tasks
- Understanding the questionnaire (question-wise discussion is important)
- Attitude of the Surveyors
- Role play using actual questionnaires

Picture 4: Trained surveyors are crucial to ensure quality of the survey

Points to be highlighted during the training programme are:

Attitude: Emphasise that surveyors must be absolutely unbiased while interviewing. They must not, either consciously or unconsciously, prompt the respondent towards a particular response.

Clarity: All questionnaire related doubts such as interpretation of questions etc, must be clarified before the survey commences.

Generating interest: The average respondent has most likely been through a few surveys in the past and might not be interested in participating in another one. Introducing the purpose with an interesting story can help attract and retain their attention.

Household questionnaire related points:

- The questionnaire must be translated into the local language, preferably by the coordinating organisation. The translation must be reviewed by the team that prepared the questionnaire to ensure that the translated version retains the letter and spirit of the original. Often, some words, when translated, carry a different connotation than what was intended. A thorough review should take place to avoid information getting lost/misrepresented during translation.

- The questionnaire must be customised to the understanding and sensitivities of the local population. This could be accomplished by using local terms. For instance, pots are better known as *bindiges* in Karnataka. Using local terms like these would elicit more accurate responses. Regarding the question on 'distance to source of water', the surveyor should offer an approximation of the distance so that the respondent can answer the question more accurately. For instance, the surveyor could provide the distance between the house and a tree, and ask whether the source is at the same distance or twice that distance, etc.
- Questions concerning women and vulnerable populations (senior citizens, citizens with special needs, pregnant women, etc.) should be answered only by them to ensure accuracy of response. This is particularly true of gender-related queries. If the surveyor is not female or if she (Surveyor) is unable to talk to the woman of the house, the section is better skipped than asked or answered by a male member.

The ASHWAS training was conducted in two phases:
- Training of Trainers: Programmes for Coordinators (see Section 2.4.5.1).
- Regional training: Programmes for Supervisors and Surveyors (see Section 2.4.5.2).

2.4.5.1
Training of Trainers (ToT)
Two Coordinators from each of the 15 partner NGOs underwent a four-day train-the-trainer programme (see Annexure C) on the essence, methodology, tools and techniques of the survey. The training module was prepared and delivered in conjunction with OUTREACH, a Bangaluru based organisation who partnered with Arghyam.

2.4.5.2
Regional training
After undergoing the ToT programme the Coordinators were required to conduct programmes with similar schedule spread over four days for the Supervisors and Surveyors, who would carry out the actual survey. Representatives from Arghyam supervised each of these eight state-wide regional training programmes. To maintain the integrity of the survey process, Coordinators were instructed to permit only trained staff to go out into the field.

2.4.6
FIELD TESTING OF QUESTIONNAIRES
Field testing of questionnaires (see Section 2.6.2) helps assess the clarity of the questions, suitability of their length, etc. and helps identify ambiguities. The ASHWAS questionnaires were field tested by Arghyam and PAC, in five to six households each in four GPs.

2.4.7
CODING AND PRINTING OF QUESTIONNAIRES
Coding of questions simplifies data entry and analysis All the objective type questions are the ones that can be coded well.

For example:
Question: Marital status of the respondent
Answer (choose one):
1) Married
2) Unmarried
3) Widow
4) Widower
5) Divorced

The database can then have the option of entering only the numerical value of the response, thus making it easy for analysis.

The questionnaires for the survey are printed only after being field-tested, coded and finalised. Section 2.6.3 lists some pitfalls to watch out for during coding of the questionnaire

2.4.8
PROCURING WATER QUALITY TESTING KITS
Reliable information about water quality, a key consideration in rural water supply, enhances the understanding of local water issues. The following steps may be adopted:

Step 1
Determining parameters to be tested: Information on water quality at a habitation level is displayed by the Integrated Management Information System (IMIS) on the Department of Drinking Water Supply (DDWS) website (www.ddws.nic.in) of Government of India (GoI). State departments of rural development and groundwater boards also provide information on this subject.

Step 2

Identifying field testing kits and vendors: Field water quality testing kits are sold by several vendors across the country. India Water Portal offers a list of water quality field testing kits available in India, with each kit's test parameters, price (if available) and the supplier's address. There is also a link to UNICEF evaluation of several field testing kits published in 2005 (http://www.indiawaterportal.org/node/1130), which could be used as a reference point.

Selection criteria for field testing kits:

Accuracy: The kit must be accurate to ensure integrity of the data. Accuracy may be ascertained by comparing field test results with lab tests.

Ease of use: As the kit will be used by survey Supervisors, they must be simple and easy to use to reduce the scope for human error.

Alignment with BIS Standards: Test results should be within the range of IS 10500:1991, the Bureau of India Standards specifications for drinking water. It is important to refer to this while procuring the kit.

Cost-benefit analysis: This involves analysing the number of samples that can be tested during the survey and the number of tests that can be conducted using the kit. Bearing in mind the possibility of wastage of reagents and chemicals, it is always desirable that the number of samples that the kit can test be greater than the number to be tested during the survey.

Picture 5: Local contaminants, usability, accuracy and costs determine selection of field testing kits

Water samples for ASHWAS were tested for fluoride, nitrate and bacterial contamination, these being the most common water contaminants in Karnataka. The first two may be ascertained using field testing kits containing the requisite reagents, chemicals and apparatus for the test. Bacterial contamination is assessed using an H_2S strip test bottle that produces results in 24-36 hours. The field testing kits for ASHWAS were procured from LTEK (for fluoride and nitrate) and Orlab (H_2S strip test bottles), both of which were considered by the Karnataka Rural Development and Panchayat Raj Department (RDPR) while implementing the National Water Quality Monitoring and Surveillance Project of GoI. A comparison of the two kits is given in Annexure D (see also Section 2.6.4).

2.4.9
PREPARING SURVEY PLANS

The preparation of an overall survey plan permits optimal deployment of resources, close monitoring and adherence to timelines (see Section 2.6.5). ASHWAS partner NGOs were required to submit a survey plan (see Annexure E) for every district they would cover. These were reviewed and refined by Arghyam.

Purpose of a survey plan

- To clearly indicate the schedule
- To ensure that the survey is completed within the stipulated timeframe.
- To monitor that GPs are surveyed as per the plan.
- To monitor that Supervisors and Surveyors are following the instructions and completing the components of the survey (cross-checked by Arghyam through phone calls).
- Arghyam (coordinating organisation) personnel could schedule field visits to monitor the survey.

Components of a survey plan

The ASHWAS survey plan contained the following information:

- Number of survey teams
- Details of team members
- Names, telephone numbers of Supervisors and Surveyors (to enable telephonic monitoring)
- Date-wise plans with the name of the GP to be surveyed and the time of survey

- A roster stating which team would cover what GP. See Section 2.6.5 for the lessons learnt in the preparation of survey plans during ASHWAS

2.4.10
FORMULATING CHECKPOINTS

Quality monitoring system plays a crucial role in protecting the integrity of data generated during a survey. Errors can occur for several reasons, such as faulty interpretation of questions, incorrect data entry, etc. ASHWAS engaged rigorous quality monitoring measures to avoid errors and ensure that the data obtained was of highest quality. These included:

- Training to avoid errors in interpretation
- Physical verification
- Data entry verification

2.4.10.1
Training to avoid errors in interpretation

The issue of interpretation must be highlighted during the training process. Some of the ASHWAS survey teams had to be re-trained on survey methodology after its commencement to address field-level issues.

2.4.10.2
Physical verification

Quality monitoring processes were incorporated at two levels:

- By the partner during the actual survey process
- External quality monitoring conducted by Arghyam

For external monitoring, at least 30 percent of the GPs undertaken by each NGO were physically monitored. Local NGO partner had to resurvey a particular taluka/GP, if the error exceeded the set limit of five percent.

- Physical verification of questionnaires by the partner NGOs (in charge of survey) involved the following measures:

- ***Supervisor checks:*** Supervisors checked and signed all the household questionnaires before a survey team left a GP (signing authorities must be trained to review each questionnaire in its entirety to ensure that it has been completed correctly before passing on). Ambiguities were resolved by revisiting the concerned household.
- ***Coordinator checks:*** In addition to Supervisor checks, NGO Coordinators checked 10 percent of the household questionnaires from each GP.
- ***Random checks:*** Spot checks, surprise visits and checking the questionnaires by Supervisors and/or NGO Coordinators randomly at the time of survey minimises the errors due to understanding of questions by the Surveyors and the way it is interpreted to the respondents. A Supervisor/Coordinator should conduct at least one daily spot check for each Surveyor. It is important to watch out for mere signing of questionnaires by Surveyors.

External monitoring keeps the survey team alert and quality-conscious. It also ensures that:

- The sampling methodology for household selection is adhered to.
- Every village in the GP is surveyed.
- The surveyors conduct the survey properly and without bias.
- The survey team carries out all its tasks in every GP.

Arghyam used the following ways to externally monitor the survey teams:

- ***Phone calls:*** Supervisors and Surveyors were randomly phoned to double-check whether the GP they were surveying matched the survey plan. Sample methodology was verified by asking relevant questions to the Supervisor. Attempts were made to call every Supervisor and at least one Surveyor per team during the survey.

- ***Photographs:*** Survey teams were required to use the cameras provided by Arghyam to take photographs of the process – water quality testing, Surveyors at work and general condition of the GP such as drainage, sanitation, etc.

- ***Field visits:*** Arghyam and PAC staff monitored the proceedings through regular field visits. They were given specific training on monitoring. They would randomly check 10 percent of the questionnaires from a particular GP for errors. Discrepancies in data were conveyed to the Supervisor with instructions on how to rectify them. Errors included incorrect sampling methodology, same responses or data being filled in every questionnaire, skip questions not being answered, etc. Soon after each visit, the monitors were required to submit a field checklist and reporting sheet (see Annexure F)

• ***Back checks:*** Back checks involved visiting the GPs and re-checking responses on randomly selected questions. These were conducted by PAC on 10 percent of the questionnaires at the end of the survey.

• ***Questionnaire checks:*** When the questionnaires arrived at Arghyam, five percent of them were randomly re-checked to ensure that all the data fields had been entered and that skip questions had been answered appropriately.

2.4.10.3
Data entry verification
Data entry is explained at length in Section 4.4.1.

2.4.11
DESIGNING THE DATABASE
Although this is largely a post-survey activity, designing the data collection and analysis mechanism at the outset ensures that data moves seamlessly and smoothly from hard copy to digital format. The database must be designed to offer maximum flexibility during analysis. This demands that questions are posed in a granular fashion with a field for every possible answer to a question. ASHWAS had 972 answer fields for 110 questions.

For example:

Question 2: Why do you use the primary water source for drinking?
Answer options:
1. It is near the house
2. It is clear
3. Cooking is fast and good
4. Taste is good
5. Water smells good
6. There is no alternative
7. Others (Specify)

Respondents were instructed to identify all applicable options. Responses were captured by creating a field for every option (see Table 12). Although there were only seven options, eight placeholders were made to capture the 'others' option. If a respondent entered text in the 'others' option, the data entry operator selected Q2_7, with the corresponding text entered in Q2_OTH. The entries in Q2_7 thus, also revealed how many respondents had chosen the 'others' option.

The complexity of data management increases with volume. Assigning intelligent field names simplifies the process. The rule of thumb to arrive at granularity is to have a feel for every possible answer that is expected for a question.

2.5 Time, Skills and Budget

Skills, tasks, time and resources required for the preparatory phase of ASHWAS are listed in Tables 13 and14

2.6 Lessons Learnt

The lessons learnt in this phase pertain to the following:

- Questionnaires: GP and village
- Questionnaires: Field testing
- Questionnaires: Coding and printing
- Water quality testing kits
- Survey plans

2.6.1
Questionnaires: GP and village

• *Coding:* Most questions in the ASHWAS village questionnaire were open-ended and difficult to code. Consequently, some of the data were inaccurately captured in the database and hence were not very usable. This problem was rectified in the village questionnaire (see Annexure A3).

• *Linkages with government organisations:* Most of the data for the GP questionnaire were unobtainable as the Supervisor was unable to meet the GP Secretary, who manages the finances of the GP. Perhaps, Government linkages may prove helpful in such situations – the Secretary might have made him/herself available had s/he received an official letter to that effect. However, this was not always the case –letters procured by Arghyam from the RDPR to this effect, did not always work.

• *More time:* Given the number of responsibilities assigned to them, Supervisors were unable to check every household questionnaire before signing off. The team spent first day familiarising themselves with the GP and village, conducting the village transect and identifying the households to survey. As a result, they did not have four full days as Arghyam had estimated, and could not complete more than 8 to 10 questionnaires

per day. An additional day must be provided for the team to familiarise themselves with the GP.

- ***Greater emphasis on village/GP questionnaires:*** Reviews by the NGO Coordinators and Arghyam field monitors focussed primarily on the household questionnaires. Equal emphasis should have been placed on checking the GP and village questionnaires to ensure that the data collected was up to the mark.

2.6.2
Questionnaires: Field testing

Third party testing: The ASHWAS questionnaires, field-tested by Arghyam and PAC, revealed no problems in interpretation of the questions. However, both organisations were involved in formulating the questionnaire. It was realised later that issues such as interpretation of questions, indicating the right choice, etc. come to light only during field testing by a third party (with some minimal training).

2.6.3
Questionnaire: Coding and printing

- ***Coding numerical responses:*** Numerical responses must be coded with letters instead of numbers.

  For example:
  Question: How many pots of water do you use for drinking and cooking?
  Answer options

1. 2-3 pots	3. 5-7 pots	5. 10 pots
2. 3-5 pots	4. 7-10 pots	

Such options leave room for error in that if the respondent answers four pots, the surveyor might record '4' instead of option 2 as the response.

- ***Cross-coding:*** Data must be coded both within the questionnaire as well as across questionnaires. Water sources, for instance, could be coded on the village transect map to identify the main drinking water source, non-drinking water sources and defunct sources. Using the same codes on the water quality testing sheet will help identify the sources and their quality.

2.6.4
Water quality testing kits

- ***Compliance with standards:*** The Supervisors' felt that the Orlab kit was convenient to use on the field. However, it was observed that the colour chart for measuring nitrate did not align well with BIS values. It has intervals of 0, 10, 25, 40, 100 and 250 parts per million (ppm) whereas the maximum permissible limit for nitrate according to BIS is 45 ppm. This discrepancy complicated assessing the number of sources exceeding the limit for nitrate. On the other hand, since a value greater than 40 ppm is considered contaminated in any case, it was a small price to pay for the kit's ease of use.

- ***Accurate labelling:*** Water samples collected in H_2S strip test bottles take 24-36 hours to show results. The long incubation period combined with some improper labelling led to some disparities in the data for bacterial contamination. When testing for bacterial contamination, Supervisors must be instructed to conduct the test on the first or second day of the survey and the survey team should be trained carefully to label the samples.

2.6.5
Preparing survey plans

- ***Template for partners:*** Many NGOs, while efficient on the field, lack the capacity to prepare a district survey plan. Providing a template that they can fill in and send back (see Annexure E) is an effective way of procuring the information you need from your partner organisations.

Table 12: Data fields for possible answers

Q2_1	Q2_2	Q2_3	Q2_4	Q2_5	Q2_6	Q2_7	Q2_OTH

Table 13: Skills and time required in preparatory phase

Task	Time taken (months)	Outsourced resources	Arghyam personnel	Total person months*
Finalising partnerships	1		Programme Manager (ASHWAS)	2
Planning survey: Sampling, survey methodology, questionnaire design, partner training		Technical support from PAC	Programme Manager (ASHWAS) Programme Officer (Statistics & Survey)	6.5
Preparing training material	2		Programme Manager (ASHWAS) Programme Officer (WATSAN)	4
Training partners including: Orientation (1 day) ToT: 4 days Regional training: 4 days (at 8 locations)	2	PAC: 2 person, OUTREACH: 2 persons (both for one week)	Programme Manager (ASHWAS) Programme Officer (Statistics & Survey) Programme Officer (WATSAN) Programme Officer (Training) 2 support staff/volunteers	7
Preparation and field-testing of questionnaires Check list preparation and pre-testing: 10 FGDs, draft preparation, review by domain experts and finalisation of questionnaire	2	FGDs by PAC and OUTREACH (1 person month)	Programme Manager (ASHWAS) Programme Member (Statistics & Survey) Programme Member (WATSAN)	7
Translation, design and printing (questionnaires and checklists)	1	Translator	Programme Officer (Statistics & Survey)	0.5
Water quality testing kits: Market and feasibility surveys** Procurement	2		Programme Officer (Statistics & Survey) for 50 percent of his/her time.	2
Preparing the survey plan: Date- and team-wise action plans	0.5		Programme Manager (ASHWAS) Programme Officer (Statistics & Survey)	1
Total				30

* Does not include time taken for vendor outsourcing
** Does not include the 4-6 weeks taken to procure the kits

Table 14: Budget for the preparatory phase

Task	Description	Actual cost* (Rs.)
Finalising partnerships	Coordination with partners (primarily the cost of Arghyam personnel)	Included in Arghyam staff cost
Technical support from PAC for survey planning: Sampling, survey methodology, questionnaire design and partner training	Amount paid as per the MoU, travel costs	3,87,714
Training: Training partners	Orientation (1 day): Rs 24,000 ToT (4 days): Rs 75,000 Regional training (8 nos): Rs 4,94,984	5,93,984
Training materials	Preparation of training material, amount paid as per the MoU, travel costs: Rs 3,53,191 Handouts etc: Rs 1,23,237 Bags for ToT: Rs 32,948	5, 09,376
Preparation of questionnaires Field-testing of questionnaires Check list and pre-testing: 10 FGDs, draft prepration, review by domain experts and finalisation of questionnaire	FGDs: Rs 25,000 Translation (questionnaires, study materials, checklists, etc): Rs 1,09,151 Printing: Rs 1,39,600	2,73,751
Water quality testing kits	100 kits @ Rs 1,800 4,500 H_2S strips @ Rs 10	2,55,510 (inclusive of CST)
Survey plans: Reviewing, finalising, date and team-wise action plans	Personnel cost	Salary
Courier charges		86,834
Total		**21,07,169**

* Does not include Arghyam salary costs

3 Survey

3. Survey

3.1 Introduction

The actual survey process takes one to two months depending on its objectives and scale. Smooth execution of this phase depends on the planning that has preceded it. The survey should ideally be carried out simultaneously across the study area so that results are comparable.

3.2 Checklist

Here is a checklist of activities that must be completed prior to the survey phase:

Table 15: Pre-survey activity checklist

S. No.	Task	Check
1	Forming teams	☐
2	Planning survey activities	☐
3	Designing the questionnaires	☐
4	Training survey team(s)	☐
5	Testing questionnaire*	☐
6	Printing and coding* questionnaire	☐
7	Procuring water quality testing kits**	☐
8	Consolidating survey plans of every team	☐
9	Formulating quality monitoring plan	☐
10	Designing database for entry and analysis *	☐

* Optional

** To be undertaken only if water quality testing is part of the survey methodology

3.3 Tasks

3.3.1

CONDUCTING THE SURVEY

ASHWAS required 42 survey teams each comprising a Supervisor, 4 Surveyors, 24 Coordinators and an additional Surveyor as a back-up. Each team worked for 25 days, including training and logistics. Every GP was to be surveyed in four days. The exceptions were hilly districts where the terrain and distances between villages demanded more time.

Tasks during this phase are:

During the Survey

- Village transect and village map
- Survey team walks around the village with the local people to draw a village map.
- Households are listed through transect and selected after ensuring that all the localities are proportionately covered.
- A basic village map depicting WATSAN- related infrastructure, location of houses and roads, etc. is drawn up. This helps in mapping water and the threats from improper sanitation. This includes identifying contamination, drainage and hygiene-related problems.
- The team notes important observations in a sheet provided for the purpose (see Annexure A3).
- Supervisors conduct a sampling exercise and allocate households to each Surveyor.
- Household survey (includes interview with women)
- Village questionnaire
- Water quality testing
- Interviews with GP members
- Photographs

After the survey

- Surveyors sign and submit the questionnaires/ survey forms to the Supervisors the same day.
- Supervisors check questionnaires and sign off/ certify all the household questionnaires before the

survey team leaves a GP, clarify ambiguities in a questionnaire by revisiting the concerned household.

- Coordinators review and sign off/certify at least 10 percent of the household questionnaires.
- Coordinators sort, package and send questionnaires back to the coordinating agency at the state level (in this case Arghyam).

3.3.1.1
The role of NGO partners/Coordinators

The NGO Coordinators provided a link between Arghyam and the survey teams to ensure that activities were conducted in accordance with the plan. They supervised the survey team, ascertaining that the survey methodology had been carried out in its entirety before the team left a GP. They were also responsible for troubleshooting issues such as sampling, meeting the GP Secretary, transportation and changes in schedule.

Picture 6: Spot checks as a tool to monitor the quality of survey

3.3.1.2
The role of Arghyam/Coordinating agency

While the survey was on, Arghyam's role was to monitor progress and manage the survey activities by its partners. Arghyam supervised/guided its NGO partners and monitored the quality of the survey through the mechanism outlined in Section 2.4.10 Its staff were available at all times to address field issues such as differences in sampling information, poor quality of survey and data inaccuracies, changes in monitors' schedules, etc.

Picture 7: Seeing is believing - water quality field testing during ASHWAS

3.3.2
MONITORING QUALITY

Quality monitoring (see Section 2.4.10) namely cross-checks through phone calls, field visits, back-checks and photographs, begins during this phase of the survey. Of the methodologies implemented for ASHWAS, back-checking was the most effective in identifying the data collection errors.

Box 5: Google SMS

Technology can be used innovatively in quality monitoring. Google SMS is a feature where messages can be send out to individuals and groups from the computer to their cell phones. An attempt was made in ASHWAS to use this feature to monitor whether the Surveyors were following their survey plans. However, it did not work well, since most of the Surveyors didn't know how to use this feature. Perhaps, introducing the concept during the training programmes might have led to a better response. So a proper training on the tools to be used is essential.

3.3.3 COLLATING REPORTS

Depending upon the scale of the survey and sample size, the completed questionnaires could be a thin bundle or a thick manuscript. There must be a mechanism to receive, collate and begin data entry on completed questionnaires as they begin to arrive from the field. Making an inventory of all the materials received (questionnaires, observation sheets, maps, water quality testing sheets, photographs, etc.) helps sorting these in a specific order, keeping track of materials distributed to the data entry operators/vendors, and retrieving them later.

ASHWAS incorporated a simple format (see Table 16) to keep track of the material received from the field. The questionnaires were sorted in the following order: NGO, district, taluka and GP.

Table 16: Format for tracking survey reports/materials

Taluka	GP name	Village names	No. of HHQs*	Village questionnaire (Y/N)	No. of water quality testing sheets	Village map (Y/N)	GP questionnaire (Y/N)

*Household questionnaires

3.4 Skills and Resources

Skills and resources utilised by ASHWAS during this phase of the exercise are listed below (see Table 17).

Table 17: Skills and time required during survey phase

Task	Time taken (months)	Outsourced resources	Arghyam personnel	Total person months*
Technical support for survey activities	–	PAC	–	6.5
Actual survey	2	234 NGO personnel (24 Coordinators, 42 Supervisors, 168 Surveyors)	Programme Manager (ASHWAS) Programme Officer (Statistics & Survey) Programme Officer (WATSAN) Programme Officer (Training) One additional staff for survey support	8
Survey monitoring: Field visits	2	PAC/NGOs (60 person days)	Staff and volunteers (60 visits)	6
Collating questionnaires : HH/GP/ Village/Water quality/Village maps	0.5	Part-time staff, volunteers	Programme Officer (Training)	0.5
Total				**21**

* Does not include time spent on vendor outsourcing

3.5 Budget

As outlined in Chapter 1, the budget for the actual survey is approximately Rs 18,000 per GP. In addition, this phase also calls for 30 person-days for preparing the inventory of the questionnaires. This may be carried out by a semi-skilled person (a paid volunteer in the case of ASHWAS), who can read the local language and translate the information into English (see table 18).

3.6. Lessons Learnt

Lessons learnt in this phase pertain to the following:

- Survey plans
- Survey teams
- Questionnaires: Women interviewees
- Questionnaires: Submission
- Water quality data

3.6.1 SURVEY PLANS

Communicating changes in plan: Despite the detailed survey plans prepared by NGO partners, in some instances they were not followed. Such changes were not communicated to Arghyam (the coordinating agency). This resulted in field monitors arriving at a GP (on surprise checks) and not finding the survey team there. Therefore, any changes in plan must be communicated timely to either side of the chain to enable smooth coordination.

3.6.2 SURVEY TEAMS

Monitoring team activities: In some cases two survey teams jointly covered a GP in two days (instead of one team spending four days in a GP). In doing so, they failed to get a detailed understanding of the GP. Therefore, quality checks play a key role in identifying and avoiding such lapses.

3.6.3 QUESTIONNAIRES: WOMEN INTERVIEWEES

Emphasising gender sensitivity: There were several cases of male surveyors interviewing women or discussing women's issues with male members of the household.

Table 18: Budget for the survey phase

Tasks	Description	Actual Costs* (Rs.)
Technical support by PAC for survey activities	Amount paid as per the MoU, travelling costs	1,66,163
Conducting actual survey		29,93,520
Monitoring quality	Volunteer/Contract staff costs	70,000
Collation of: HH/GP/Village questionnaires Water quality testing sheets Village maps		15,000
Total		**32,44,683**

*Does not include Arghyam salary costs

This happened despite emphasising (during trainings), on the need for women to be interviewed on women's issues only by female surveyors. In addition to emphasising this in training, spot checks and field visits play an important role in protecting the integrity of the data and avoiding embarrassment to women respondents.

3.6.4
QUESTIONNAIRES: SUBMISSIONS

Allowing for delays: Although the surveys were completed on schedule, retrieving the completed questionnaires from some of the organisations proved to be a long process. This factor must be taken into account while planning the timeline.

3.6.5
WATER QUALITY TESTING DATA

Although the field testing data gave an overall idea of the water quality in the GP, the purpose for which water, from a particular source, was used could not be established. For example, if a source was reported to have high fluoride, it was unclear whether the source was used for drinking or for non-domestic purposes. In order to benefit from this data, it is important to capture the information on the source-wise usage of water. The water quality test sheet provided in Annexure A4 has been revised to include this information. Additionally, the sources listed on the water quality test sheet should be coded and marked on a village map. This would help in understanding whether or not the area around the source is maintained well.

4 Data entry and data cleaning

4. Data entry and data cleaning

4.1 Introduction

After the questionnaires have been received, checked and sorted, the data is converted to digital format for analysis. Since surveys are usually conducted in local language, the data entry operator or organisation must be fluent in both the local language and English. This section addresses the various options for data entry and the pitfalls to watch out for in this phase.

4.2 Objectives

The objectives for designing the ASHWAS data entry forms/criteria were:

- To maximise modularity (to the smallest possible point).
- To minimise scope for error.

4.3 Checklist

Here is a checklist of tasks (see Table 14) that must be completed prior to the data entry and analysis phase:

Table 19: Pre-data entry activity checklist

S. No.	Task	Check
1	Receiving all completed questionnaires/other material from the field	☐
2	Reviewing 5 percent of the questionnaires as part of the quality check	☐
3	Sorting questionnaires by district/ taluka/GP	☐
4	Preparing checklist to keep track of data entry	☐
5	Designing database for entry and analysis of results*	☐

* If not already designed in the survey phase

4.4 Tasks

4.4.1

DATA ENTRY

The process of data entry is set with an objective to get quality data by eliminating the errors made by data entry operators and the Surveyors. In order to offer flexibility in extracting information, all possible options corresponding to each question should be assigned a separate placeholder/column. Free text entry can be considered for only open ended questions.

Annexure G contains a data sheet created for ASHWAS with 25 household questionnaires. Although there were 45 questions in the questionnaire, it took 497 fields to capture the data. The responses from four different questionnaires were captured in possible 972 placeholders (see Section 2.4.11).

4.4.1.1

Steps to be considered for data entry

In order to ensure a smooth data entry process, the following steps can be considered:

- ***Evaluate the options for data entry execution***

- ***Selection of data entry technology:*** It is very important to evaluate the technology options for data entry right at the beginning of this phase. Such an exercise helps in selecting the best option. The two most common options are Optical Character Recognition/ Optical Mark Recognition (OCR/OMR) and manual entry (see Box 5).

- Optical Character Recognition/Optical Mark Recognition (OCR/OMR): This is a good choice where responses are clear and concise rather than open-ended or hand-written. If your organisation has the capacity to use it, this option should be considered during the early stages of questionnaire design. It is important to ensure that the required tools/software and the expertise to use it are available in-house, if your organisation decides to use OCR/OMR.

- *Manual entry:* The traditional mode of data entry for surveys.

- ***Selection of vendors:*** The choice of data entry vendors may be based on the following factors:

- *Language expertise:* The vendor must be well-versed with the language (in which the survey will be conducted) so that translation of data and its entry can occur simultaneously. The alternative i.e., translating completed questionnaires into English prior to entering the data is not a feasible option. Moreover, keeping the questionnaire as objective as possible with minimal text, makes it easier for data entry.

- *Error rate:* Vendors usually commit to accuracy levels up to 99.5 percent. While this is only an indicator of the vendor's standards, it must be secured in writing (in the quotation/memorandum of understanding). A 5 percent error rate is considered acceptable for large volumes of data but must be evaluated in the light of your organisation's expectations.

- *Experience:* It is important to assess the vendor's experience and capacity in dealing with similar kind and volume of data (expected from the survey).

- *Client feedback:* This is usually a reliable way of checking a vendor's credentials.

If you decide to do the data entry within your organisation, the skills required for this activity are outlined later in this chapter.

- ***Format of data entry output***: The selected tool for analysis must be able to output data in the desired format. For example, if SPSS is used for analysis, then the data entry output should be either in SPSS [<filename>.spss] or alternatively in Excel [<file name>.xls] format. Typically, the latter can be used for analysis using various tools but exporting the Excel file into the tool could give rise to some compatibility issues. For a sample data entry sheet see Annexure G (see also Box 6).

- ***Questionnaire coding:*** This is an important task that should ideally be completed while designing the questionnaire (see Section 2.4.7) or latest before data entry. It involves simplifying data entry and analysis by assigning every possible answer option with a number or an alphabet. Important points to be considered include:

- *Set naming conventions:* Naming the fields clearly and data entry according to the set conventions help avoid confusion.

For example:
Field name for 'Marital Status': MARIST1
Field type: Numerical
Possible answers: 1, 2, 3, 4 or 5

The data entry operator will be able to enter values only within this range, thus minimising possible data entry errors at the source.

Box 5: Technology used in ASHWAS

Although the ASHWAS questionnaires were predominantly objective, there were several questions that called for subjective answers. Segregating the objective from the subjective and subsequently merging them for analysis proved to be a tedious task. Moreover, data was entered manually as the survey was administered in Kannada.

Box 6: Data output tools in ASHWAS

ASHWAS data was obtained in both the Excel [<filename>.xls] and the SPSS [<file name>.spss] formats:

- Excel: To import data into open source database to run queries, to set filters and to generate graphs
- SPSS: Being powerful as compared to Excel, it was used to generate output for a combination of parameters/indicators

- Decide the size of entities: Although it might seem tedious, capturing the data in the smallest possible entity offers enormous flexibility of analysis.

For example:
Question: What is the amount of water cess you pay?
Answer options: (Seven choices, of which one is 'Others', where text may be entered.)
As this is a subjective (not multiple choice) question, we made three placeholders:
Placeholder1: Captures choices between 1 and 6.
Placeholder2: Captures only choice 7 ('Other')
Placeholder3: Captures text if placeholder 2 contains 7

- Devoting one field to the operator's name also helps in monitoring quality.

- ***Quality checks***: Data entry errors can be minimised in several ways:

- Setting rules on placeholders: It is important to set rules on each placeholder regarding acceptable answers (if permissible) and data type (qualitative, quantitative, etc). In the example above, the answer value to 'What is the amount of water cess you pay' must lie between 1 and 7. Any value(s) outside this range, such as text or other numbers, were rejected at the data entry stage itself. To enforce this, rules can be set to filter the cell entries. Here text and other numbers were not accepted due to the rules that were set.

- Automated queries: Automated queries for quality control can be based on skip questions.

For example:
Question: Do you store water?
Answer: No
Skip question: Reasons to store water?

Automated queries can check answers to such skip questions. Further checks can ascertain whether the error lies in data collection or entry. In a database, the queries may be written in SQL before running them in the database. ASHWAS used SQL to run queries in an open source database. Macros may be used in spreadsheets.

- Manual checks: Random manual checks comparing the questionnaire with the data entered helps minimise errors.

- Double checks: Should a data entry error be detected, other data entered by the same operator should be checked for accuracy.

4.4.2
DATA CLEANING

Data cleaning allows collection and entry errors to be eliminated or corrected so that only high quality data is used for analysis.

Ensuring quality data

There are four distinct ways to ensure that high quality data is entered from the physical questionnaire. In addition to quality checks (see Section 2.4.10), these include:

- ***First level validation:*** This may be based on setting field properties to data types (textual with a length limit/numeric/alpha-numeric) to ensure accuracy in data entry. Alternatively, it may be based on specifying possible answers from a set of options. Validating data in such a manner help identify errors during data entry.

- ***Queries based on skip questions:*** This pertains to a set of queries, such as SQL queries for database, where certain answers are logically ruled out. These queries may also be formulated using macros in spreadsheets.

- ***Queries based on functionalities:*** Queries may also be based on functionalities.

For example:
Question: Is the water sufficient for your needs?
Answer: Yes, enough water is available throughout the year
Subsequent question: How long did you have to manage without water?
Only possible answer: Not applicable.

Any answer different from the above must be analysed for error either during data collection or entry. If it is the former, other questionnaires from the Surveyor must be checked and a decision be made whether to use his/her data based on the seriousness and ramifications of the error.

- ***Manual checks:*** This involves randomly selecting 2 percent of the data in soft copy and verifying it manually against the physical questionnaire (see Box 7)

4.4.3
DATA ANALYSIS

There are several data analysis tools available in the market such as SPSS (Statistical Package for Social Sciences), SAS, Statistica, Mstat, Sysstat, Sigmaplot, and Matlab. The choice of analysis tool must be based on considerations of the parameters involved, nature of the analysis required and skills and expertise available within the organisation (see Box 8 and refer to the screen shot of a data entry sheet in SPSS on page 52).

4.5 Skills, Time and Budget

The skills required depends on whether data entry is carried out in-house or by a third-party vendor (as in the case of ASHWAS). Skills pertaining to an in-house data entry operation include:

- Technical knowledge of the software
- Technical skills to write simple queries for error-checking, etc
- Language skills for translation of data
- Ability to manage the data entry process so that nothing is excluded or lost

If data entry is outsourced to a third-party vendor, relevant skills include:

- Project management is a primary and mandatory skills requirement
- Technical skills, particularly in database, SQL and macro writing. If technical skills are not available in-house, it can also be outsourced to the vendor. The time, budget and resources used in ASHWAS are presented in Tables 20 and 21.

The duration of this phase is directly proportionate to the resources allocated by the vendor. For instance, although it was agreed that data entry phase in ASHWAS would be delivered within 45 days, it took close to 70 days for the refined data to come in. At least one resource person worked closely with the vendor to monitor its quality. It was a mandetory for the vendor to submit data sets every three working days so that ample time was available for quality checks.

BOX 7: Data quality monitoring in ASHWAS

During ASHWAS, Arghyam anticipated possibilities of data error at two levels:
- **Surveyor level:** Data entered physically during survey
- **Data entry operator level:** Data entered into soft copy

In addition to the steps mentioned in Section 2.4.10, ASHWAS also incorporated the following measures to ensure accurate data entry with a good degree of success:

Exclusion: If a data entry operator was unable to enter data due to discrepancies between entry-level restrictions (field type) and the data on the questionnaire, these were kept aside to verify or discard.
Queries: Running SQL queries to identify questionnaires with discrepancies. These were manually verified to check whether the problem was associated with data collection or data entry. Queries were also run on the basis of functionalities.

Random checks: Randomly picking 2 percent of the data in soft copy for a manual double-check.
Data re-entry: As per the agreement with data entry operator, for any data entry operator if the error margin exceeded 5 percent, it was mandatory to re-enter the data.

In ASHWAS, the quality monitoring processes during survey helped reduce the errors. The second level of scrutiny during data entry helped identify errors that were missed during quality checks at the data collection phase. On the whole, multiple processes ensured that only good quality data were retained.

Box 8: Data analysis tools in ASHWAS
- Excel: Data entry
- SPSS: Extracting complex information including cross-linked data such as water- health, etc (see Figure 2, screen shot of the SPSS file).
- Open source database: Extracting data for presentation in reports.

For more information, see Chapter 5

4.6. Lessons Learnt

Most common pitfalls encountered are:

- **Insufficient granularity:** This impedes flexibility in analysis and slows down error tracking. Identifying strings and obtaining the output (from multiple parameters crammed into a single field) demands special technical expertise.

- **Ambiguous field names:** Although certain answer fields appear obvious while looking at the questionnaire, the answers without the questions require clear naming conventions to minimise confusion in interpretation.

- **Intended vs entered code:** With huge data and its field, codes tend to get very confusing. Not verifying the intended code with the entered code can create chaos in large data fields. Cross-verification with the vendor's understanding of codes is important as it has a direct bearing on the analysis.

- **Time allocation for data checks and re-entry:** Adequate time must be allocated for quality checks and the possibility that data might have to be re-entered.

- **Inadequate back-up:** It is important to keep a back-up of data in more than two systems.

- **Blank fields:** Ensuring that there are no blank fields in the database minimises the error.

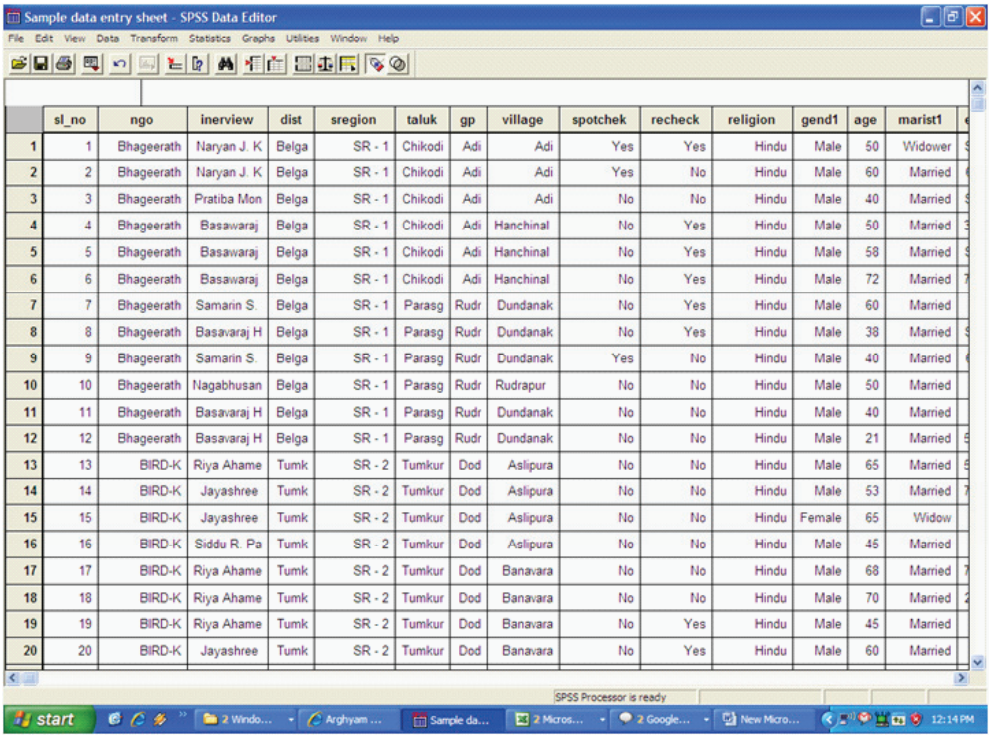
- **Operator's name missing:** There must be an option to identify data entered by a particular operator. This not only simplifies tracking and rectifying the errors, but also allows re-checking of other data entered by the same operator.

- **Stress:** Applying too much of pressure on the data entry vendor tends to increase the chances of error.

- **Misplacing hard copies:** It is important to keep the hard copies (of questionnaires, observation sheets and all other documents) available for reference till all the necessary cross checks and analysis are done.

- **Errors in identification codes:** These include mistakes in entering identification codes such as district, taluka, GP, village, etc.

Figure 2: Screenshot of a data entry sheet, SPSS



	sl_no	ngo	inerview	dist	sregion	taluk	gp	village	spotchek	recheck	religion	gend1	age	marist1
1	1	Bhageerath	Naryan J. K	Belga	SR - 1	Chikodi	Adi	Adi	Yes	Yes	Hindu	Male	50	Widower
2	2	Bhageerath	Naryan J. K	Belga	SR - 1	Chikodi	Adi	Adi	Yes	No	Hindu	Male	60	Married
3	3	Bhageerath	Pratiba Mon	Belga	SR - 1	Chikodi	Adi	Adi	No	No	Hindu	Male	40	Married
4	4	Bhageerath	Basawaraj	Belga	SR - 1	Chikodi	Adi	Hanchinal	No	Yes	Hindu	Male	50	Married
5	5	Bhageerath	Basawaraj	Belga	SR - 1	Chikodi	Adi	Hanchinal	No	Yes	Hindu	Male	58	Married
6	6	Bhageerath	Basawaraj	Belga	SR - 1	Chikodi	Adi	Hanchinal	No	Yes	Hindu	Male	72	Married
7	7	Bhageerath	Samarin S.	Belga	SR - 1	Parasg	Rudr	Dundanak	No	Yes	Hindu	Male	60	Married
8	8	Bhageerath	Basavaraj H	Belga	SR - 1	Parasg	Rudr	Dundanak	No	Yes	Hindu	Male	38	Married
9	9	Bhageerath	Samarin S.	Belga	SR - 1	Parasg	Rudr	Dundanak	Yes	No	Hindu	Male	40	Married
10	10	Bhageerath	Nagabhusan	Belga	SR - 1	Parasg	Rudr	Rudrapur	No	No	Hindu	Male	50	Married
11	11	Bhageerath	Basavaraj H	Belga	SR - 1	Parasg	Rudr	Dundanak	No	No	Hindu	Male	40	Married
12	12	Bhageerath	Basavaraj H	Belga	SR - 1	Parasg	Rudr	Dundanak	No	No	Hindu	Male	21	Married
13	13	BIRD-K	Riya Ahame	Tumk	SR - 2	Tumkur	Dod	Aslipura	No	No	Hindu	Male	65	Married
14	14	BIRD-K	Jayashree	Tumk	SR - 2	Tumkur	Dod	Aslipura	No	No	Hindu	Male	53	Married
15	15	BIRD-K	Jayashree	Tumk	SR - 2	Tumkur	Dod	Aslipura	No	No	Hindu	Female	65	Widow
16	16	BIRD-K	Siddu R. Pa	Tumk	SR - 2	Tumkur	Dod	Aslipura	No	No	Hindu	Male	45	Married
17	17	BIRD-K	Riya Ahame	Tumk	SR - 2	Tumkur	Dod	Banavara	No	No	Hindu	Male	68	Married
18	18	BIRD-K	Riya Ahame	Tumk	SR - 2	Tumkur	Dod	Banavara	No	No	Hindu	Male	70	Married
19	19	BIRD-K	Riya Ahame	Tumk	SR - 2	Tumkur	Dod	Banavara	No	Yes	Hindu	Male	45	Married
20	20	BIRD-K	Jayashree	Tumk	SR - 2	Tumkur	Dod	Banavara	No	Yes	Hindu	Male	60	Married

Table 20: Time and resources required in the data entry phase

Task	Time taken (months)	Outsourced resources	Arghyam personnel	Total person months*
Data checking: Manually checking 5 percent of the hard copies	1	–	Programme Officer (Statistics & Survey) Programme Officer (Training)	2
Selecting vendor for data entry	0.5	–	Programme Officer (IT Support)	0.5
Preparing data entry design	1	–	Programme Officer (Statistics & Survey) Programme Officer (IT Support)	2
Data entry: Sending hard copies to vendor, getting them back and actual data entry	2.5	Actual data entry	Programme Officer (Statistics & Survey) devoting 50 percent time over 2.5 months	2.5
Data cleaning	2.5	–	Programme Officer (Statistics & Survey) Programme Officer (Training)	5
TOTAL				12

* Does not include time spent on vendor outsourcing

Table 21: Time and budget required in the data entry phase

Task	Time taken	Actual cost* (Rs.)
Data checking: Manually checking 5 percent hard copies	30-40 person days	Salary
Selecting vendor for data entry		Salary
Preparing data entry design		Salary
Data entry: Sending hard copies to vendor, getting them back, actual data entry		2,92,809
Checking 2 percent data entered	30 person days	Salary
Quality monitoring: Writing queries, comfortable with data-base and spreadsheet applications and experience in SPSS	60 person days	Salary
Data cleaning		Salary
TOTAL		2,92,809 + SALARY

*Does not include Arghyam salary costs

5 Data analysis and report writing

5. Data analysis and report writing

5.1 Introduction

The manner in which the data is analysed depends largely upon the objectives of the survey. It could be as simple as reporting the response (as percentage of the total) for each question, or more complex correlation of several parameters and its interlinkages to provide greater insights. This section describes the ASHWAS data analysis by examining various tools and structures used.

5.2 Objectives

The objectives of the analysis and reporting phase are:

- To test the initial hypothesis and obtain a better grassroots' understanding.
- The level of detail in your analysis depends upon the objectives set.

Sometimes interesting correlations can be made, which may not necessarily be part of your initial objectives. Following up on these correlations could give you insights into various aspects of WATSAN at the village level.

5.3 Checklist

Here is a checklist of tasks (see Table 22) that must be completed before the data analysis and report writing:

Table 22: Pre-data analysis activity checklist

S. No.	Task	Check
1	Data entry	☐
2	Quality check on data entry and data collection	☐
3	Data cleaning	☐

5.4 Tasks

5.4.1
STRUCTURE FOR DATA ANALYSIS

Preparation of the data analysis structure involves the following steps:

- *Identifying important parameters as per the survey objective:* It is useful to have brainstorming sessions and discussions with practitioners and sector experts to identify and finalise the main and sub-indicators. This is a fairly straight forward process, since the objectives and identification of parameters for analysis would have been completed in the planning phase.
- *Identifying parameters and cross-linkages to be presented:* This task involves brainstorming on relevant parameters and cross-linkages for a report, if that is the medium chosen to share the findings.
- *Mapping indicators with questions:* Once indicators are identified (see Annexure H), they must be linked to the relevant questions. Preparing a matrix of main and sub-indicators against the questions in different questionnaires, is an important activity here. This matrix can be quite elaborate to provide the structure for analysis.

The process, needs a lot of introspection and in-depth discussions on the questions and its purpose, whether the translated version conveys the same meaning, how a village respondent would have understood and responded to it, and so on. Such introspection will further help in ensuring data accuracy.

Post-ASHWAS discussions revealed several incorrectly worded, misinterpreted and unnecessary questions. A list of such questions is presented in Annexure A6.

5.4.1.1
Data analysis structure in ASHWAS

ASHWAS set the ambitious goal of preparing individual reports in Kannada for all the 172 GPs surveyed. Highlighting GP-specific issues and best practices and solutions where applicable, these reports were designed for easy usage by GP officials and the village community. The survey also envisioned 28 district and one state report for use by district and state level governments, research institutions, advocacy organisations and citizens. Data analysis structure used in ASHWAS is given as follows:

- ***Categories of analysis:*** The analysis was divided into six sections: water, sanitation, health and hygiene, grievances and redressal, finance, satisfaction levels and citizens' demands. It also considered the physically disadvantaged population though the lens of equity.
- ***Indicators for categories:*** Each section had a set of indicators derived from the questionnaire. For example, the water section included indicators such as access, frequency, quality and quantity of supply.
- ***Presentation of responses:*** Each indicator was represented as a percentage of the total response. For example, the 'access to water' indicator revealed the percentage of respondents who did not travel far (less than 1.6 kilometres) compared to those who did (more than 1.6 kilometres).
- ***Comparative analysis***: It was carried out with relevant and the latest reports by other organisations on issues such as groundwater exploitation, public health and water supply infrastructure.

This process was used for analysis at four levels:

GP-level: To report the ground-level situation
District-level: To understand the WATSAN situation across the district.
Regional-level: To develop an understanding and the disparities that exist across sub regions (SR1, SR 2, SR3, SR4)
State-level: To obtain an overall picture for the state with respect to WATSAN.

While the main indicators were similar across levels, analysis at the district and higher levels also examined equity issues by including the economically deprived and minority communities. Each of these analyses was incorporated in respective reports. Annexure H presents a sample data analysis structure and a list of indicators that were used for the GP, district and state level analyses respectively.

The output from ASHWAS provides quantitative feedback on the status, quality, adequacy, reliability, efficiency of WATSAN services and user perceptions of these services. It also highlights key solution areas, such as the issue of open defecation (which is a major concern in sanitation). A conscious decision was taken not to draw any conclusions from the data, but to report the data as is , since the purpose was to capture people's perceptions of WATSAN issues.

5.4.2
DATA ANALYSIS AND REPORT GENERATION

Tools: There are several data analysis tools available in the market. The most popular ones include EXCEL (provides manual retrieval of data), SPSS, SQL programming (automatic output generation), etc.

Analysing data and generating graphs with Excel is a time-consuming process suited for smaller data sets, such as that pertaining to a single GP. A survey that generates as much data as ASHWAS, demands a tool to generate reports and graphs based on multiple parameters simply from a set of queries. A database with SQL programming is a good option for large volumes of data and SPSS is excellent for complex analyses involving interlinkages between parameters.

In ASHWAS, data from three GPs were manually computed using Excel and SPSS to estimate the time and effort involved. Large volumes of data called for automated analysis tools. SQL was effective in speeding up the process. SPSS was extremely useful for comparative analysis (multiple regions, backward/developed regions, etc) and generating output tables such as state level and cross-tables (see Box 9).

Analysing data and generating reports: Data from three GPs were manually analysed to ascertain the accuracy of the automated results. Sample results were checked and verified with randomly picked GP representatives and NGO partners. Manual verification was also done in cases which indicated clear deviations from the trend.

Box 9: Statistical Package for the Social Sciences (SPSS)

SPSS is a statistical analysis and data management software package that can retrieve data from almost any type of file to generate tabulated reports and charts, plot distributions and trends, and supply descriptive statistics. It is similar to other statistical programmes such as SAS, Statistica, Mstat, Sysstat, etc. Arghyam opted for SPSS based on its available in-house expertise.

Advantages of SPSS

- Reads data almost from any type of file
- Allows data to be saved in several different formats such as Excel, D-base etc.
- Single SPSS file can accommodate larger volumes of data than Excel. The ASHWAS household data, for instance, could not be accommodated in a single Excel file.
- For most of the simple analyses there are built in menus available
- Easy to use when compared to other statistical programmes
- Unlike Excel, SPSS enables analysis at different levels with a single command. For example, using a simple command "average time spent fetching water", displays averages at different levels-across GPs, talukas and districts, as well as the state. It also offers a cross-tab option that is widely used for comparative analysis at multiple levels.
- Codes used in the questionnaire may be labelled to retrieve an output table that can be directly used in reports.
- Allows outputs to be easily exported to Excel
- Enables easy grouping of data. This is an advantage over Excel where data grouping is a long and tedious process with immense scope for errors, particularly for open-ended questions leading to a huge number of different responses. Some questions in the ASHWAS questionnaires produced 50 to 60 different responses. SPSS allowed them to be meaningfully grouped into eight to ten categories. This would have been practically impossible with Excel.

Box 10: Accelerating report generation

Data retrieval for the GP and district reports was automated with SQL programming in ASHWAS, But reading the data from SQL and transferring it to the report was a laborious process. Developing sample templates for the GP and district reports helped speed up the process. The templates and SQL data were then shared with 10 to 15 computer- and net-savvy operators over Google docs. It allowed them to simultaneously access the data from remote locations or workplace. Each operator was assigned specific GPs. They would retrieve the data from the SQL and feed into the template. These were then uploaded to Google docs. This made the data accessible to all concerned personnel, including the DTP operator who would work on a pre-designed GP report. This simple procedure proved invaluable in speeding up the GP report generation process.

5.4.3 GENERATING SCORES FROM DATA

A scoring mechanism based on the actual responses by the households was created to compare GPs. Such a scoring should provide a basis for comparison rather than ranking of the GPs. The scoring is optional and is helpful only in a large-scale study.

ASHWAS used this approach in the GP reports to highlight the best practices and the better performing GPs. This was intended to act as an incentive for the GPs to do better. The level of interpretation in the process was very minimal and the scoring was based on percentage of response only. The ASHWAS data scoring process entailed the following:

Step 1: Identifying key indicators for comparison

The first step was to identify the key indicators for comparing the performance of the GPs. This was derived from the data analysis structure. Key criteria identified for ASHWAS are:

- Water
- Sanitation
- Health and hygiene
- Grievance redressal
- Satisfaction and awareness levels

Each of the above indicators had a set of parameters that would contribute to the overall indicators. Twenty parameters used in ASHWAS are listed in Table 23.

Step 2: Reviewing answer options: Options for each parameter/question in the household questionnaire were reviewed and grouped into favourable and unfavourable types. For example, the question on hand-washing (under health and hygiene), the percentage of respondents who washed their hands with soap, ash or soil was grouped as favourable, while the other options of washing with water and not washing were grouped as unfavourable. Hence, the former was considered as the rating for this parameter. This ensured minimal interpretation while arriving at the rating.

Step 3: Rating parameters: The percentage of favourable responses for the parameter was taken as its rating. For example, if 97 percentage respondents indicated that water was available throughout the year (the favorable option), then 'Water Availability' was rated as 97.

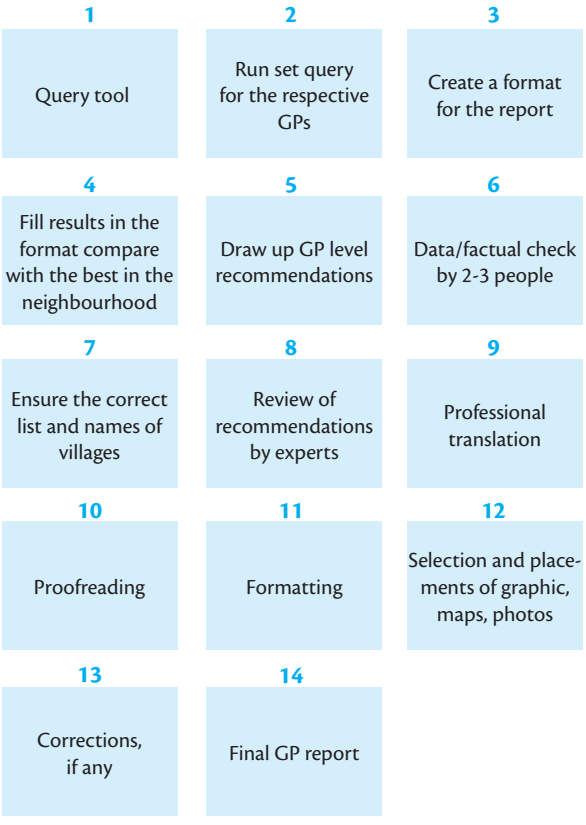
Step 4: Selecting parameters for reports: Eight of the 22 most important parameters were selected for mention in the GP and district reports. These include:

- *Water supply infrastructure:* Indicator of an active GP
- *Water availability:* Indicator of sustainability
- *Usage of household toilets:* Indicator of the presence and usage of toilets
- *Drainage coverage:* Indicator of sanitation situation
- *Health:* Indicator of health problems related to poor water quality
- *Governance:* Indicator of actions taken by the GP regarding O&M
- *Satisfaction level:* Indicator of citizens' satisfaction with WATSAN services

5.4.4 WRITING REPORTS

Compiling results: Compiling the results into a clear, concise and visually appealing report is an oft-neglected task. However, packaging the results in a way that it is noticed requires some skill and time. ASHWAS experience shows that it is time and effort well spent as it draws public attention to your work. Arghyam put considerable effort into the layout and presentation of its state, district and GP reports (see Figure 3). As each audience would value different aspects of the findings, considerable thought and discussion went into deciding what to present to whom and how.

Figure 3: Steps in producing a GP report



The results of the above data analysis had to be presented in a clear and concise manner, maintaining the visual appeal (see also Box 10).

The process of GP report preparation started parallel to the state report and took about 4-5 months. While the state reports were prepared in 4 months (April- July 2009), the GP reports took a little longer (April- August 2009). The additional activity in case of the GP reports was translation into Kannada, since they were to be handed over to the GP officials during the dissemination meetings. Getting all the 172 GP reports translated and re-checked proved to be a huge task and should be planned accordingly. The flow chart to prepare a typical GP report is presented above. Similar sets of activities would apply to the state report.

Designing reports: It is preferable to have the report professionally designed and laid-out, although it

Table 23: Scoring indicators used in ASHWAS

Indicator	Sub-indicators	Data source	Sample score/GP
Water	Water supply infrastructure	% respondents dependent on govt. infrastructure	88
	Distance to source	% respondents travelling less than 1.6 kilometer for water	95
	Quality	% respondents getting potable water	100
	Adequacy	% respondents getting adequate water	36
	Availability	% respondents receiving water throughout the year	62
	O&M readiness	Does the GP have skills, capacity, finances for O&M?	100
Sanitation	Number of household toilets in use	% respondents having toilets, % respondents using toilets	21
	Drains	% respondents having drains in front of their house	66
	Toilets in schools and anganwadis	Rating depends on whether all schools and anganwadis have toilets, or only some	37.5
Health and hygiene	Frequency of cleaning storage vessel	% respondents cleaning vessel everyday or once in 2 days	67
	Water treatment	% respondents treating water in some form or the other	47
	People not affected by diarrhoea	% respondents who have reported no incidence of diarrhoea	84
	People not affected by chikungunya	% respondents that have reported no incidence of chikungunya	67
	Hand washing	% respondents washing hands with soap or soil/ash after defecation and before cooking	50
	Menstrual hygiene	3 questions – type of protection, frequency of changing cloth, and how cloth is washed	38
Grievance and redressal	Access to grievance and redressal	% respondents who had drinking water problems and approached GP/VWSC	69
	Time taken to solve the problem(s)	% respondents whose problems were solved in less than 15 days	71
Satisfaction and awareness levels	Water quality testing kits	3 questions – does the GP have kits, does the GP use kits, actions taken by GP on the results	0
	Satisfaction levels	% respondents fully satisfied with water quality, quantity and services	42
	Problem incidence	% respondents who faced drinking water problems	42

could even be presented in a simply formatted word document. One of the objectives of ASHWAS was to use the reports for advocacy. Therefore, the design was outsourced to ensure an attractive and user-friendly look. While evaluating professional design groups, it is important to consider the format in which they will present the design template. Your organisation needs to not only have the format, but also the expertise to use it. Putting the report into the design template is a time consuming exercise and requires expertise in efficient handling.

Printing reports: A report may be printed in single, two or full colour. While the latter is preferable for reports containing graphs with multiple information levels, the decision must also be based on the financial resources available for the purpose.

5.5 Skills, Time and Budget

Broadly the desired skills required during the data analysis and reporting phase (see Table 24) include the following:

- The ability to write queries, proficiency with database and spreadsheet applications, experience in SPSS or a related software
- Fluency in the language of the report, DTP skills
- Knowledge of Corel Draw or a similar software, designing skills

5.6 Lessons Learnt

Precise coding and analysis: Arghyam spent considerable time evaluating parameters, checking cross-linkages with other parameters, and most importantly, verifying accuracy of the data. Despite this, we discovered that some questions had been misinterpreted, resulting in data collection errors.

Example:
Question: How many pots do you use for drinking and cooking?

1. Nil	2. 2-3 pots	3. 4-6 pots
4. 7-9 pots	5. 10-12 pots	6. >13 pots

Some surveyors used the codes (1-6) while others entered the number of pots used by the respondent. Although this question plays a major role in policymaking, we chose to discard it rather than to include ambiguous data.

Table 24: Budget for data analysis and report writing phase

Task	Description	Actual Cost (Rs.)
Data analysis: SQL programming	External support for SQL programming	48,000
State/GP reports: Design		66,180
Designing and conducting one-day partners' feedback workshop on report format		16,000
GP reports: Data entry	Volunteers: Rs 96,939, Printing: Rs 90,285	1,87,224
DTP		1,23,235
State report: Printing		2,69,012
TOTAL		**7,09,651**

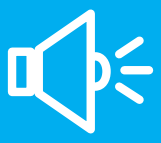
*Does not include Arghyam salary costs

Table 25: Skills and resources required in the data analysis and report writing phase

Task	Time taken (months)	Outsourced resources*	Arghyam personnel	Total person months**
Data analysis	2		Programme Officer (Statistics & Survey)	4
SQL programming	1	Consultant	Programme Officer (IT Support).	1
Designing and conducting one-day partners' feedback workshop on report	0.5		Programme Manager (ASHWAS) Programme Officer (Statistics & Survey), Programme Officer (WATSAN) Programme Officer (Training) one additional staff for survey support	
State/GP reports design	0.5	Designer: 0.5 months	Programme Manager (ASHWAS) Programme Officer (Statistics & Survey), Programme Officer (WATSAN) Programme Officer (Training) Programme Officer (IT) One additional staff for survey support Experts	0.5
Preparation of state report	3			6
GP reports data entry	3	Volunteers: 100 person days		9
DTP supervision	1	Outsourced		1
State report: Printing	0.5	Printer		0.5
TOTAL RESOURCES				22

* It is of great advantage if these resources are involved from the beginning (since questionnaire and database design)

** Does not include the time spent on finalising vendors.



6 Dissemination

6. Dissemination

6.1 Introduction

Dissemination of the findings to the stakeholders involved was a unique activity in ASHWAS. It stemmed from the belief that the results should be taken back to the GPs from where it was collected, rather than compiling the data into a report and confining it for third party review. Arghyam viewed the process as a means of initiating dialogue and empowering the GPs to manage their concerns independently. Customised reports comprising the findings and broad suggestions were disseminated in 150 GPs in line with Arghyam's belief in community participation and ownership. This phase might be optional for your organisation.

The following section outlines the steps during dissemination phase.

6.2 Objectives

The objectives of dissemination were as follows:

- To increase awareness and help catalyse action at the GP level by sharing the survey findings.
- To facilitate and enable GP members to address issues of concern by developing action plans.
- To understand the GP capacity to undertake development in their area.
- To provide feedback to the state government on the action needed.

6.3 Tasks

6.3.1

EXPLORING DISSEMINATION OPTIONS

Arghyam considered three questions while exploring strategic options for the dissemination process:

Who should be present at the meetings?

Individual ASHWAS reports would go back to all the GPs but the question was whether only the GP members, SHGs and ANMs, etc. should attend or the entire village population. We opted for the former as large meetings could create unreasonable expectations. The four to five hour meetings with about 20 representatives per GP were in-depth and insightful. The next step could be meetings with larger sections of the village population with the GP members assuming a key role in organising them.

Which organisations should be involved in the dissemination exercise?

The choice was between our NGO partners involved since the beginning of the survey and a new set of agencies. In the case of ASHWAS, it was decided to retain the existing partners as they were familiar with the survey and established a base in the GPs.

Engaging the same NGO partners simplified planning and execution. However, the capabilities of some of the partners (to handle tasks more complex than administering questions) proved sub-optimal. NGO partners and Coordinators must therefore, be carefully chosen. The skills for interfacing with the GPs are given in Section 6.3.2. Arghyam entered into an agreement with each NGO for the dissemination phase.

To what extent should the state government be involved?

The answer to this question depends largely on the relationship that the concerned organisations share with the entire community. In the case of ASHWAS, one school of thought was to elicit the involvement of the state government, as officially sanctioned procedures are easier to implement. The other option was to contact the GP functionaries directly which would build strong linkages with the elected body and strengthen the political link. Arghyam decided to take the former course of action as the NGO partners were not sure of approaching the GPs without official permission from the state/district/taluka administration.

It was also anticipated that the involvement of government agencies and officials such as the RDPR, CEO of the Zila Parishad (ZP), Executive Officer of taluka and Secretary of the GP would facilitate the dissemination process and the implementation of action plans developed during this process. It must be noted however, that linkages with the government must not be at

the expense of involvement with the GPs, as this is a key to the decentralisation process.

6.3.2
DISSEMINATION ACTIVITIES UNDERTAKEN

The activities undertaken for dissemination are detailed in a chronological order below. The process took approximately six months.

A. Planning: Planning for the dissemination phase began just before the release of ASHWAS report during July 2009. It included the following activities:

- Preparing a detailed communication plan with strategies, key targets and the nature of communication material to be used.
- Pre-release meeting with the NGO partners to discuss the communication strategy and logistics.
- Meeting with the RDPR to share communication plans and elicit support for the GP meetings.
- Selecting ASHWAS Coordinators from NGOs: To ensure that the NGO partners select the right people as ASHWAS Coordinators, Arghyam had prepared a selection criteria and the resumès of shortlisted persons were screened based on this. In addition, the Coordinators were asked to prepare brief communication plans prior to the training, in order to set the focus for the training programme.
- Two Coordinators were appointed for each GP meeting, one of them necessarily a woman who would be able to communicate easily with the women members of the GP. Each of these teams had to cover one district comprising an average of 8-10 GPs.
- Meeting with experts and seeking opinions/ suggestions on the process by posting it on WATSAN networks like the Solution Exchange (WESNET).

B. Preparing tools to communicate with the GPs :
In addition to the GP report cards to be handed over to the GP members, some other tools were prepared to facilitate easy understanding and high involvement of GP members during the dissemination meetings. some tools used to enhance understanding and involvement at the meetings include the following:

- *Snakes and ladders game:* A separate session with a specially designed version of 'Snakes and Ladders' was planned for the school children (see Figure 4).
- *Swajal Gram poster:* The Swajal Gram poster depicted key aspects of water and sanitation in a model village (see Figure 5).

It is also important to conduct a test run of the dissemination process to tweak the procedures so as to make it more impactful. A test run was conducted to field-test the communication design and tools at the Vishweshwarapaura GP in Bangalore Rural district. It showed that the meetings must be kept simple and the GP members should be given ample opportunity to talk. Politics, as a subject of discussion, should be avoided as it would lead to digressions from the main agenda. Even the adults enjoyed the 'Snakes and Ladders' game.

C. Training the NGO partners on dissemination:
Training the NGO partners for the dissemination process formed a key part of this phase. A day-long training workshop was organised for the 56 Coordinators responsible for conducting the dissemination meetings.

Picture 8: Creating awareness amongst students

Figure 4: Snakes and ladders game

The purpose of the workshop was to ensure that identical processes were followed in all the GPs. Like any other effective training design and delivery, the focus was on three key aspects – knowledge, skills and attitude.

- ***Knowledge:*** The workshop imparted training to build technical know-how of the dissemination team on the following key aspects of the ASHWAS report:
  - Source sustainability
  - Access to water
  - Fluoride contamination
  - Nitrate contamination
  - Bacteriological contamination
  - Equity
  - Sanitation (toilets)
  - Sanitation (disposal systems)
  - Health and hygiene
  - Menstrual hygiene
  - GP governance

Prior to visiting the GPs, the Coordinators were also equipped with handouts containing background information, discussion points and suggestion for action on each of the above by the GPs. (see Annexure I)

- ***Communication skills:*** Communication skills formed an important part of the Coordinator training programme. The morning session focussed on different forms of communication such as visual aids, roleplays, discussion and mediation. The latter part of the day was spent on simulating dissemination meetings. Working in pairs, the Coordinators conducted mock meetings with other participants offering feedback, suggestions for improvement.

- ***Attitude:*** The workshop emphasised the importance of right attitude while interacting with the GP members. Some of the key principles highlighted in the training were as follows:
  - Appreciate
  - Listen
  - Seek inputs from silent members, especially women
  - Believe that GP has the capacity to find solutions, focus on problem solving instead of blame game
  - No discussions on politics.

Arghyam realised in retrospect that a day's training was too short. A three-day workshop would have been far more effective.

D. Scheduling meetings with the GPs:

- ***Official letter:*** In case of ASHWAS dissemination, a letter was sent from the Secretary, (RDPR, Government of Karnataka) to the Chief Executive Officers (CEO) of all the Zilla Panchayats (ZP). It informed them about ASHWAS dissemination process, the proposed meetings and the expected attendees. Arghyam also sent a copy of this letter to its partners, who would then meet the concerned CEOs to schedule GP meetings in their districts. While some of the NGOs were able to do this independently, Arghyam had to expedite matters by coordinating directly with the CEOs in other cases.

- ***Scheduling and follow-up:*** Scheduling the meetings took about a month. The task was complicated by the unexpected floods that kept the North Karnataka ZP and Taluka Panchayat officials occupied with relief and rehabilitation work. Due to this emergency, GP dissemination meetings in 22 flood affected villages of North Karnataka were cancelled. Allowing for unscheduled exigencies and vigorous follow-up is highly recommended to ensure that the process proceeds according to the plan.

E. Dissemination and action plan meetings

- ***Meeting agenda and duration:*** The dissemination meetings lasted about 3-4 hours each (see Table 26). Mandatory agenda for the meetings is given below:

Participants

- All GP members
- GP office bearers: Secretary, Water man, Bill Collector
- Representatives of the following committees:
  - *Village Water and Sanitation Committee (VWSC)*
  - *Village Health and Sanitation Committee (VHSC)*
  - *Village Forest Committee (VFC), if any*
  - *Village Watershed Committee, if any*
  - *Committees formed under any WATSAN scheme implementation, if any*
- One or two ANMs and ASHAs
- Representatives of SHGs, if any
- Assistant Executive Engineer responsible for the GP

- ***Quality checks:*** With an objective of getting initial feedback on the dissemination meetings and also to cross-check, ASHWAS Coordinators were instructed to fax the 'Observation and Feedback' sheet after each GP meeting, to the Arghyam office (see Annexure J). This helped Arghyam keep track of adherence to schedules as well as get an initial feel of what was happening in the meetings.

Another cross-check mechanism was in the form of Arghyam staff attending the GP meetings. S/he was required to co-facilitate and provide corrective measures, if required. Arghyam staff attended 16 out of 150 GP meetings, covering different districts.

- ***Action planning :*** Participatory planning activities were conducted on 2-3 key issues faced by every GP. To facilitate the identification of these issues Arghyam, consolidated the findings of the survey into colour-coded graphs (see Figure 6). It also provided action planning formats where the Coordinators could record their observations, actions planned at meetings and information on GP functioning (see Annexure K). These formats were to reach Arghyam at the end of the GP meetings scheduled for a district.
- Insights from dissemination meetings: The dissemination meetings varied in content and style. Some were well organised, resulting in meaningful action planning. In others, the audience on the verge of being unruly. Insights are as follows:

  - The basic institutional structure of the GPs exists in Karnataka, with stipulated members for governance
  - Awareness about schemes, programmes, rules and legislation was very low. There was curiosity and participation, but not informed discussion.
  - Action plans do not emerge from broad-based discussion, hence they do not reflect real priorities.
  - GPs where individual members took interest and responsibility for their wards, performed best.
  - Women are represented mostly on paper.
  The ones truly effective were those who assumed office on the basis of ability rather than constitutional formality.
  - The GP members seem unaware of budgets and grants received. Paying taxes seems to be regarded as optional. Only about 20-21 per cent of the population pays any kind of tax or tariff.
  - While lack of funds was cited as a reason for poor performance, the real problem appears to be of inadequate knowledge, skills and organisational management of funds.

F. Consolidation and closure

The action plans developed for the 150 GPs, where dissemination meetings were undertaken, were reviewed. These were consolidated and submitted to the RDPR for further action (see Annexure L). Consolidating the action plans involved the following tasks:

- Translating the plans from Kannada to English
- Reformatting for more readability and further action
- Reviewing the plans internally and with the NGO partners
- Discussing further implementation and monitoring the action plan with the RDPR.

G. Media coverage

Arghyam engaged an agency to conduct field-based research and organise local media coverage of dissemination and action planning events. This was done with an objective to provide motivation to NGOs and ASHWAS GPs involved in this effort. On one hand, it created awareness about the same amongst the non-ASHWAS GPs. On the other, it motivated them to take up action. Also it was envisaged that, enhanced awareness of findings and issues among citizens, is likely

Table 26: Agenda of dissemination meetings

Activity	**Time** (min.)
Introduction and context setting	10
Icebreaker	10
Purpose of the meeting	10
Sharing findings and planning action for 2-3 priority issues	120
Discussion on GP functioning and budgets	30
Discussion with women members	30
Meeting at the local school (including Snakes and ladders game)	60

to increase citizens' demand, which in turn may prompt them to take further action (such as organise Gram Sabhas for discussing WATSAN issues).

6.4 Time, Skills and Budget

Budget required is given in Table 27.

Planning and coordinating information dissemination on such a large scale involves identifying key stakeholders, engaging with them and incorporating all their interests.

Programme Managers and Coordinators must possess good people and programme management skills, including effective strategising, planning, implementing and documenting abilities (see Table 28). In addition to the Programme Managers, a person with strong domain knowledge, execution skills and a good command over the local language is also required. Essential skills for Coordinators interacting with the GP members include the following:

- Good command over the local language and conversational skills to communicate with the GP.
- A strong belief that citizens can solve their own problems. Outsiders may advise and suggest but the most effective solutions usually emerge from the people affected by the problem.
- A good knowledge of WATSAN issues and government processes through additional classroom and exposure training may also be required.
- Ability to gauge the strength and feasibility of action plans suggested by the GP.
- Knowledge of a GP's financial functioning and/or the ability to obtain that information.

Table 27: Budget required in dissemination phase

Tasks	Details	Actual cost* (Rs.)
Planning; Training Coordinators	One-day training for 60 Coordinators	46,800
Preparing tools for communication with GPs	Design (Sajal Gram poster, Snakes & Ladders)	99,000
Dissemination and action plan meetings across 150 GPs	Approximately Rs. 2,200 per GP	3,26,471
Translating GP action plans		91,283
Consolidating and closure	Collating GP action plans	Salary
Stationery	Photocopies, handouts, etc.	30,809
Courier costs during dissemination		21,708
Arghyam travel costs		36,000
TOTAL		**6,52,071**

*Does not include Arghyam salary costs

Figure 5: Swajal gram poster

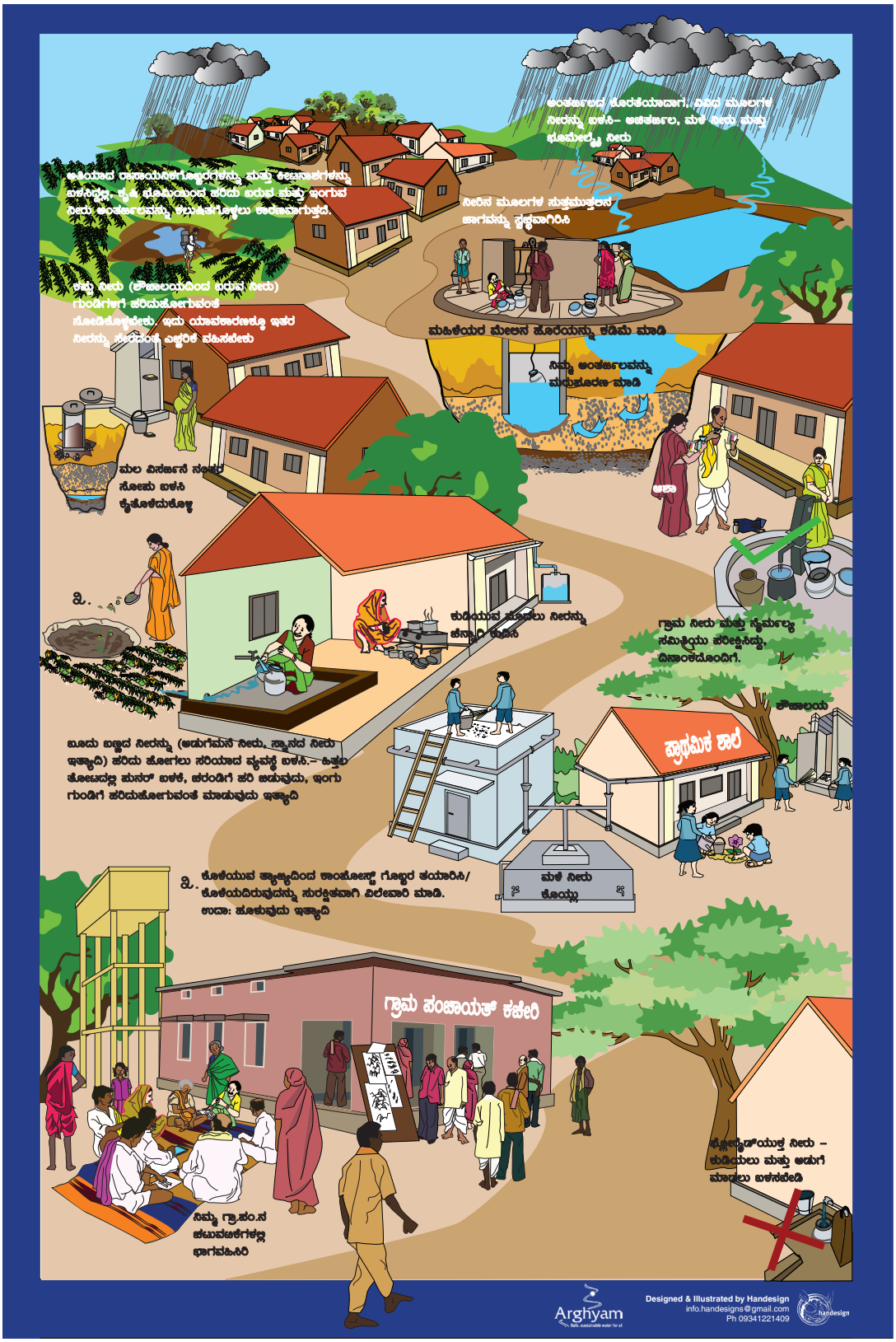


Figure 6: Screenshot of colour coded comparison of performance of GPs

		District: Raichur (SR1)							LEGEND			
		Ankushad	Kota	Kadloor	Yapaladin	Devaragu	Ragalapar	District	Good	Average	Bad	Poor
	WATER									cides urgency and extent of act		
1	**Source sustainability**											
	% dependence on ground water	100%		87%	100%	66%	55%		0-25%	25-50	50-75	>75
	% not receiving drinking water through out the year, but only in parts of the year	5%		60%	14%	30%	24%		0-25	25-50	50-75	>75
	% people experience water shortage > a month	0%		32%	5%	1%	1%		0-25	25-50	50-75	>75
2	**Access to water (system)**											
	% people getting water everyday	97%		97%	97%	91%	89%		>90	60-90	40-60	<40
	% respondents taking more than 1 hour to collect water	55%		47%	48%	18%	71%		0-25	25-40	40-65	>65
	% population traveling more than 1.6km to get water	2%		0%	0%	4%	6%		0-25	25-50	50-75	>75
	% dependent on sources not created by govt	3%		19%	0%	25%	47%		0-25	25-50	50-75	>75
	If disruptions in village water supply caused due to O&M reasons	Y		Y	Y	Y	Y		N		Y	
	% respondents storing water 3 days and more	1%		18%	1%	1%	4%		0-25	25-50	50-75	>75
	Satisfied with quantity of water (% respondents satisfied)	52%		25%	61%	61%	50%		>75	50-75	25-50	<25
3	**QUALITY**											
	Quality testing kit - 3 categories of data - Present, Present and Used, Absent								Present and used	Present / not used		Absent
	Number of sources with fluoride conamination	4/14		Absent	1/22	Absent	Absent		Absent	Atleast one source contaminated	> 25% sources contaminated	>50% sources contaminated
	Number of sources with nitrate contamination	1/14		4/13	3/22	Absent	Absent		Absent	Atleast one source contaminated	> 25% sources contaminated	>50% sources contaminated
	Number of sources with Bacterial contamination	8/14		4/13	Present	'7/14	7/11		Absent	Atleast one source contaminated	> 25% sources contaminated	>50% sources contaminated
	% satisfied with water quality	50%		38%	57%	74%	84%		>75	50-75	25-50	<25
4	**EQUITY**											
	Vulnerable population											
	% vulnerable population collecting water	5%		8%	0%	7%	2%		0-20	20-40	40-60	>60
	% vulnerable population without access to toilets	100%		99%	94%	99%	95%		0-25	25-50	50-75	>75
	Income differntiation											
	Difference in access to toilets for low Income as compared to High income households								Less than 10% dif	10-25% differenc e	25-50% diferenc e	>50% differenc e
	Difference in household connections as compared to High income households								Less than 10% dif	10-25% differenc e	25-50% diferenc e	>50% differenc e
	Gender											
	Women as % of people collecting water								0-25	25-50	50-75	>75
	SANITATION											
5	**Toilets**											
	% population with access to toilets	0%		1%	3%	1%	2%		>75	50-75	25-50	<25
	Reasons for not constructing toilets (pl mark Y/N, where % not available)											
	% due to financial reasons	58%		20%	37%	8%	20%		0-25	25-50	50-75	>75
	% due to lack of space	24%		28%	50%	53%	59%		0-25	25-50	50-75	>75
	% due to psychological reasons	6%		18%	10%	12%	7%		0-25	25-50	50-75	>75
6	**Solid and Liquid disposal**											
	Mechanism to dispose off domestic waste water (pl mark Y/N, where % not available)											
	Drains								Disposal system being primarily about segregating grey and black water, and reuse of grey water, drains in villages need not necessarily be encouraged, hence no colour coding is used here			
	Kitchen garden											
	Soak pit											
	Mechanism to dispose off waste and refuse (pl mark Y/N, where % not available)											
	Open place											
	Compost pit											
	Waste bin											
	Waste pit											
7	**HEALTH**											
	% people reporting incidence of Diarohhea	17%		7%	6%	28%	34%		0	0-10	10-20	>20
	% reporting incidence of Chikungunya	16%		12%	2%	29%	35%		0	0-10	10-20	>20
8	**MENSTRUAL HYGIENE**											
	Majority using cloth for periods (Y/N)	Y		Y	Y	Y	Y		No colour coding as options of			
9	**HYGIENE**											
	% washing hands with soap after defecation	27%		28%	12%	58%	57%		>75	50-75	25-50	<25
	% only covering water for protection	42%		57%	35%	55%	58%		<25	25-50	50-75	>75
10	**GOVERNANCE/ NEED FOR CAPACITY BUILDING OF GP**											
	% respondents not satisfied with WATSAN services in the GP	1%		26%	1%	22%	23%		< 25	25-50	50-75	> 75
	VWSC absent, or present and not working	Absent		Absent	Present, not functioni ng	Present, not functioni ng	Present, active		Present and active	Present / not active		Absent
	Active WATSAN schemes in the GP											
	ARWSP					Y			Y			N
	TSC			Y		Y	Y					
	Jal Nirmal						Y					
	Sachethana					Y	Y					
	Suvarna Jala	Data NA		Y								
	Swachcha Gram Yojana					Y	Y					
	Swajal dhara											
	NREGA			Y	Y	Y	Y					
	watershed Project			Y	Y							
	JSYS						Y					
	Swarna Gramodaya											

6.5 Lessons Learnt

POSITIVE LESSONS

- It is important to take back the findings of the survey to all participating GPs/stakeholders to catalyse change.
- Retaining the NGO partners (involved in the survey) during dissemination ensured continuity.
- Involving the RDPR at the state, district and taluka level and the State Secretary's circular in particular, made scheduling of meetings easier for the NGO partners.
- Providing training to all ASHWAS Coordinators, along with communication and reference material (to guide discussions at the GP), made the dissemination meetings highly effective.
- The thrust on action planning process ensured participatory discussion instead of a top-down dissemination process.
- Devising a game attracted the attention and participation of school children.
- Field testing of the dissemination process at a GP before training the Coordinators would help tweak the process to make it more effective.
- Provided valuable insights to Arghyam and its NGO partners on the issues of decentralised governance and finance systems at GP level.

SCOPE FOR CHANGE/IMPROVEMENT

- Visiting a few GPs before the meetings offers, those involved in the dissemination exercise, a good grasp of the role and functioning of these organisations.
- Potential Coordinators must undergo a rigorous selection process to ensure that only the most capable and experienced are hired. Dissemination work, being more complex than survey, requires more senior personnel. A few ASHWAS Coordinators proved incapable of handling the complexity of their tasks.
- Coordinator training workshops should have been a three-day event (with two days of training and one day for GP visit for on-site demonstration). The one-day training sessions, in the case of ASHWAS, were too short. Although Arghyam conducted a dry run, an additional demonstration of the actual dissemination process with formats would have ensured uniform implementation of processes leading to equal effectiveness across all GPs.
- The success of an action planning exercise hinges on how active the GP has been and also the skills of the Facilitators. At worst, it was a mechanical exercise, driven simply by the need to fill the questionnaires. On the other hand in most cases, action plans emerged after detailed discussions and participation.
- The format for collecting financial information of the GPs (during dissemination process) should have been designed the same way as GP budget formats provided by the State Government. This change has been incorporated in the updated GP questionnaire.
- It would be good to have a format to quantify the effectiveness of the GP in various aspects, such as financial and human resource capabilities. This would have helped Arghyam to collect relevant and missing information (not gathered during ASHWAS) from 150 GPs.
- Some NGOs who were disorganised during ASHWAS showed similar traits during dissemination phase. This should have been taken into account while planning for the dissemination phase.

Table 28: Skills and resources required in the dissemination phase

Task	Time taken (months)	Outsourced resources*	Arghyam personnel	Total person months**
Planning for dissemination and training ASHWAS Coordinators	2	1 external resource person for training	Programme Manager (Dissemination) + Programme Officer (WATSAN+ Training) + Programme Officer (Statistics & Survey) (additional Arghyam staff engaged in field visits)	3
Preparation of tools for GP communication	1	Designers		1
Scheduling GP meetings	1			2
Dissemination and action planning meetings (in 150 GPs)	2	4 person days of NGO personnel per GP		4
Translation of action plans	1	Translator		1
Consolidation of GP action plans	2			4
Consolidation and closure	2			4
TOTAL RESOURCES				19

* It is a great advantage if these people are involved form the beginning from the time of questionnaire and data base design

** Does not include time spent to finalise vendors

7 Advocacy

7. Advocacy

7.1 Introduction

Advocacy efforts are partially influenced by the scope of the survey. It is very important therefore, to be clear at the outset about the role the survey is expected to play, and the organisation's capacity and resources to implement its objectives.

7.2 Objectives

ASHWAS was envisioned as a tool for advocacy at the local, regional and national levels:

- Inward advocacy: To raise awareness, bring about behaviour change and encourage action with regard to micro and macro level WATSAN issues.
- Outward advocacy: To catalyse change in government policies and programmes.

7.3 Tasks

7.3.1
INWARD ADVOCACY

This task refers to using the findings of the survey to bring about behaviour change at the local level. For instance, ASHWAS revealed that more than 50 percent of the respondents did not wash their hands with soap after defecation. In such a case, focused inward advocacy can raise awareness to infuse a positive impact on the health of the community. Arghyam raised awareness about the findings of ASHWAS through the following means:

- **GP-specific reports:** The ASHWAS GP reports were designed to clearly articulate the findings of the survey and kick-start discussion on issues and action points. The ASHWAS GP reports were translated into the local language for this reason.
- **Posters:** ASHWAS explored source sustainability, equity in distribution, water quality testing, sanitation, health and hygiene and governance issues in its specially designed Swajal Gram poster. Depicting an integrated approach to water, sanitation and hygiene, the poster was used to inform the community on the possible solutions.

7.3.2
OUTWARD ADVOCACY

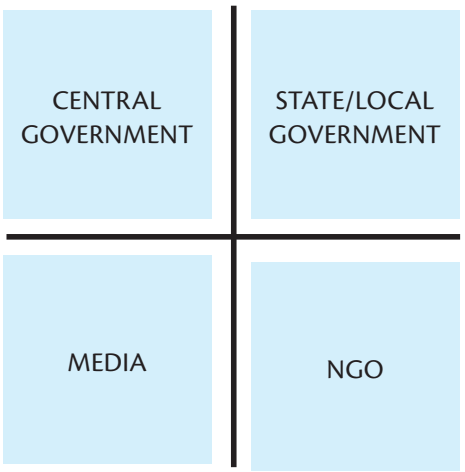
Outward advocacy pertains to issues that must be addressed at the state/national level. For instance, a survey that reveals an absence of community participation in water supply planning, calls for focused outward advocacy to change policies and encourage bottom-up planning at the state level. Similar lobbying at the state level would be required when a GP lacks the capacity to manage the O&M of water supply system.

Outward advocacy, therefore, has a dual objective

- To drive policy change by addressing issues high lighted by the survey.
- To promote transparency and efficiency in public spending by encouraging citizens and governments by undertaking ASHWAS-like initiatives.

Outward advocacy involves several players, with specific roles. Therefore, identifying the target accurately is very important. Failure to do so can result in spreading your resources too thin and poor results. ASHWAS identified four broad stakeholder groups for targeted advocacy (see Figure 7).

Figure 7: Target audience for outward advocacy



A. STRATEGIES

Advocacy strategies differ from one group to another depending upon their message and the action expected from the stakeholder. As a thumb rule, the message must be specific, achievable and relevant to the stakeholder. Depending on the audience and the message, one or more of the following strategies (see Figure 8) may be adopted as an advocacy tool:

- *High profile releases:* The ASHWAS report release by the Governor of Karnataka in the presence of the RDPR Secretary caught the attention of the media and lent a high profile to the event. Such releases help get the word out and spark debate on its findings.
- *Presentations, meetings, specific reports:* Specific, relevant presentations and reports to influence stakeholders/government agencies in the sector will ensure that the messages of the survey are disseminated or heard.
- *Process documents:* These are compilations of the process, resources, skills and lessons from a survey. A process document is an invaluable aid for other organisations (both governmental and NGOs) seeking to replicate your model.
- *Training workshops:* Training workshops may be conducted for other groups interested in replicating your effort. Arghyam is in the process of initiating a training programme based on the ASHWAS process document.

Table 29: Budget for advocacy phase

Tasks	Actual cost (Rs.)
Releasing reports	65,485
Media research and publication	76,500
TOTAL	1,41,985

- *Media:* Good media relations help spread the word about the survey, its relevance, process and advocacy messages. However, it is important to avoid sensationalising the survey as this could affect your relationship with the stakeholders you may want to work.

See Table 30 for the list of target groups, the advocacy goals and lessons learnt.

7.4 Time, Skills and Budget

Advocacy is a long-term process that begins with the release of survey findings and continues through the dissemination phase. Arghyam spent at least eight months on advocacy (see Tables 29 and 31). The skills required for this phase include:

- Grasp of the local language
- Domain knowledge; an understanding of local, decentralisation and governance issues
- Good communication, networking and advocacy skills

Figure 8: Outward advocacy strategies

Table 30: Target groups and advocacy strategies

Level	Organisation	Aims	Dos	Don'ts
Central Government	Department of Drinking Water and Sanitation (DDWS), GoI	To reveal community perceptions of government programmes To re-examine existing methodologies for monitoring and evaluation	Presentation, letters	Avoid being confrontational; try to work with the system. Identify and align with change-makers in the system
	Planning Commission of India	Specific policy changes To improve transparency and efficiency in public spending by institutionalising citizens' surveys	Presentation, specific recommendations	
	Finance Commission of India	Specific policy changes To improve transparency and efficiency in public spending by institutionalising citizens' surveys	Presentation, specific recommendations	
	National Family Health Survey (NFHS), Ministry of Health and Family Welfare	To provide inputs for the NFHS questionnaire on water, sanitation and health	Presentation, letters	
State Government	Ministry of Rural Development and Panchayati Raj	To provide a brief on the status and key gaps in WATSAN programmes. To address the gaps through policy recommendations. To implement an action plan to improve WATSAN programmes in the surveyed villages	One-on-one meetings with Secretary, Directors. Keep key officials abreast of developments in the dissemination process. Submit action plans as they emerge from GP meetings	
Other government organisations, NGOs	Various levels	To replicate ASHWAS	Process document toolkit on replicating ASHWAS, orientation workshops, training	
Media	National and regional	To promote the concept of citizen surveys	Media briefings Fellowships	Avoid media sensationalism, which could result in blame game and no action

Table 31: Time and skills required in advocacy phase

Tasks	Time taken (months)	Outsourced resources	Arghyam personnel	Total person months*
Releasing reports	0.5		Programme Manager (Dissemination) + support from the rest of the organisation	0.5
Dissemination (Refer to Chapter 6)				
Media research and publication	3	Communication for Development and Learning, Bengaluru	Programme Manager (Dissemination) Programme Member (Statistics & Survey) Programme Manager (Sector Domain and Training Knowledge)	1
TOTAL RESOURCES				1.5

* Does not include time spent to finalise vendors

Annexures

ANNEXURE A1

HOUSEHOLD QUESTIONNAIRE

Questionnaire No. Date:

Name of the district	Name of the taluka	Name of the Gram Panchayat	Name of the village	Interviewed by
Supervisor	Date of interview (DD/MM/YY)	Time of interview Start time: Hour…….Min …… (AM/PM)	Time of interview End time: Hour…….Min….. (AM/PM)	Spot checked Yes : 1/ No : 2
Spot checked by	Back-checked Yes : 1/ No : 2	Back-checked by	Scrutinised by	

SECTION I : Family information

Hello, I _____ have come from _____. I would like to know the quality of water and sanitation services provided by the Gram Panchayat. Your experiences and opinions will help assess the quality of the services. I prefer to speak to an adult in your family.

Note: Speak to an adult (above 18 years).

1. Details of the head of the household:	Name	Age	Gender	Education Level[a]	Occupation[b]	Age

2. Details of respondents:	Name	Relationship with head of the household	Age	Gender Male : 1/Female : 2	Education Level	Vulnerability, if any (pregnant/disabled) Yes : 1/ No : 2

[a] Illiterate-1, Primary-2, Middle school-3, High school-4, P.U.C-5, Graduate-6, Post-graduate-7, Neo-literate-8

[b] Agriculture- 1, Non-agriculture- 2

3.Telephone number							
4. Religion *(please tick)*	Hindu	Muslim	Christian	Sikh	Jain	Other	
5. Social category *(please tick)*	SC	ST	OBC	BC	General		
6. Do you have any of the cards (only in rural areas)? *(please tick)*	APL	BPL	No card				
7. Demographic profile *(please tick)*	No. of adults (male)	No. of adults (female)	Male children	Female children	Total		
8. Do you have any of these vulnerable people in your house? *(please tick)*	Disabled	Pregnant	Aged (greater than 60 years)				

SECTION II : Water facilities

II a. Source of water, supply systems and purpose, distance, method of storage, expenses etc.

1. Where do you get water from *(multiple responses allowed)*: Please respond for all sources you have used for getting water in the last year *(please tick)*

	Tick all sources for each purpose		***Main source of water*** *(tick only the source used to collect most of the water for that particular use most of the time)*	
	Drinking/ cooking	Other non-potable domestic uses	Drinking/ cooking	Other non-potable domestic uses
Public tap				
Multiple taps connected to a cistern				
House connection				
Hand pump				
Tube well/ bore well				
Open well (Public)				
Open well (Private)				
River Stream				
Tanker				
IP Set				
RWH				
Bottled Water				
Other (Please Specify)				

Note: All remaining questions to be answered only for your main supply system							
2. Is your water source located far from your house? *(please tick)*	Yes: 1			No: 2			
3. Distance to water source *(please tick)*				Drinking		Other purposes	
	S. No.	Distance (metres)	Terrain	Normal period	During scarcity	Normal period	During scarcity
	1.	*<100*	Hills				
	2.	*<100*	Plains				
	3.	*100- 500*	Hills				
	4.	*100-500*	Plains				
	5.	*>500*	Hills				
	6.	*<500*	Plains				
4. Who fetches the water in your house ? (multiple responses allowed) *(please tick)*	Men	Women	Male Children	Female Children	Aged >60/ disabled person/pregnant woman (if applicable)	Workers/ helpers	
	1	2	3	4	5	6	
5. How much time does it take to reach the source and fetch water for domestic needs (in hours and minutes)?	Normal Period			During scarcity			
6. What would the person fetching the water be doing if s/he spent less time collecting water?							
Note: Question 7 pertains <u>only</u> to aged/disabled/pregnant woman in the house, if any							
7. What are the problems s/he faces while fetching water? *(please tick)*	Too far to walk, cannot collect water as frequently as the others	Unable to collect enough water for my needs	Water source is near, but I am unable to wait in the long queue	No problem			
	1	2	3	4			

Note: Answer question 8.1 to 8.8, only if your main water source is piped water (Piped water refers to public taps, house connections or cisterns with multiple taps)					
8.1 How frequently is water supplied?	Once everyday	Twice daily	Alternate days	Once a week	Less often
	1	2	3	4	5
8.2 Is the frequency of water supply sufficient for your household needs? *(please tick)*	Yes: 1		No: 2		
8.3 When water is supplied, for how long do you get water from these sources? *(please tick)*	<One hour	One-two hours	Two-four hours	Four-six hours	All day
	1	2	3	4	5
8.4 How convenient is the timing of supply? *(please tick)*	Regular/convenient	Pre-determined/ convenient	No timing/water is available all the time	Highly irregular/very inconvenient	
	1	2	3	4	
8.5 How is the pressure of water from the supply system? *(please tick)*	High: 1	Medium: 2	Low: 3	Depends on the season: 4	
8.6 Does the water supply system have a functional tap? *(please tick)*	Yes: 1		No: 2		
8.7 Is there a platform around the water supply system whereby the water drains out? *(please tick)*	Yes: 1		No: 2		
8.8 Is it clean around the water supply system? *(please tick)*	Yes: 1	No, there is stagnant water around the supply system: 2	No, there is garbage thrown close to the supply system: 3		

Note: The following questions 9.1 to 9.2 are to be answered only if you receive water from an individual house connection			
9.1. Where is the tap located? *(please tick)*	Inside my house	Inside my premises/ compound	Outside my premises/ compound
	1	2	3
9.2 Do you have a water meter in your house?	Yes: 1	No: 2	If yes, what was the consumption in the previous month? _____litres

Note: Answer the following questions 10.1 to10.3 only if your main source is a cistern with multiple taps.				
10.1 How many taps does the cistern have? *(please tick)*	One	Two	Three	Four
	1	2	3	4
10.2 Are they all functional? *(please tick)*	Yes: 1		No, only some of the taps are working: 2	
10.3 Is the cistern open or closed? *(please tick)*	Open: 1		Closed: 2	

Note: Answer the following questions11.1 to 11.3 only if your main source is a hand pump			
11.1 How reliable is the hand pump? *(please tick)*	Very reliable, get adequate water every day	Not very reliable, water comes intermittently	Highly unreliable
	1	2	3
11.2 Is there a platform around the hand pump, for draining the water? *(please tick)*	Yes: 1	No: 2	

11.3 Is the surrounding of the hand pump clean? *(please tick)*	Yes:1	No, there is stagnant water around the pump supply system :2	No, there is garbage thrown close to the hand pump : 3
Note: Answer the following questions 12.1 to 12.3 <u>only</u> if your main source dug well or open well			
12.1 How is the water drawn from the well? *(please tick)*	Manually, with pulley	Manually, without pulley	Through a motor
	1	2	3
12.2 Is there a parapet around the well for safety? *(please tick)*	Yes: 1	No: 2	
12.3 Is the well covered? *(please tick)*	Yes, there is a steel/aluminum cover with a lid: 1	Yes, there is a mesh cover: 2	No, it is uncovered: 3
Note: Answer the following question 13 <u>only</u> if your main source is a river, lake, pond, stream or channel			
13. At which point in the river/pond/stream do you collect your drinking water? *(please tick)*	Downstream where clothes/utensils/ animals are washed	Upstream where clothes/utensils/ animals are washed	Don't know
	1	2	3

II b. Quantity of water consumed

14. How do you store the water? *(please tick)*	Pots, *bindige, matki*	Bins, cans	Buckets	Sump, OHT*	Other (please specify)
	1	2	3	4	5
Volume of the vessel	_____ Litres				

* If respondents are storing water in a sump or overhead tank, get the average number of vessels they are using/consuming

15. Average number of vessels of water used per day (enter the actual numbers):	Drinking/cooking	Cleaning/washing/bathing/ toilets etc.	Total

16. Is water supplied/ available sufficient for your daily needs? *(please tick)*	Sufficiency/availability	Drinking and cooking	Non-potable domestic purposes
	Water is sufficient throughout the year	1	1
	Water is sufficient throughout the year except during summer	2	2
	Water supply completely stops during summer	3	3

II c. Coping mechanisms

17. For how long did you face a water shortage in the last 12 months? *(please tick)*	Less than one month	One to three months	Three to five months	More than six months	Situation did not arise*
	1	2	3	4	5

* If the answer is option 5 then skip questions 18-22 and go directly to question 23

18. During the period of water shortage, what steps did you take? *(please tick)*	Use less water	Try to get water from alternate sources where the water quality may not be good	Try to get water from alternate safe sources	Depend on water supplied by the government through tankers	Purchase water	Migrate
	1	2	3	4	5	6

II d. Storage of water

19. Do you store water for more than one day? *(please tick)*	Yes: 1			No: 2 (go to question 22)		
20. If yes, what is the reason for storing? *(please tick)*	Water source is too far away			Irregular supply		
	1			2		
21. Where do you store your water? *(please tick)*	Pots, *bindige*, bucket or *matki*	Bins, cans	Tank or drum outside	Tank or drum inside	Sump, OHT*	Other **
	1	2	3	4	5	6

* If respondents are storing water in a sump or overhead tank, get the average number of vessels they are using/consuming

** If other, please specify

22. What problems do you face in storing water? *(please tick)*	Not enough space	Not enough vessels	Quality deteriorates	No problems	Other* (please specify)
	1	2	3	4	5
	*If other, please specify				

II e. Water tariff and affordability

23. How much tariff do you pay? *(please tick)*	Do not pay*	Rs. 25 or less	Rs. 25-50 per month	>Rs. 50 per month	We pay, but don't know the actual amount	We pay it as part of property tax	GP does not charge
	1	2	3	4	5	6	7

*If the answer is option 1 Skip question 24, go to question 25

24. Do you get a receipt from the GP for the tariff you pay? *(please tick)*	Yes: 1			No: 2		
25. What are your reasons for not paying tariff? *(please tick)*	Don't know how much and whom to pay	Services are poor	I don't need to; water should be free	There are no conse-quences if I don't pay	GP does not charge water tariff	Other* (please specify)
	1	2	3	4	5	6
	*If other, please specify					
26. How much extra do you spend per month in case of scarcity? *(please tick)*	Nothing	Rs. 10-25		Rs. 25-50	>Rs. 50	
	1	2		3	4	
27. Overall, how much did you spend on water last year (tariff + water from private sources)?	Rs._____					
28. Do you think water is too expensive? *(please tick)*	Yes: 1			No: 2		
II f. Water quality and satisfaction levels						
29. Do you think your water is safe? *(please tick)*	Yes: 1			No: 2		
30. Do people wash clothes/utensils/animals near your water source? *(please tick)*	Yes: 1			No: 2		

31. What are the water quality issues in your village? (multiple responses allowed) Surveyor should not read out all options) *(please tick)*	Fluoride	Nitrate	Arsenic	Turbid water (muddy)	Salty	Excessive iron
	1	2	3	4	5	6
	Colour	Odour	Bacterial contamination	No issues	Don't know	
	7	8	9	10	11	
32. How do you treat your drinking water? (multiple responses allowed) *(please tick)*	Boil	Filter with a cloth	Use a commercial water filter	Add chlorine	Add alum	No treatment / I just cover with a lid
	1	2	3	4	5	6

II g. Management of institutions

33. In the last one year, have you encountered any problems regarding the following issues? (multiple responses allowed) *(please tick)*	Irregular water supply	Non-supply of water	Bad quality water	Broken taps/ pipes	Delay in repairs	Pump/ motor failure	Power failure	Other*
	1	2	3	4	5	6	7	8
	*If other, please specify							

34. In case of problems related to water supply, who did you contact? *(please tick)*	Gram Panchayat	Village Water and Sanitation Committee	Water Man	NGOs	Head. of the community /Elected person	Nobody	Other*
	1	2	3	4	5	6	7

	* If other, please specify			
35. Was the problem solved? *(please tick)*	Yes: 1		No: 2	
36. How many days did it take to solve the problem?				
37. Does everyone get an equal amount of water? *(please tick)*	Yes: 1		No: 2 (go to question 38)	
38. If no, what do you think is the reason for this? *(please tick)*	Distance from the water source	Different elevations	Other*	
	1	2	3	
	*If other, please specify			
39. What, in your opinion, is the capacity of the GP? *(please tick)*	GP is only a body on paper, not effective	GP puts up pamphlets sent by district and state governments for IEC	Each GP member takes responsibility for his/ her ward, to talk to people about WATSAN practices	GP mobilises not only the ward members, but different committees (VWSC, VHSC) and other government functionaries (teachers, nurses, etc) to build awareness and monitor change
	1	2	3	4

Section III : Sanitation, liquid and solid waste management

III a. Access and usage

1. Do you have a toilet in your house? *(please tick)*	Yes: 1			No : 2			
2. If no, what are the reason(s) for not constructing one? *(please tick)*	Affordability/ financial constraints	Lack of space	Not needed/not a priority	Prefer open defecation	Cultural reasons	Water scarcity	Other*
	1	2	3	4	5	6	7
	*If other, please specify						
3. Do you know about any government schemes on sanitation? *(please tick)*	Yes : 1			No : 2			
4. Is there a community toilet in the village? *(please tick)*	Yes : 1		No: 2		Don't know: 3		

5. Where do you normally defecate? (multiple responses allowed) *(please tick)*	Respondent categorie(s)	Household toilet	Community toilet	Shared toilet	Open defecation (Go to Question 26)
		1	2	3	4
	General				
	Vulnerable person, (aged/disabled person/pregnant woman/ person with special needs)				

Questions 6 to19 are to be answered by households who have or use a toilet					
6. How did you construct the toilet? (multiple responses allowed) *(please tick)*	Own money	Government/NGO funded (name of the project_____)	Govt. incentive	Loan (bank, money lender, SHG, relatives etc)	
	1	2	3	4	
	Equal contribution (own funds)from all families (in case of shared toilet)	Unequal contribution (own funds)from all families (in case of shared toilet)	Don't know	Not applicable, it is a community toilet	
	5	6	7	8	
7. If funded by govt./NGO what percentage of funds came from govt.? *(please tick)*	<25%	25–50%	50–75%	>75%	100%
	1	2	3	4	5
8. What is the distance of the toilet from the closest water source/water body? *(please tick)*	Very close	<10 m	>10m		
	1	2	3		
9. Do you use the toilet? *(please tick)*	Yes:1	No: 2 (go to Question 12)			
10. Do all the members in your family use the toilet? *(please tick)*	Yes : 1	No : 2 (go to Question 12)			
11. (In addition to using toilets), do you or your family members also defecate in the open? *(please tick)*	Daily	Sometimes	Rarely		
	1	2	3		

12. What are the reasons for not using the toilet *(please tick)*	Not clean, not hygienic, smells	Too small and inconvenient	Open defecation is more convenient	No water
	1	2	3	4
	Damaged/ defunct/ not working properly	Do not know how to use it	Don't use while away at work	Difficulties for the younger children/aged to use it
	5	6	7	8
Note: Question 13 To be asked <u>only</u> to the aged/differently-abled person or pregnant woman in the household				
13. What problems, if any, do you face while using the toilet? *(please tick)*	It is too far	It is too small and inconvenient	Toilet has no water, need to carry water for cleaning	Other*
	1	2	3	4
	* If other, please specify:			

14. Who cleans the toilet? (multiple responses allowed) *(please tick)*	Household (HH) toilets					Shared toilets	
	Wife	Husband	Son	Daughter	Family members	Responsibility shared between HH	Paid worker
	1	2	3	4	5	6	7

III b. Household toilets					
15. Reasons for owning a toilet? *(please tick)*	Privacy/dignity/safety		Convenience		Health
	1		2		3
	Persuaded by GP representative		Social pressure		Other*
	4		5		6
	*If other, please specify				
16. What type of toilet* do you have? *(please tick)*	Pit latrine	Ventilated improved pit latrine	Flush	Dry toilet	Compost/ ecosan toilet
	1	2	3	4	5
*** Conventional pit latrine:** A latrine that does not require water for functioning, although a small amount may be used to clean the squat plate occasionally; **Ventilated improved pit latrine:** An improved conventional pit, latrine slightly offset from the pit. A tall vertical vent pipe gradually tapered towards the pit with a fly-screen fitted outside the superstructure traps flies and reduces odour; **Flush toilet:** A water-dependent latrine that uses water to flush out excreta from a bowl that consists of a water seal generally known as a trap. These latrines may be further categorised as pour flush and mechanical flush latrines.					
17. Where does the wastewater go? *(please tick)*	Single pit	Twin pit	Soak pit	Septic tank	Underground drainage/sewerage
	1	2	3	4	5
	To the fields	Manual scavenging	Open drains	Don't know	
	6	7	8	9	

III c. Awareness and financing

18. Who motivated you to build a toilet? *(please tick)*	GP/VWSC	TSC campaign	ASHA/VHSC	Neighbours/ friend	SHG
	1	2	3	4	5

ASHA: Accredited Social Health Activists, VHSC: Village Health and Sanitation Committee

19. If you learnt about sanitation (toilet) from the GP, what did the GP do to motivate you to build toilets? (multiple responses allowed) *(please tick)*	Organised meetings to create awareness	Organised exposure visits to well-covered villages	Door to door campaigns
	1	2	3
	Street plays/wall paintings with the help of SHGs/NGOs	Sanctions/action (like withholding ration card, cutting off electricity etc.) taken against those who do not construct toilets	
	4	5	

III d. Community toilets

20. How much do you pay for the community toilets? *(please tick)*	Do not pay	Pay per visit per person (Rs.)	On a monthly basis (Rs.)
	1	2	3
	If 2 and 3, enter the value(s)		

21. Who cleans and maintains the community toilet?	Gram Panchayat	SHG/village committee	Don't know	Nobody
	1	2	3	4

III e. Shared toilets

A shared toilet is one that is owned/used by more than one family, with each family possessing a key to the toilet

22. What are your reasons for using a shared toilet? *(please tick)*	No money for a household toilet	More convenient and hygienic than community toilets	No space for a household toilet
	1	2	3
23. How many families share this toilet? *(please tick)*	Two families	Three families	More than three families
	1	2	3

24. Is the arrangement satisfactory? *(please tick)*	Yes: 1	No: 2

III f. Open defecation

25. Do you face any problems during open defecation? *(please tick)*	Yes: 1	No: 2

25a. If yes, what are the frequently encountered problems during open defecation? *(please tick)*	Respondent categories	Unsafe	Uncomfortable	Unhealthy	Water problem	Possible to go only in early morning/ late evening	Embarrassing	Other*
		1	2	3	4	5	6	7
	General							
	Aged/ disabled person/ pregnant woman							

*If other, please specify

III g. Liquid waste management

26. Is there a drain in front of your house? *(please tick)*	Yes: 1				No: 2			
27. How do you dispose of household wastewater (other than sewage) from the following sources? *(please tick)*	Open drain(s)	Closed and/or underground drains	On to the streets	To a water body	Cesspool /puddle	Soak pit	Kitchen garden	Don't know
	1	2	3	4	5	6	7	8
Washing clothes								
Bath water								
Kitchen refuse								

28. If there are drains, where do they lead to? *(please tick)*	End of street	Cesspool/puddle	Street (puddles)	To a water body
	1	2	3	4
	Treatment unit	Soak pit	Don't know	
	5	6	7	
29. What is the state of drains in your village? *(please tick)*	Unclean, filled with solid waste	Dilapidated	Somewhat clean	Clean, well maintained
	1	2	3	4

30. How often are the drains cleaned? *(please tick)*	Daily	Once a month	Once in 6 months	Once a year	Never
	1	2	3	4	5

31. Who maintains the drainage system? *(please tick)*	Gram panchayat staff	Village Water and Sanitation Committee	Voluntary organisation/SHG	Individual households
	1	2	3	4

III h. Solid waste management

32. Where do you dispose household garbage? *(please tick)*	Dustbin	Dumping in own land (away from house)	Dumping on the roadside/street	Compost	Burning
	1	2	3	4	5
	Dumping into drains	Gram panchayat picks it up	In the water body (well/pond/stream)	Don't know	
	6	7	8	9	

33. What is the overall sanitary condition of the village? *(please tick)*	Generally unclean	Clean at some places	Clean everywhere
	1	2	3
34. What are your suggestions to improve water and sanitary conditions in your village?			

Section IV : Health and hygiene

IV a. Health

1. In the last one year, has anybody in your house been affected by the following illnesses? *(please tick relevant code)* *There were no illnesses*:1 *Affected by illness*:2 *Died due to illness*:3	Illness	Adult	Infant (0-12 months)	Child (1-5 years)
	*Diarrhoea/ dysentery**	1 2 3	1 2 3	1 2 3
	Cholera	1 2 3	1 2 3	1 2 3
	Typhoid	1 2 3	1 2 3	1 2 3
	Gastroenteritis	1 2 3	1 2 3	1 2 3
	Jaundice	1 2 3	1 2 3	1 2 3
	Vector-borne diseases (dengue, chikungunya, malaria)	1 2 3	1 2 3	1 2 3
	Dental fluorosis	1 2 3	1 2 3	1 2 3
	Other (please specify)	1 2 3 1 2 3 1 2 3	1 2 3 1 2 3 1 2 3	1 2 3 1 2 3 1 2 3

* The typical symptom of diarrhea is watery stools. If the stool is bloody, has mucous and is accompanied by cramping and fever, the person is probably suffering from dysentery

IV b. Hygiene

Water related hygiene

2. How do you take drinking water out of the vessel? *(please tick)*	*Pour from the vessel*	*Put the glass/cup into the vessel*	*Use a dipper (ladle with a cup at the end)*	*Use a tap*	*Other**
	1	2	3	4	5
	*If other, please specify				

Sanitation related hygiene					
3. Do you wash your hands? *(please tick)*	*After defecation (or handling baby faeces)*	No	Yes, only with water	Yes, with soap	Yes, with ash/ soil
		1	2	3	4
	Before cooking	No	Yes, only with water	Yes, with soap	Yes, with ash/ soil
		1	2	3	4
	Before eating	No	Yes, only with water	Yes, with soap	Yes, with ash/ soil
		1	2	3	4
	After handling pesticides	No	Yes, only with water	Yes, with soap	Yes, with ash/ soil
		1	2	3	4

4. Where do you dispose of the children's faeces? *(please tick)*	Dustbin	Drain	Toilet	In the street/ open	Not applicable
	1	2	3	4	5

IV c. Gender Issues

Note: These questions must be asked <u>only</u> to women by women

Gender and hygiene

5. Are there any adolescent girl(s) in your house? *(please tick)*	Yes: 1	No: 2

6. During periods, what type of protection do you use? *(please tick)*	Respondent categories	Cloth	Cotton (go to Question 10)	Sanitary napkins (go to Question 11)
	Women	1	2	3
	Adolescent girls	1	2	3

7. How do you wash that cloth? *(please tick)*	With water only	With hot water only	With soap/ soap powder	With bleaching powder	Throw the cloth after each use
	1	2	3	4	5

8. How often do you use a fresh cloth for this purpose? *(please tick)*	Everyday	Every month	Once in 2-3 months	Once in 6 months	Once a year
	1	2	3	4	5

9. Where do you dry the cloth? *(please tick)*	Out in the sun		Outside in the shade where nobody can see		Inside the house
	1		2		3
10. What are your reason(s) for not using sanitary napkins? *(please tick)*	Expensive	Not easily available	Accustomed to cloth/cotton	No other alternative	Other*
	1	2	3	4	5
	*If other, please specify				
11. How do you dispose of it? *(please tick)*	Throw it into the toilet pit		Throw it away into the fields		Burn it
	1		2		3
12. In the past one year, did you or your adolescent daughter(s) experience any of the following symptoms? *(please tick)*	*For Women*				
	Burning sensation while urinating		Urge to urinate frequently		White or cloudy urine with or without blood
	1		2		3
	Thick white discharge, with or without odour		Digestion problems and acidity		Stomach cramps from controlling urination
	4		5		6
	For Adolescent girls				
	Burning sensation while urinating		Urge to urinate frequently		White or cloudy urine with or without blood
	1		2		3
	Thick white discharge, with or without odour		Digestion problems and acidity		Stomach cramps from controlling urination
	4		5		6

13. If you defecate in the open, what problems do you face? *(please tick)*	Unsafe	Uncomfortable	Water problem	Only possible to go early in the morning/late evening
	1	2	3	4
	Unhealthy	Embarrassment	Other*	
	5	6	7	
	*If other, please specify			
14. What is the additional burden on women due to individual/shared toilets (multiple responses allowed) *(please tick)*	Need to collect more water for use in the toilet	Need to clean it frequently	No burden	
	1	2	3	
15. Does the adolescent girl face any of the following problems *(please tick)*	Lack of awareness on menstrual health		Yes: 1	No: 2
	No toilet in school		Yes: 1	No: 2
	Stopped school due to lack of toilet in school		Yes: 1	No: 2
	Misses school to be able to collect water		Yes: 1	No: 2
Gender and decision making				
16. Who takes decision(s) related to WATSAN in your household? *(please tick)*	Only the men	Men, after consulting women sometimes	Both men and women together	Only the women
	1	2	3	4
17. Do you participate in village-level decision-making meetings on WATSAN? *(please tick)*	Yes, I make sure my opinions are heard	I attend most meetings and voice my concern, but nobody listens	I attend meetings, but do not participate	I don't attend meetings
	1	2	3	4

18. Is there an ASHA worker in your village? *(please tick)*	Yes: 1		No: 2	
19. What is the level of your interaction with ASHA? *(please tick)*	ASHA workers regularly meet us in person and explain health issues	ASHA workers hold frequent meetings to explain health issues	ASHA workers put up posters	No interaction with the ASHA workers
	1	2	3	4

ANNEXURE A2

GRAM PANCHAYAT (GP) QUESTIONNAIRE			
Name of the GP	Name of the taluka, district, state	Whether a Nirmal Gram Puraskar (NGP) village?	
		Yes: 1	No : 2
a. Name of Villages and habitations under the GP			
* **Note: If the number of villages exceed, please add more sheets**			
b. Population of the GP surveyed	Male	Female	Total
c. Total number of households in the GP		d. Total number of BPL households in the GP	
e. Literacy levels (in %) in the GP	Male	Female	Total
f. Caste-wise break-up	Upper caste	SC/ST	OBC
g. Occupations in the GP (please name top three)	Occupation 1	Occupation 2	Occupation 3
h. Number of schools	Primary	Upper primary	Secondary
i.Number of *anganwadis*		j. Medical facility: PHC/sub-centre	

Section I : Water

I a. Water supply systems

1. Functional/ dysfunctional water supply systems		**Village 1**	**Village 2**	**Village 3**	**Village 4**	**Village 5**	**Village 6**
	Name of the village						
	Total number of water supply systems						
	Functional (number)						
	Dysfunctional (number)						
	Number of household with individual connections						
	Number of public stand posts						

Note: If the number of villages exceed six, please add more sheets to the above table

2. Please provide details about the main and functioning water supply systems in the GP (Use separate sheet for each village) **Codes for water supply systems* *1. OHT (Over Head Tank)* *2. Cistern with multiple taps/ MWS* *3. Hand pump* *4. Tube well/bore well* *5. Open well* *6. Pipeline from outside the village* *7. Tanker* *8. Other (please specify)*	**GP** *(If the number of water supply system in your village exceeds six, please add more column)*		**Village 1**					
			Water supply system a	**Water supply system b**	**Water supply system c**	**Water supply system d**	**Water supply system e**	**Water supply system f**
	Name of system *(please indicate code*)*							
	Year of installation							
	Cost of installation (Rs.)							
	Name of the government scheme							
	Source of water for this system							
	What is the main purpose of water from this source?	*Drinking and cooking*						
		Washing clothes						
		Washing utensils						
		Washing animals						
	Quantity of water supplied by this system litres per day							
	Action taken to protect quality of water in this system							
	Action taken to ensure sustainability of supply–recharge, watershed development, etc.							

3. During the previous year, has there been any shortfall/disruption in the water supply by the GP? *(please tick)*	Yes:1		No: 2	
4. If yes, what in your opinion is the reason for the shortfall/disruption in water supply? *(please tick)*	Water source has dried up	Source has become depleted	Water quality is bad	Increase in population
	1	2	3	4
	Poor maintenance	Lack of finances	Electricity problems	Lack of staff
	5	6	7	8
	Irregular operations	Delay in repairs	Frequent breakdown of motors	
	9	10	11	

Ib. Equity in water supply

5. Are all citizens getting equal quantity and quality of water? *(please tick)*	Yes: 1		No: 2	
5a. If no, please elaborate *(multiple responses allowed)*	**Problem**		**Problem exists** *(please tick)*	**No problem** *(please tick)*
	Distance: Water does not reach equally to all streets /locations	1		
	Elevation: Habitations on elevated areas do not get enough water	2		
	Income: The poorest people have less access to water	3		
	Caste: Lower caste population get less water	4		
6. If all citizens do not get equal quantity and quality of water, what are the challenges faced by the GP? *(please tick)*	GP does not have enough funds to reach water to all streets/areas	Water sources are drying up; there is not enough water for all	Habitations in the GP are very far apart.	Quality of water is not good
	1	2	3	4

Ic. Operation and maintenance

7. Number of staff in the GP	

8. Who is in charge of water supply and O&M *(please tick)*	GP/VWSC	Sub-contracted to third party	Village committee (not related to government)	Other*
	1	2	3	4
	*If other, please specify			
9. Is the GP staff technically trained to manage O&M effectively? *(please tick)*	No training to any of the GP staff	Insufficient training	Effective training given	
	1	2	3	
10. Staff salaries *(please tick)*	GP staff has not got salary for more than 6 months	GP staff has not got salary for more than 3 months	GP staff gets salary in time	
	1	2	3	
11. What steps are taken in case of O&M issues/ breakdown *(please tick)*	Very few, due to lack of funds, spare parts	Small problems are repaired fast, but bigger problems take time due to lack of skills and funds	For bigger problems like pump burnout, we act fast as the Taluka Panchayat/ Zilla Panchayat reacts very fast to our request	For bigger problems like pump burnout, we seek additional contribution from the community
	1	2	3	4
12. How do you measure the daily supply from different water systems? *(please tick)*	Do not measure: 1	Approximation: 2	Use a water meter to measure daily supply: 3	
	1	2	3	
13. Do you have water testing kit to assess quality of water? Have you used it *(please tick)*	No kit	Kit is present, people not trained/ kit not used	Kit is present and used, but no follow-up action	Kit present and used, regular follow-up and action
	1	2	3	4
14. What was the result of the test? *(please tick)*	Water is fit for drinking: 1		Water is not fit for drinking: 2	

15. If the water is unfit for drinking, state the reason(s). *(please tick)*	Fluoride contamination	Nitrate contamination	Bacterial contamination	Other*		
	1	2	3	4		
	*If other, please specify					
16. What measure(s) were taken to tackle this problem? *(please tick)*	Discussed at the GP meeting	Created awareness among villagers	Water sample has been sent for laboratory testing	We have started to use other sources	Other*	
	1	2	3	4	5	
	*If other, please specify					
17. Responsibility and training for testing water quality. *(please tick)*	Who is responsible?	Waterman	School teacher	*Anganwadi* teacher	ASHA	ANM	Other*
		1	2	3	4	5	6
		*If other, please specify					
	Any training received?	Yes: 1		No: 2			

Section II : Sanitation

II a. Household practices: Open defecation (OD) and toilet usage

18. What is the percentage of OD in your GP? *(please tick)*	No households practice OD	<25%	25-50%	51-75%	>75%	All households
	1	2	3	4	5	6
19. What percentage of households in the GP has toilets? *(please tick)*	None of the households have toilets	< 25%	25-50%	51-75%	>75%	All households
	1	2	3	4	5	6

20. What steps have the GP taken to motivate people to construct and use toilets? *(please tick)*	Organise meetings to create awareness	Organise exposure visits to villages with high sanitation coverage	Door-to-door campaigns
	1	2	3
	Street plays/wall paintings, with help from NGOs/SHGs	Each ward member takes responsibility for his/her ward	Sanctions (withholding ration card, cutting off electricity, etc) against those who do not construct toilets
	4	5	6
21. How do people finance their toilets? *(multiple responses allowed)* *(please tick)*	Own money	Government/NGO-funded (Specify name of the project)	Government incentive
	1	2	3
	Loan (bank, money-lender, SHG, relatives, etc)	Equal contribution (own funds) from all families (in case of shared toilet)	Unequal contribution (own funds) from all families (in case of shared toilets)
	4	5	6
22. What percentage of toilet owners uses toilets?			

23. What are the reasons for not using toilets? *(please tick)*	Not clean/not hygienic, odour	Too small/ inconvenient	Open defecation is more convenient	No water
	1	2	3	4
	Damaged/ defunct/not working properly	Do not know how to use it	Do not use while away at work	Difficult for young children/aged to use
	5	6	7	8
	Other*	*If other, please specify		
	9			

24. Community toilets *(Please mention the numbers)*	How many community toilets are there in the GP?			How many community toilets are functional?		
24 a What percentage of people use community toilets? *(please tick)*	No one	1-10%	11-25%	26-50%	51-75%	>75%
	1	2	3	4	5	6

24 b Who is responsible for cleaning community toilets? *(please tick)*	GP	SHG/ village committee	Designated households	Nobody
	1	2	3	4

25. Toilets in school and *anganwadis* *(Please mention the numbers)*		Primary/ upper primary school	Secondary/ higher secondary school	*Anganwadi*
	Toilets with water supply			
	Toilets without water supply			
	Separate toilet for boys and girls			
	Functional toilets			
	Without toilets			

Note: Surveyor must visit, observe and then record state of toilets

II b. Sewage disposal

26. What are the prevalent methods of sewage disposal in the GP? *(multiple responses allowed)* *(please tick)*	Single pits	Twin pits	Soak pits	Septic tanks
	1	2	3	4
	Underground drainage/sewerage	To the fields	Manual scavenging	Open drains
	5	6	7	8

II c. Wastewater disposal					
27. Does the domestic wastewater pollute any waterbody in the GP? *(please tick)*	Yes : 1			No : 2	
28. How is domestic wastewater (other than sewage) disposed? *(multiple responses allowed) (please tick)*	Open drains	Closed and/or underground drains		No system: wastewater goes to open streets (stagnant puddles in the street)	To a waterbody
	1	2		3	4
	Soak pits made by households	Kitchen garden		Don't know	
	5	6		7	
29. In case the GP has storm water/wastewater drains, what percentage of the GP is covered by it?					
30. On an average, most drains in the GP lead to: *(please tick)*	End of street	Cesspool	Water body	Treatment plant	Don't know
	1	2	3	4	5
31. Who is responsible for maintaining and cleaning drains? *(please tick)*	GP staff	Village Water and Sanitation Committee	Voluntary village committee / SHG	Households	Other*
	1	2	3	4	5
	*If other, please specify				

32. How frequently are these drains cleaned? *(please tick)*	Once a week	Once a month	Once in 3 months	Once in 6 months	Never
	1	2	3	4	5

II d. Solid waste management

33. How does the GP manage its solid waste? *(please tick)*	Dustbins	Dumping in front of houses/by the roadside	Compost pit	Burning
	1	2	3	4
	Into the drains	GP collects and dumps outside the village	Dumping in the nearby water body: river, well, pond or stream	Segregate solid waste (plastics, etc)
	5	6	7	8
34. Does the community pay for solid waste management? *(please tick)*	Yes:1		No: 2	
	If yes, what amount does a household pay per month? Rs. _____			

Section III : GP finances						
35. GP finances for the last financial year:	Revenue heads	Rs.	Total amount expected for the year (INR)	Expenditure heads	Rs.	Balance with GP (Rs.)
	Scheme1					
	Scheme 2					
	Scheme 3					
	Scheme 4					
	Scheme 5					
	Scheme 6					
	Total funds raised by the GP (taxes, etc)			Total expenditure from GP-raised funds		
	Property tax			Staff salary		
	Water tax			Sitting fees for GP members		
				Electricity bill*		
				Other (please specify)		
	Total funds			**Total expenditure**		**Total balance**
Please indicate whether the GP has paid its full electricity bill ((please tick)*	Yes : 1			No: 2		

36. What is the water tariff (per month per household) fixed by the GP?	Tariff	House connection	Public stand post			
	No tariff	1	1			
	<Rs. 20	2	2			
	Rs. 20-40	3	3			
	Rs. 40-60	4	4			
	>Rs. 60	5	5			
37. How does the GP fix the water tariff? *(please tick)*	Based on funds required	Discussion with the gram sabha	Included water tax in property tax	As directed by the Zilla Panchayat/ Taluka Panchayat		
	1	2	3	4		
38. What percentage of households pays water tariff? *(please tick)*	Nil	<10%	10-30%	30-60%	60-80%	>80%
	1	2	3	4	5	6
39. Difficulties in collecting water tariff *(please tick)*	No mechanism or schedule for tariff collection	People refuse to pay	GP lacks power to do anything if people do not pay	Pressure from political representatives, not to charge or collect tariff		
	1	2	3	4		
40. Comments on overall government funds *(multiple responses allowed)* *(please tick)*	Funds are adequate to meet GP needs	GP receive funds late	Because the funds are tied, they go unspent	Need more funds for administration (salaries, drain cleaning, building maintenance etc.)	Substantial grant is deducted for payment of electricity bill	
	1	2	3	4	5	

III a. GP capacity								
41. Awareness of responsibilities: *(please tick)*	GP members know about their roles under the GP Act						Yes : 1	No: 2
	GP members know about government schemes and how to get funds						Yes: 1	No: 2
	GP members know about schemes, but getting the funds, allocated by the Taluka/Zilla Panchayat, is a problem						Yes: 1	No: 2
42, Women members: *(please tick)*	A woman *sarpanch* is only on paper					Women members play an active role in GP's discussions and planning		
	1					2		
43. How frequently does the GP meet? *(please tick)*	Not at all		Rarely (once in 4-5 months)		At least once in 2 months		Every month	
	1		2		3		4	
44. Village Water and Sanitation Committee/*paani samiti* (please answer for each village in the GP) *(please tick)*		Village 1	Village 2	Village 3	Village 4	Village 5	Village 6	
	Is VWSC present? (Yes/No)							
	VWSC exists on paper, but does not know its roles and responsibilities							
	VWSC is aware of its responsibilities, but is not trained to fulfill them							
	VWSC is aware of its roles and responsibilities, receives funds from the GP and coordinates with VHSC and ASHAs to take care of village water, health and sanitation							

III b. Planning capacity			
45. Action planning *(please tick)*	No knowledge of village action plan	GP members do not know about the funds and schemes to prepare the plan	GP knows of this plan, but has not prepared it. The plan has to come from the zilla panchayat/taluka panchayat
	1	2	3
	GP has prepared the action plan after discussion with the gram sabha	Village action plan has been prepared after understanding the gaps in existing funds and schemes	
	4	5	
46. Involvement of GP in planning and implementation of village WATSAN infrastructure and its maintenance *(please tick)*	None	Not involved in planning stage and implementation, involved in decisions on tariff from community	Completely involved in technology, water points, disposal methods, O&M, tariffs etc.
	1	2	3

III c. Education and motivation capacity				
47. Details of the IEC activities undertaken by the GP *(please tick)*	Activity	Once	Regularly	Periodically
	GP is unaware of IEC activities to be performed			
	GP is aware of posters/wall paintings to be put under different schemes			
	GP is aware of IEC objectives, holds door-to-door campaigns to build awareness			
	GP undertakes supplementary activities on its own, such as exposure visits to good GPs, discussions in the gram sabha etc.			
48. What is the annual IEC budget for the GP under different schemes (such as TSC)? (please enter the amount in Rs.)	Scheme 1 (Enter name of the scheme and the amount)	Scheme 2 (Enter name of the scheme and the amount)	Scheme 3(Enter name of the scheme and the amount)	

ANNEXURE A3

VILLAGE QUESTIONNAIRE CUM INFORMATION SHEET						
Name of the village	Name of the taluka		Name of the gram panchayat		Name of the district	
Name of the interviewer	Names of the respondents		Date of interview		Time of interview	
					Start	End
Note: Call a group of four to five elders and ask the following questions						
1. Water sources *(please tick)*	Type of source(s)	Presence	Source status	Is water available or supplied?	Whether all communities in the village use this water source?	Water quality
	Lake/ river/ stream/ pond	Yes:1	Water available:1	Regularly: 1	Yes:1	Good: 1
		No: 2	Not available:2	Sometimes regularly: 2	No: 2 (If No, give reasons:)	Bad: 2
				Irregularly: 3	Caste 1 / Too far 2	
					Other:	
	Groundwater (open well/ shallow hand pump/ deep hand pump)	Yes: 1	Water available:1	Regularly: 1	Yes:1	Good: 1
		No: 2	Defunct:2	Sometimes regularly: 2	No: 2 (If No, give reasons:)	Bad: 2
				Irregularly: 3	Caste 1 / Too Far 2	
					Other:	
	Mini water supply scheme	Yes:1	Water available: 1	Regularly: 1	Yes: 1	Good: 1
		No: 2	Defunct: 2	Sometimes regularly: 2	No: 2(If No, give reasons:)	Bad: 2
				Irregularly: 3	Caste 1 / Too Far 2	
					Other:	

	Other source(s) (please specify)		Water available: 1	Regularly: 1	Yes:1		Good: 1
			Defunct: 2	Sometimes regularly: 2	No: 2 (If No, give reasons)		Bad: 2
				Irregularly: 3	Caste 1	Too Far 2	
					Other:		

2. Reasons commonly found for disruption in water supply *(please seek answers for the sources available in the village, multiple answers allowed)* *(please tick)*	Type of source	Reason(s) for water disruption		
	Lake/ river/ stream	The source has dried up: 1	Reduced water availability: 2	Water is contaminated: 3
	Rain water harvesting systems	Not functional: 1	Water is contaminated: 2	Other (please specify):
	Groundwater (open well/ shallow hand pump /deep hand pump)	Pipes are broken: 1		
		Tap is broken: 2		
		Water supply is not switched-on timely: 3		
		Power cut: 4		
		Lack of staff: 5		
		Contaminated water: 6		
		Motor is damaged: 7		
		Financial reasons: 8		
		Water level has gone down: 9		
		Source is dried up: 10		
		Other (please specify):		
	Mini water supply scheme	Pipes are broken: 1		
		Tap is broken: 2		
		Water supply is not switched-on timely: 3		
		Power cut: 4		
		Lack of staff: 5		
		Contaminated water: 6		
		Motor is damaged: 7		
		Financial reasons: 8		
		Water level has gone down: 9		
		Source is dried up: 10		

		Other (please specify):
	House has piped water connection (through tap)	Pipes are broken: 1
		Tap is broken: 2
		Water supply is not switched-on timely: 3
		Power cut: 4
		Lack of staff: 5
		Contaminated water: 6
		Motor is damaged: 7
		Financial reasons: 8
		Water level has gone down: 9
		Source is dried up: 10
		Other (please specify):
	Public Tap(piped water connection)	Pipes are broken: 1
		Tap is broken: 2
		Water supply is not switched-on timely: 3
		Power cut: 4
		Lack of staff: 5
		Contaminated water: 6
		Motor is damaged: 7
		Financial reasons: 8
		Water level has gone down: 9
		Source is dried up: 10
		Other (please specify):
	Tanker	Supply has stopped: 1
		Shortage of staff: 2
		Contaminated water: 3
		Financial reasons: 4
		Other (please specify):
	Other	Pipes are broken: 1
		Tap is broken: 2
		Water supply is not switched on time: 3
		Power cut: 4

		Lack of staff: 5			
		Contaminated water: 6			
		Motor is damaged: 7			
		Financial reasons: 8			
		Water level has gone down: 9			
		Source is dried up: 10			
3. Schools/ *anganwadis*/ community toilets (Please enter total no. of schools, colleges etc.) *(please tick)*		Schools	Colleges	*Anganwadis*	Community toilets
	With toilets				
	With functional toilets				
	With water supply to toilets				
	Total				

INFORMATION SHEET	
Note: Observe what you see and make notes. Do not ask questions	
Section I : Household level	
1. If there is a toilet in the house, is it clean?	
2. Is water available in the toilet?	
3. Is the bathroom area clean and free from water-logging?	
4. Does the wastewater from the kitchen go to a drain?	
5. Does the wastewater from the bathroom go to a drain?	
6. Is there a drainage outlet for toilet waste?	
7. Are there drains outside the house?	
8. Are the drains clean?	
9. Are the taps in the house/courtyard intact?	
10. Are there leaky pipes/taps?	
11. Is the drinking water storage utensils (bucket/pots) covered?	
12. Are people hesitant to speak about issues? Any particular issue(s) or question(s) that they refused to answer?	

Section II : GP and village level observations					
1. What is the attitude of GP leaders and members when questions are asked? *(answer may be a combination of two)*	Friendly	Positive	Hostile	Negative	Evasive
	1	2	3	4	5
2. Are there women leaders, members in the GP?					
3. Who did you find to be an influential person in relation to WATSAN in the village/GP (*name and designation*)?					
4. Do all communities have access to all water sources or is there discrimination? If there is discrimination, which is the affected community?					
5. Who usually collects the water in the GP?	Women	Girls	Boys	Men	
	1	2	3	4	
6. Please mark in the village map if any water source is broken, leaky or dysfunctional (wells, taps, ponds, MWS, etc.)					
7. Are the overhead tanks leaking?					
8. Please mark any water source with dirty puddles around it					
9. Please mark any water source with broken platforms					
10 . Did you find any queue of people with vessels to collect water near any water points (taps/MWS)? If yes, which ones?					

11. What is the condition of the pump houses?	Good	Bad	Satisfactory
	1	2	3
12. Identify the main leakage points of water sources			
13. Are the drains clean? Which ones are not? *(mark in map)*			
14. Are there human faeces in village or GP areas (roads, drains, etc)?			
15. Is there garbage lying around the village/GP area?			
16. Are there dustbins?			
17. Are the dustbins clean?			
18. Overall cleanliness of village:	Good	Bad	Satisfactory
	1	2	3
19. Are the water sources connected to drains? *(If not, mark in map)*			
20. Are the village ponds clean?			
21. Is the pond used by local community for bathing?			
22. Did you see animals drinking water from the ponds or being washed?			
23. Are the community toilets clean			
24. Do the community toilets have water?			
25. Are there separate toilets in schools for boys and girls?			
26. Are the school toilets clean? *(If not, mark in map)*			
27. Is water available in the school toilets?			
28. Are there toilets in the *anganwadis*?			

29. Do the *anganwadi* toilets have water?	
30. Did you notice any health centre in the village/GP?	

Section III : Mapping points

Marks to be identified in a village map (*take photographs in most cases)*:
(Separate map for each villages, if no. of villages are more, maps can be restricted to 3 main villages i.e., main GP village and any two of the other villages)

1. Make a village map: houses indicating colonies of different communities, roads, and large waterbodies like ponds, tanks and *keres*. Also mark the GP office and health centre	14. Village health centre
2. All water sources: ponds, tanks, OHTs, MWS, bore wells, hand pumps, wells etc. Please indicate functional and defunct ones	15. Garbage bins
3. Temples	16. Water treatment plants
4. Any water system that is broken, leaky or dysfunctional: wells, taps, ponds, MWS, etc.	17. Houses of different communities such as SC/ST colony etc.
5. Any water source that has dirty puddles around it	18. Village community centre
6. Any water source with broken platforms	19. Burial ground
7. The main leakage points of water sources	20. Dump for animal carcasses
8. Drains: Clean, dirty, unused	21. Slaughterhouse, if any
9. All community toilets	22. Small scale industries, if any
10. Open defecation areas in village: areas designated for men, women and those that are mixed	23. Grazing (*gomala/*) land, if any
11. Area where garbage is dumped	24. Irrigated land
12. Schools in the village with/without toilets	25. Washing platforms
13. *Anganwadis* with/without toilets	

ANNEXURE A4

WATER QUALITY DATA SHEET							
Name of village		Name of gram panchayat		Taluka		District	
S. No.	**Source**	**Purpose for which its water is used***	**Street & Identification**	**Code No. on the map**	**Fluoride (ppm)**	**Nitrate (ppm)**	**Micro-organisms (H_2S test)**
1	Handpump						
2	Open well						Yes/No
3	River/Stream/Lake/Tank						
4	Borewell - MWS						
5	Borewell - PWS						
6	Public tap**						
7	House hold tap**						
8							
9							
10							
11							
* 1 - Drinking 2 - Drinking and cooking 3 – Not for drinking 4- Not using ** Test at least two at different locations from which water is sourced							
Date:		**Signature:**		**Organisation:**		**Back checked by:**	

ANNEXURE A5

ISSUES ADDRESSED BY THE QUESTIONNAIRES					
Section I : Water					
Information being sought from the question	**Household (HH) water questions**	**Sanitation questions**	**HH health & hygiene questions**	**Related gram panchayat (GP) questions supplementing HH information**	**Objective**
Sources used for different purposes	Sec. II.1			Sec. I. 2	To what extent does the population have reliable access to water? Where do the problems lie?
Access to main water supply source	Sec. II. 2 & 3				
Reliability of main water supply source	Sec II.8.1 to 8.6, Sec. II10.1 to10.2, Sec. II. 11.1, Sec. II. 1.19 & 20 Sec. II. 33.			Sec. I. 3 to 4, Sec. I. 7 to11	
Source protection - quality	Sec. II.8.7, Sec. II.8.8; Sec. II. 11.2, Sec. II. 11.3, Sec.II.12.3 Sec. II. 30	Sec. III. 26 & 27		Sec. I.2	To understand current protection measures: are they adequate or should they be supplemented
Quantity of water per person per day (LPCD)	Consump tion side: Sec. II. 9.2, Sec. II. 14 & 15			Supply side (LPCD): Sec. I.2, Sec. I.12	Do water supply and consumption meet government norms?
Water storage	Sec. II. 19, to Sec. II. 22				Do people have adequate storage to meet their minimum needs?

Section II : Sanitation					
Information being sought from the question	**HH water questions**	**Sanitation questions**	**HH health & hygiene questions**	**Related GP questions supplementing HH information**	**Objective**
Presence and usage of toilets, location		Sec.III. 1, Sec.III.3 to 5, Sec.III.8 to 10		Sec.II.19, 22, 24	Different types of toilets in the GP: details of usage patterns, maintenance etc.
Household toilets: motivation for building toilet, maintenance		Sec.III.14 to 19		Sec.II.20, 21	
Community toilets: payment options, maintenance		Sec.III.20 to 21		Sec.II.24	
Shared toilets		Sec.III.22 to 24			
Open defecation		Sec.III.11, Sec.III.24- 25			
Reasons for not building/using toilet		Sec.III.2 & 3, Sec.III.12		Sec.II.23	
Financing the toilets		Sec.III. 6 &7		Sec.II.21	
Liquid waste management		Sec.III.26 to 31		Sec.II.26 to 32	Presence of drains and possible treatment.
Solid waste management		Sec.III. 32 to 34		Sec.II.33 & 34	

Section III : Equity					
Information being sought from the question	**HH water questions**	**Sanitation questions**	**HH health & hygiene questions**	**Related GP questions supplementing HH information**	**Objective**
Gender-related equity	Sec II.4 to 6	Sec III.13 & 14	Sec. IV.5 to 12		How much productive time is spent on fetching water (opportunities lost which could have been used for income generation)? Additional burden on women
Adolescent girls	Sec II.4 to 6		Sec. IV.12 to15		What is the impact of the burden of collecting water and lack of sanitation on adolescent girls?
Equity related to wealth/ caste/ distance from source	Sec II.37 & 38	Sec. III. 2		Sec.I.5 & 6	If it is not equally accessible to all, what could be the reasons, how can they be addressed? To get a better correlation, demography data can be used to compare responses from people of different castes/ wealth quintiles.
Equity related to access for differently abled people (vulnerable population)	Sec II.4 to 7	Sec. III.12 & 13			Are we conscious of the needs of differently abled people?
Section IV : Coping mechanism					
Sufficiency of water	Sec.II.16				Is water supply and consumption adequate?
Coping mechanisms	Sec.II.17 &18				How long do people have to cope without water? What do they do? How does water scarcity impact people? Government may find it worthwhile to conduct a cost- benefit analysis of supplying good quality water

Section V : Health					
Information being sought from the question	**HH water questions**	**Sanitation questions**	**HH health & hygiene questions**	**Related GP questions supplementing HH info**	**Objective**
Health problems due to poor water quality			Sec. IV. 1		What are the consequences of poor quality water? (another input for cost-benefit analysis, while calculating costs for providing safe water to people)
Infant and child mortality			Sec. IV.1		
Women's and girl's health			Sec. IV.12		What are the consequences of open defecation and poor menstrual hygiene?
Section VI : Hygiene					
Water			Sec. IV. 2		Water handling habits (findings can decide IEC content)
Sanitation			Sec. IV.3 & 4		Hygiene habits of the local community (findings can decide IEC content)
Menstrual hygiene (to be addressed only to women)			Sec. IV.5 to 11		Problems faced by women (findings will influence interventions for menstrual sanitation)

Section VII : GP governance and capacity					
Information being sought from the question	**HH water questions**	**Sanitation questions**	**HH health & hygiene questions**	**Related GP questions supplementing HH information**	**Objective**
Water tariff, cost of water	Sec. II.23 to 28			Sec.III.36 to 39	Details of water tariff and willingness to pay: how to devise a better tariff system
GP governance and capacity	Sec. II.33 to 36, Sec. II.39	Sec. III. 21, Sec. III. 30, Sec. III. 31		Sec.III.41, Sec.III.43 to 47	Type of problems: who solves them, satisfaction with governance
Women's involvement in decision making			Sec. IV.16 to19	Sec.III.42	Are women interested and involved in decision making at households' and within a GP? (findings could lead to targeting women for IEC activities)

ANNEXURE A6

LIST OF DELETED QUESTIONS FROM THE QUESTIONNAIRE

Section I : Questions deleted from the household questionnaire

Questions			Remarks
Name, gender, age, marital status, education and occupation of all the family members.			Details of the respondent, head of the household and total family size is enough.
Condition of the house (building)			Not relevant
List of assets owned by the family			Not relevant: We are getting information on APL/ BPL status
Why do you use this primary source of water for drinking? (Mark from 1-7 based on the priority stated by the respondent and as per the rank)			Prioritising the options by the respondents is difficult. They tend to identify all the options.
It is near the house	Water is clear	Cooking is fast and good	
Taste is good	Water smells good	Government supplies water	
There is no alternative	Other (please specify) _____		
In some of the questions, we tried to differentiate the responses for drinking water from water used for other purposes. Since responses were invariably the same for both, that differentiation was avoided in the revised questionnaire.			For example: Responses for problems faced during the past year were the same for both drinking water and water used for other purposes.
Whether the water source was changed in your village in the past year?			Asked in the GP questionnaire
Are you satisfied with the water supply and its quality?			
Did you know whom to contact to solve your water-related problems?			
Did you pay additional amounts or bribe to get the problem solved?			No such cases reported
Do you think your social status has improved after constructing the toilet?			All respondents answered "yes"
Yes: 1	No: 2	Don't Know: 3	
Do you have a bathroom at home?			Didn't get too many responses
If you have a bathroom and no toilet, why did you construct a bathroom alone?			
If you had a choice, which one would you choose Bathroom: 1 Toilet: 2			

Problems faced by the vulnerable individuals while fetching water, using toilet, during open defecation	Not much difference between vulnerable and others
Section II : Questions deleted from the GP questionnaire	
Questions deleted	**Remarks**
List of different schemes, their status, utility and assets created under them	Could not obtain reliable data as respondents were unaware of the different schemes. Also, survey was not aimed at evaluating the schemes. Question was combined with GP finances into an open-ended question.
Incidence of disease	Covered in the household questionnaire
Presence of NGOs and their relationship with the GP	Nothing came out of this question
If the system goes wrong, can the Gram Panchayath/ Water and Sanitation Committee/community provide necessary funds to repair it?	Most of the GPs said yes
Whether water in the GP is polluted	Covered in the household questionnaire
Questions on community toilets	Covered in the household questionnaire
Section III : Questions deleted from the Village questionnaire	
Are there any other committees in the village for water and sanitation? What is its name and role?	Covered in the household questionnaire
Have these committees helped improve water quality and supply in the village?	Same as above
Overall cleanliness of the village	May be noted by observation

ANNEXURE B
DRAFT MEMORANDUM OF UNDERSTANDING WITH PARTNERS

Title:

Memorandum of Understanding between
Arghyam and XYZ

for GP, district and state level survey on
WATSAN services in rural Karnataka

Summary:

This MoU is made on this _____ day of_____

BETWEEN

XYZ organisation represented by Krishnanand A.H., Projective Executive, hereinafter called XYZ (which expression shall wherever the context so admits include its successors and assignees) of the first part

AND

Arghyam, represented by its Chief Executive Officer, Ms. Sunita Nadhamuni having its Registered Office at 2nd Floor, 840, 5th Main, Indiranagar 1st stage, BANGALORE, 560038, Karnataka, INDIA hereinafter called Arghyam (which expression shall wherever the context so admits include its successors and assignees) of the second part

WHEREAS

- Arghyam is desirous of availing the expertise of XYZ for its survey-related works and net working activities at the grassroots.
- Arghyam has identified a project entitled Gram Panchayat (GP), District and State Level Survey on WATSAN Services in Rural Karnataka, which is suitable for this collaboration (hereinafter called "WATSAN Survey").

Now, therefore, the Parties hereto agree as follows:

1. FRAMEWORK FOR COOPERATION

The framework of cooperation between XYZ and Arghyam includes the following broad activities:

- Participate as a nodal agency responsible for conducting field surveyors' training.
- As a nodal agency, manage, conduct and monitor a field survey through volunteers in the selected households, villages and GPs.

XYZ and Arghyam hereby acknowledge their agreement in principle to the above mentioned framework of cooperation.

2. SPECIFIC AREAS OF COOPERATION

The activities that will be contributing to the WATSAN survey are spelt out below:

A. Identify and select two individuals as Coordinators-cum-Trainers from your organisation who will be responsible as nodal heads for the survey in the allocated districts.

B. Identify and select three individuals as Supervisors who will lead the survey team preferably from your organisation or research students or members of various self- help groups (SHGs) or community groups. The Supervisors' role is to field manage the survey and assure quality of survey in the field, participate in village mapping, conduct interviews of GP leaders and execute the water quality testing component of the survey.

C. Identify and select at least 15 individuals (three groups of four each and additional three as buffer) who will participate as field Surveyors gathering data through questionnaires at household level, and participate in village transect maps. These field Surveyors shall include members of various SHGs, other village community groups, student volunteers and NGO field staff members. At least 60 percent of the team should comprise SHG members or VWSC or other such groups. At least 50 percent of the team should be women members.

D. XYZ will send its selected survey Coordinator(s)/Trainer(s) to participate in the 'Training of Trainers' (ToT) workshop in Bangalore. The participant will pick up skills that s/he will use in training the field Supervisors and Surveyors, manage and assure the quality of the survey according to prescribed standards.

E. XYZ along with Arghyam will jointly train the field Supervisors and Surveyors guided by the developed protocol (at the ToT) for the survey at a pre-determined regional training programme. XYZ will send selected surveyors for the regional training at a designated venue. This will be a four-day residential training programme and all Supervisors and Surveyors have to stay in the regional training venue.

F. XYZ will be responsible for executing the WATSAN survey at the field level through its selected and trained field Surveyors. The survey execution includes a household survey through a pre-set questionnaire, interview of GP and village leaders based on a pre-determined set of questionnaires, conducting water quality tests following prescribed norms, making a village map via transect, and filling the pre-described observation sheet for the GP.

G. XYZ along with Arghyam will be responsible for maintaining the overall quality of the survey at the field level by nominating field monitors, visiting the field, collecting feedback and following the prescribed survey quality monitoring guidelines.

H. XYZ will take photographs during the WATSAN field survey.

I. The partner organisation will deliver to Arghyam all the filled questionnaires, water quality data, completed reports for GPs and villages, observation sheets along with maps, water quality testing kits and photographs with camera.

3. ARGHYAM'S ROLE

In relation to successfully conducting the survey by XYZ, Arghyam will assume the following roles:

A. Arghyam is the financier of WATSAN survey project and will be providing financial support for XYZ to smoothly execute the WATSAN survey on ground.

B. Arghyam will identify the household selection process, villages, GPs and talukas for the survey.

C. Arghyam will organise the ToT in Bangalore for the partner organisations. Arghyam will bear all expenses related to the ToT.

D. Arghyam will participate and provide financial assistance to its partner organisations for the Surveyors' training at a regional level.

E. Arghyam will make available all WATSAN survey questionnaires, training material, cameras, and water quality testing kits to the partner organisation.

F. Arghyam will participate in field monitoring of WATSAN survey along with partners to ensure smooth implementation and quality maintenance of the survey.

4. TASKS AND OUTCOMES FOR XYZ

The specific tasks, along with number of days involved and outcome are detailed below:

Task	Details	
Identify nodal WATSAN coordinators, field Supervisors and field Surveyors (following 2a, 2b and 2c norms).	Two Coordinators/Trainers, three Supervisors and about 15 Surveyors will be finalised	
Participate in the ToT at Bangalore.	The partner organisations' nodal Coordinator will be equipped to conduct the surveyors training	
Send selected candidates for the surveyors training.	Field Supervisors, Surveyors will be equipped to execute WATSAN survey on the ground	
Execute all field survey components (mentioned in 2e)	WATSAN survey outcome includes completed household questionnaire, village transect map, water quality test results, photographs, observation charts and responses of GP and village leaders	
Participation in field monitoring	To ensure the WATSAN survey quality is maintained	
Deliverables to Arghyam	1. Filled in hard copy of original questionnaires in the prescribed format 2. Water quality test results with identified sources and map locations 3. GP/village leaders' responses	4. Village observation sheets 5. Village maps 6. Camera with photographs 7. Water quality testing kits 8. Expense statement

5. WATSAN SAMPLE SIZE AND GEOGRAPHICAL DOMAIN OF SURVEY

XYZ will be responsible for executing the WATSAN survey in the following assigned districts. The selected survey talukas, gram panchayats and villages have been selected following scientific sampling procedures.

Assigned districts and sample details

District	Talukas	GPs	Households
Bangalore (R)	2	4	400
Chikkaballapur	3	6	600
Kolar	2	4	400
Total	7	14	**1400**

6. TIMEFRAME

This memorandum will continue for the overall WATSAN survey duration starting November 2008 from the date of signing the MoU. The activities' tentative timeframe is attached with the MoU. Detailed survey and plan timeframe for GPs, talukas and districts with actual dates for each GP will be finalised and same will be submitted to Arghyam.

7. COPYRIGHT

XYZ and Arghyam agree on the following rules for the protection of materials used in WATSAN survey:

- Arghyam will retain the copyright of WATSAN survey and all its components.
- All contributions of XYZ in the WATSAN survey efforts will be completely acknowledged.

8. DISPUTES

Any disputes between the parties arising out of or relating to this MoU shall be settled by negotiation.

9. BUDGET

For the successful implementation of the WATSAN survey, Arghyam will provide funds to XYZ (budget details omitted in this document).

10. IMPLEMENTATION

The following individuals will be responsible for the implementation of this MoU

This memorandum shall come into full force and effect upon signature by both parties set forth below.

Arghyam

Sunita Nadhamuni
CEO
Arghyam
Bangalore – 560038
Karnataka, India
www.arghyam.org

For XYZ:

ABH A.H
Project Executive
XYZ
Bangalore – 560018
Karnataka, India
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ANNEXURE C

AGENDA FOR TRAINING OF TRAINERS (ToT)					
Date: 25-28 November 2008 Venue: Bangalore					
	Time	**Duration**	**Topic/details**	**Methodology**	**Resource person/faculty**
Day One: 25 November 2008					
1.	9.30-10.30 am	60 mins	Registration of participants		Arghyam
	10.30-10.45 am	15 mins	Tea		
2.	10.45-11.15 am	30 mins	Inauguration Introduction of participants Introduction to Arghyam Purpose of the survey Expected outcome of ToT	Lighting lamp Find your partner Interactive lecture	Arghyam OUTREACH Arghyam
3.	11.15 am-12.15 pm	60 mins	WATSAN Issues	Interactive lecture	Arghyam
4.	12.15-12.45 pm	30 mins	Introduction to ToT content and Setting norms for ToT	Interactive lecture and brainstorming	OUTREACH
5.	12.45-1.30 pm	45 mins	Lunch		
6.	1.30-2.00 pm	30 mins	Survey sensitization		PAC
7.	2.00-2.30 pm	30 mins	ABC of the survey	Brainstorming	OUTREACH
8	2.30-2.45 pm	15 mins	Introduction to WATSAN module		Arghyam
9	2.45-3.45 pm	60 mins	WATSAN module		OUTREACH
10	3.45-4.15 pm	30 mins	Water and sanitation	Small group discussion	
11	4.15- 4.30 pm	15 mins	Tea		
12	4.30-5.45 pm	75 mins	Health and hygiene	Small group discussion	
13	5.45-6.45 pm	60 mins	Presentation by the groups and discussion		

Day Two: 26 November 2008					
1	9.00-9.30 am	30 mins	Recap of first day's training	Passing the fire ball	OUTREACH
2	9.30-10.30 am	60 mins	Village mapping	Interactive lecture: Do-it-yourself	OUTREACH
3	10.30-10.45 am	15 mins	Tea		
4	10.45-11.45 am	60 mins	Observation sheet	Interactive lecture and brainstorming	PAC
5	11.45 am-1.00 pm	75 mins	HH questionnaire	Interactive lecture and brainstorming	
6	1.00-1.45 pm	45 mins	Lunch		
7	1.45- 4.30 pm	165 mins	HH questionnaire (continued)	Interactive lecture and brainstorming	PAC
8	4.30-5.30 pm	60 mins	Water quality testing	Interactive lecture	Arghyam
9	5.30-6.30 pm	60 mins	Hands-on training	Demonstration	
Day Three: 27 November 2008					
1	9.00-9.30 am	30 mins	Recap	Review	
2	9.30-10.30 am	60 mins	GP questionnaire	Interactive lecture and brainstorming	PAC
3	10.30-10.45 am	15 mins	Tea		
4	10.45 am-12.30 pm	105 mins	GP questionnaire (continued)	Interactive lecture and brainstorming	PAC
5	12.30-1.15 pm	45 mins	Lunch		
6	1.15-1.45 pm	30 mins	Tips for approaching the villagers	Interactive lecture and brainstorming	PAC
7	1.45-2.45 pm	60 mins	Filling and handling of questionnaire	Interactive lecture and brainstorming	e-governance and Arghyam
8	2.45-4.00 pm	75 mins	Interview techniques	Role-play	PAC
9	4.00-4.15 pm	15 mins	Tea		
10	4.15-6.00 pm	105 mins	Interview techniques (continued) Homework: - Steps in the household survey - Attitudes and behaviour of the surveyor - Likely problems/solutions during the survey	Role-play Small group discussion	PAC

Day Four: 28 November 2008					
1	9.00-10.30 am	90 mins	Recap, homework	Presentation by small groups	OUTREACH
2	10.30-10.45 am	15 mins	Tea		
3	10.45-11.30 am	45 mins	Household sampling procedure	Interactive lecture and brainstorming	PAC
4	11.30 am-12.30 pm	60 mins	Monitoring the survey, ensuring authenticity of data, quality control measures, checklist for the day	Interactive lecture	Arghyam
5	12.30-1.15 pm	45 mins	Lunch		
6	1.15-2.00 pm	45 mins	Photo-documentation	Demonstration	Arghyam
7	2.00-3.00 pm	60 mins	Trainers' skills	Interactive lecture and brainstorming	OUTREACH
8	3.00-3.30 pm	30 mins	Purpose of the survey	Address	Arghyam
9	3.30- 4.00 pm	30 mins	Documentation: visual, written, primary and secondary data, safe handling of the questionnaires, translation and transcription of the data	Interactive lecture and brainstorming	Arghyam
10	4.00- 4.15 pm	15 mins	Tea		
11	4.15- 5.00 pm	45 mins	* Post-ToT test * Feedback on ToT	Filling format	PAC
12	5.00-5.30 pm	30 mins	Wrap up		Arghyam

ANNEXURE D

COMPARISON OF WATER QUALITY TESTING KITS			
Parameter	**Ltek**	**Orlab**	**Remarks (Comparison)**
Fluoride	Uses BARC technology	Uses BARC technology	Same
Nitrate	Uses a pill and liquid	Uses two powders in sachets	Orlab is better as it doesn't involve measuring liquids which introduces scope for error
Ease of use	Test tubes are narrow, liquid measurement requires measuring cylinders	Test tubes are broad, no liquid measurement required	Orlab rated better
Colour charts	Convenient chart holder included	Chart has to be held by hand	Quality of chart is the same, convenience differs. Orlab chart customised to include the name of the test in Kannada
Instruction sheet	In English	In English	Orlab includes an additional instruction sheet in Kannada
H_2S strip test	Kits have been tried and tested.	Was not confident of the accuracy of the strip test.	Ltek rated better
Cost			Orlab was found to be more expensive even after the discount
Delivery		On time	
Customer service	Executives had strong technical knowledge but were hard to reach	Technical knowledge was alright. Very easy to reach	

ANNEXURE E

SAMPLE DISTRICT SURVEY PLAN		
District: Mandya	**Name of the NGO:** XYZ, Mandya	Name: A.N. Shantaraju
		Contact No.:

Team	**Names**	**Contact No.**
Team A	Bharathi N. (Supervisor)	
	Puttasomaradya (Surveyor)	
	Vishakanta (Surveyor)	
	Marigowda (Surveyor)	
	Basavegowda (Surveyor)	
Team B	Shantakumar (Supervisor)	
	Shobha (Surveyor)	
	Bharathi M.N. (Surveyor)	
	Mangalagowri (Surveyor)	
	Paramesh M.P. (Surveyor)	

S.No.	Taluka name	GP name	Village name	Person conducting water quality tests	Person who prepared the village map	No. of HHs to be covered	Date		Team
							From	To	
1	Malavalli	Talagavadi	Talagavadi	Vishakanta (Surveyor)	Marigowda (Surveyor)	59	22/12/08	23/12/08	A
2			Kagepura	Puttasomaradya (Surveyor)	Basavegowda (Surveyor)	11	24/12/08	24/12/08	A
3			Devipura	Marigowda (Surveyor)	Vishakanta (Surveyor)	27	24/12/08	25/12/08	A
4		Hosahally	Hosahally	Marigowda (Surveyor	Vishakanta (Surveyor)	50	27/12/08	2812/08	A
6			Mallikyatanahalli	Puttasomaradya (Surveyor)	Basavegowda (Surveyor)	19	29/12/08	29/12/08	A
7			A.P.Doddi	Marigowda (Surveyor)	Marigowda (Surveyor)	03	29/12/08	29/12/08	A
8			Shivanasamudra	Vishakanta (Surveyor)	Vishakanta (Surveyor)	09	30/12/08	30/12/08	A
9	Mandya	Gandalu	Gandalu	Puttasomaradya (Surveyor)	Basavegowda (Surveyor)	35	01/01/09	01/01/09	A
10			V.C. Farm	Vishakanta (Surveyor)	Marigowda (Surveyor)	20	02/01/09	02/01/09	A
11			Madechakanahalli	Puttasomaradya (Surveyor)	Basavegowda (Surveyor)	15	03/01/09	03/01/09	A
12			Mallanayakanakatte	Vishakanta (Surveyor)	Marigowda (Surveyor)	30	04/01/09	04/01/09	A
13		Maragowdanahalli	Maragowdanahalli	Puttasomaradya (Surveyor)	Basavegowda (Surveyor)	74	06/01/09	08/01/09	A
14			Shivara	Vishakanta (Surveyor)	Marigowda (Surveyor)	26	09/01/09	09/01/09	A
15	K.R. Pet	Bharathipura	Achamanahalli	Bharathi M.N. (Surveyor)	Bharathi (Surveyor)	03	15/12/08	15/12/08	B

S. No.	Taluka name	GP name	Village name	Person conducting water quality tests	Person who prepared the village map	No. of HHs to be covered	Date		Team
							From	To	
16	K.R. Pet	Bharathipura	Bellkere	Paramesh M.P. (Surveyor)	Bharathi (Surveyor)	22	15/12/08	15/12/08	B
17			Koratikere	Paramesh M.P. (Surveyor)	Bharathi (Surveyor)	21	16/12/08	16/12/08	B
18			Kunduru	Mangalagowri (Surveyor)	Shobha (Surveyor)	23	17/12/08	17/12/08	B
19			Marenahalli	Mangalagowri (Surveyor)	Mangalagowri Surveyor)	04	18/12/08	18/12/08	B
20		Santebachahalli	Santebachahalli	Paramesh M.P. (Surveyor)	Bharathi (Surveyor	40	20/12/08	21/12/08	B
21			Amchahalli	Mangalagowri (Surveyor)	Mangalagowri Surveyor)	05	22/12/08	22/12/08	B
22			Doddakyatanahalli	Bharathi M.N. (Surveyor)	Paramesh Surveeyor)	11	22/12/08	22/12/08	B
23			Hadavanahalli	Mangalagowri (Surveyor)	Mangalagowri (Surveyor)	07	22/12/08	22/12/08	B
24	Pandava Pura	Hiremarahalli	Hiremarahalli	Bharathi M.N. (Surveyor)	Mangalagowri Surveyor)	54	25/12/08	26/12/08	B
25			Bevinkuppe	Paramesh M.P. (Surveyor)	Shobha (Surveyor)	21	27/12/08	27/12/08	B
26			Gandahosur	Mangalagowri (Surveyor)	Mangalagowri (Surveyor)	07	27/12/08	27/12/08	B
27			Balethiguppe	Paramesh M.P. (Surveyor)	Shobha (Surveyor)	11	28/12/08	28/12/08	B
28		Sunkatonnur	Sunkatonnur	Paramesh M.P. (Surveyor)	Shobha (Surveyor)	34	30/12/08	30/12/08	B
29			Nallahalli	Bharathi M.N. (Surveyor	Mangalagowri (Surveyor)	13	31/12/08	31/12/08	B
30			Madrahalli	Paramesh M.P. (Surveyor)	Shobha (Surveyor)	12	01/1/09	01/01/09	B
31			Athiganahalli	Mangalagowri (Surveyor)	Mangalagowr (Surveyor)	06	02/1/09	02/1/09	B

ANNEXURE F

FIELD CHECKLIST AND REPORTING FORMAT		
Date:	District:	*Taluka*
Gram panchayat	Village	Day of survey?

Any change from the original plans? _____

Have you:	Satisfied	Partly Satisfied	Not satisfied
1. Met all the Surveyors and cross-checked at least 2 questionnaires filled by them?			
2. Made random checks of the survey forms filled on the previous day?			
3. Made random checks of the survey forms filled on the same day?			
4. Checked that village maps are according to the village plan, all elements of village mapping (water sources, schools, distribution of minority population etc) are included and are legible?			
5. Witnessed a water quality test to see if it is being done correctly and entered accurately in the water quality sheet?			
6. Checked the village questionnaires and ensured they are properly filled?			
7. Checked the camera, the present date and photographs?			
8. Checked the GP questionnaires?			
9. Checked that sections on names of GP, villages and interviewer and interviewee are filled in?			

10. Asked the Supervisor how the household sample was selected: does it adhere to norms of the sampling procedure?	*Yes*	No
11. Visited/called the GP President/Secretary and asked if the supervisor met him/her for an interview?	*Yes*	No

12. Cross-checked names of villages/GPs with the sample list: do the names and number of households and villages to be surveyed tally?	*Yes*	No	
13. Randomly called 2-3 households and asked if they participated in the survey? Are the answers positive or negative?	Positive	Negative	
Note: If the answer is negative, the responses in the questionnaire were fabricated. Survey needs to be repeated and the questionnaire must be filled again.			
14. Asked people in the village what schemes exist in the village and cross-checked with the GP questionnaire that they tally?	Satisfied	Partly satisfied	Not satisfied
15. Checked the skip questions?	Satisfied	Partly satisfied	Not satisfied
16. Checked to see if the Supervisors have checked and signed on <u>all</u> the survey forms?	Satisfied	Partly satisfied	Not satisfied
Other comments:			
Overall rating of the survey procedure and quality:	Very good	Acceptable	Not good
Notes			
1. Focus on the open-ended questions in the questionnaire. These should provide good insights. Are you able to understand what has been written? If not, it could be an indication of incoherent language or illegible handwriting. 2. An overall five per cent error margin is considered acceptable 3. Ten per cent or more errors during the back-check[1] indicate that the team needs to repeat the survey in that area. 4. Interview start and end time must be recorded without fail 5. The codes must be marked in their respective rows and not in the first row (wherever applicable)			

[1] A back check is a check on 50 per cent of completed questionnaires for each taluka.

ANNEXURE G

SAMPLE DATA ENTRY SHEET													
Data Entry Structure													
S.NO	NGO	INTERVIEW	DISTRICT	SREGION	TALUKA	GP	VILLAGE	SPOT CHEK	RECHEK	RELIGION	GEND1	AGE	HOUSE
1	1	14	1	1	1	1	1	1	1	1	1	50	3
2	1	14	1	1	1	1	1	1	2	1	1	60	3
3	1	15	1	1	1	1	1	2	2	1	1	40	2
4	1	13	1	1	1	1	2	2	1	1	1	50	3
5	1	13	1	1	1	1	2	2	1	1	1	58	3
6	1	13	1	1	1	1	2	2	1	1	1	72	2
7	1	18	1	1	5	10	20	2	1	1	1	60	1
8	1	17	1	1	5	10	20	2	1	1	1	38	2
9	1	18	1	1	5	10	20	1	2	1	1	40	2
10	1	19	1	1	5	10	23	2	2	1	1	50	3
11	1	17	1	1	5	10	20	2	2	1	1	40	3
12	1	17	1	1	5	10	20	2	2	1	1	21	3
13	2	7	2	2	8	15	55	2	2	1	1	65	3
14	2	4	2	2	8	15	55	2	2	1	1	53	3
15	2	4	2	2	8	15	55	2	2	1	2	65	3
16	2	9	2	2	8	15	55	2	2	1	1	45	3
17	2	7	2	2	8	15	56	2	2	1	1	68	3
18	2	7	2	2	8	15	56	2	2	1	1	70	3
19	2	7	2	2	8	15	56	2	1	1	1	45	3
20	2	4	2	2	8	15	56	2	1	1	1	60	3
21	2	4	2	2	8	15	56	2	2	1	1	60	3
22	2	5	2	2	9	17	68	2	2	1	1	28	3
23	2	5	2	2	9	17	68	2	2	1	2	50	3
24	2	9	2	2	9	17	68	2	2	1	1	65	3
25	2	7	2	2	9	17	68	2	2	1	1	45	3
26	2	7	2	2	9	17	68	2	2	1	1	52	3
27	2	7	2	2	9	17	68	2	2	1	1	40	2
28	2	11	2	2	9	17	68	2	2	1	1	40	3
29	2	8	2	2	9	17	68	2	2	1	1	35	3
Note: Please note the granularity in the field names													

ANNEXURE H

DATA ANALYSIS: INDICATORS AND STRUCTURE			
Data Analysis Indicators: (High level indicators used in the reports)			
	GP Report	**District Report**	**State Report**
I. Water	1. Sources of water	1. Sources of water	1. Sources of water
	2. Multiple source	2. Multiple source	2. Multiple source
	3. Quality satisfaction levels	3. Distance	3. Quality satisfaction levels
	4. Distance	4. Time taken	4. Distance
	5. Time taken	5. Water quality test results	5. Time taken
	6. Water quality test results	6. Reason for disruption	6. Water quality test results
	7. Frequency of water supply/availability	7. Who solved the problems	7. Frequency of water supply/ availability
	8. Reason for disruption	8. Time taken to solve the problem	8. Reason for disruption
	9. Who collects water	9. People with access to water throughout the year (%)	9. Who collects water
			10. Reason for choosing a particular source as a primary source
			11. Reliability of water sources
			12. How often do they collect water
			13. How long do they store water
			14. Where do they store water
			15. How long in a year do they face water shortage
			16. Supply and usage of water quality kits
			17. Perception of quality of water

	GP Report	District Report	State Report
II. Sanitation, health& hygiene	1. Access to toilet	1. Access to toilet	1. Access to toilet
	2. Reason for not having toilets	2. Reason for not having toilets	2. Reason for not having toilets
	3. Status of school and *anganwadi* toilets	3. Access to drainage	3. Status of school and *anganwadi* toilets
	4. Access of vulnerable section to toilets		4. Access of vulnerable section to toilets
	5. Access to drainage		5. Access to drainage
	6. Frequency of cleaning drains		6. Frequency of cleaning drains
	7. Who cleans the drains?		7. Who cleans the drains?
	8. Perception of overall cleanliness of the village		8. Problems with open defecation
			9. Discharge of domestic wastewater
			10. Perception of overall cleanliness of the village
			11. Status of sanitation in NGPs and GPs in general
III. Health	1. Incidence of diseases	1. Incidence of diseases	1. Incidence of diseases
	2. Water treatment practices	2. Water treatment practices	2. Water treatment practices
	3. Menstrual hygiene		3. Hand washing practices
	4. Hand washing practices		4. How do people take water from the vessel for drinking?
IV. Grievances & finance	1. People facing water supply problems (%)	1. Different schemes in the district	1. Usefulness of the different WATSAN schemes
	2. Who solved the problem	2. WATSAN finances, main demands of the people	2. WATSAN finances of the GP
	3. Time taken to solve the problem	3. Presence and functioning of VWSC	3. Presence and functioning of VWSCs
	4. Satisfaction levels with WATSAN services		4. Who is responsible for O&M?
	5. WATSAN finances of the GP		5. Presence of NGOs
	6. Different schemes in the GP		
	7. Presence and functioning of VWSCs		

V. Equity			
	Not Covered	1. HH water connection	1. Correlation between caste and type of water supply system
		2. Storing water in *bindiges*	2. Focus on access of vulnerable populations to WATSAN
		3. Payment of user charges	3. Gender based equity
		4. Access to toilets	4. Menstrual hygiene
		5. Incidence of diseases	
VI. Others	1. Comparison with neighboring GPs	Highlights of the surveyed GPs	1. Citizen demands
	2. Citizen demands		2. Demands of the GP
	3. Recommendations		3. Comparison of ASHWAS indicators with National Family Health Survey (NFHS III)
	4. Action points		4. Comparative picture of main indicators across different regions and backward talukas
	5. Water quality test results		
	6. Village map		
VII. Report size	16-page report (includes cover and end pages)	3-page report as a part of state report	50-page report with 6 chapters

Sample Data Analysis Structure : Gram Panchayat Report					
WATER			**SANITATION**		
Indicator	**Comments**	**Household questionnaire**	**Indicator**	**Comments**	**Household questionnaire**
Presence of water supply infrastructure (bore-well, shallow hand-pump, piped water, MWS)	Percentage (%) of people using water supply infrastructure across district and specific to each GP	1	Number of household toilets in use	People using toilets (percentage, average across district, specific to GP)	22, 23
Distance to source	Compare with standard (percentage meeting the norm, average across district, and specific to GP)	1d	Presence and usage of community toilets	Same as above	29, GP Q12
Adequacy of water supply (total of drinking and domestic supply)		6	Practice of open defecation	Same as above	29
Water quality (WQ)	Arrive at an indicator based on WQ report	9,10	Presence of drains in the village	Households with drains in front of their house (percentage)	36, GP Q22
Quantity of water in liters per capita daily (LPCD)	Compare with standard	1	Presence and usage of toilets in schools and *anganwadis*		GP Q18, 19, 20, 21*
Presence of VWSC	Yes/No	GP Q18,V Q3	Overall sanitation		
O&M readiness (rating)	Yes/No	GP Q(Sec B 7,8)*			
Availability of water/ coping strategy	Percentage HHs saying water is available throughout year (average across district and specific to GP)	1b			
***Note: Question numbers given in the table correspond to the old questionnaire used for the ASHWAS survey – please do not refer to the revised questionnaire presented in the document**					

ANNEXURE I
BACKGROUND INFORMATION SHEETS USED FOR DISSEMINATION

1. ACCESS TO WATER FOR ALL CITIZENS

This information sheet is divided into two sections. Section I gives a background on discussion points based on information provided. Section II covers discussion points for action and support required by the GPs.

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings are to be noted by the coordinator, as per the GP report/table provided, as preparation before the GP meeting.

I a. Factors upon which access to water is based

- ***Water supply systems:*** Twenty five percent of households get their water from public taps. Piped water connections, mini water supply and bore-well hand pumps form the other major water supply systems. Twenty four percent depend on two sources of water, often the second source is not part of the infrastructure. In Hassan, 42 percent of households depend on three sources.

Coordinator to note equivalent GP data, before GP meeting.

- ***Distance and time:*** These systems are located 'very near' the houses of 80 percent of respondents, except in Koppal district, where 14 percent travel over 1.6 kilometres to fetch water. However, despite sources being located close by, 41 percent of respondents take 30 to 60 minutes and 20 percent take more than 60 minutes to collect water.

Coordinator to note equivalent GP data, before GP meeting

Discussion point 1: Are there sufficient water supply systems in your GP? The ARWSP guidelines prescribe one hand pump/public tap for every 250 people. Are they placed in such a manner so that water is available to 100 percent of the GP's population?

- *O&M issues:* Almost all GPs surveyed reported disruptions in water supply due to O&M issues. As per the ARWSP guidelines, the output from a public tap should be at least 12 liters per minute. Effective O & M is the responsibility of the GP and its sub-committee, the VWSC.

- ***VWSCs:*** Only 75 out of 172 GPs had VWSCs under the National Rural Drinking Water Programme (NRDWP). Of the existing committees, only 42 percent were reported as active.

Coordinator to note equivalent GP data, before GP meeting.

Discussion point 2: Is the O&M in your GP effective? Are water supply timings convenient to all citizens?

Ib. Ensuring continuous availability of water

- ***Collection and storage:*** Twenty one percent of households collect water once every two or three days, with 82 percent of respondents storing water for future use. The majority store water because it is easier than collecting water more frequently. Nearly 20 percent of households in North Karnataka store water because the source is too far away.

- ***Water shortage:*** Forty four percent of households experienced water shortage ranging from less than a month to three months. Most of them collect water from other sources during water scarcity. Twenty five percent resort to unsafe or unprotected sources such as streams, ponds and lift irrigation channels.

Coordinator to note equivalent GP data, before GP meeting.

Discussion point 3: What efforts have the GP made to ensure water supply if the primary source dries up?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Create awareness on key aspects of storage practices among the households. Water should not be stored for more than two days so as to prevent contamination.

2. Create awareness on how to safeguard private and common sources and prevent their contamination

3. Encourage the use of multiple sources for different purposes. The primary source can be used for drinking water and the secondary source for domestic purposes. This enables resources to be focussed on the primary sources to maintain quality.

4. Create awareness on supplementing the household level water source through rooftop rainwater harvesting .

- ***Planning and implementation:***

GP should map the water supply systems in the GP based on the following factors:

1. Functionality: Is the system functional or not?
2. Adequacy: Does the source have an output of 12 litres per minute?
3. Distance from households
4. Quality of water: Includes contamination, if any
5. Access of vulnerable population to water, on the basis of income, caste, physical ability, age, etc

This exercise helps identify problem areas in terms of access, and steps that can be taken to address them. Ascertaining drinking water adequacy at the household level including cattle needs, as well as identifying sources of drinking water for different purposes, is part of the role of a VWSC member (see Table Roles of VWSC/ ASHA/ VHSC members)

II b. Support from other agencies

GPs may elicit the support of Taluka Panchayats, Zilla Parishads and the State Government.

- ***Support for awareness creation:***

1. Build capacity of the VWSC, SHG or other groups to create awareness on source protection and maintenance.
2. Create capacity for building rooftop rainwater harvesting systems.

- ***Support for planning and implementation:***

1. Assist GPs in mapping water supply systems and follow-up action (coverage, quality and/or repair).
2. Adopt unprotected sources to ensure good quality water and sustainability; educate citizens on safeguarding private wells, etc.

II c. Changes required in existing schemes/introduction of new schemes

1. Formulate policy and guidelines for safeguarding non-government water sources.
2. Formulate policy regarding the use of multiple sources to increase source. sustainability and ensure focussed efforts towards improvement of water quality.
3. Clarify O&M policy, describing roles and operational guidelines to ensure accountability of various agencies.

Table: Role of VWSC / ASHA / VHSC Member

Role of VWSC member	Role of ASHA/VHSC member under NRHM
1. Ascertain drinking water adequacy, including cattle needs, at the household level. 2. Identify all sources of drinking water for different purposes. 3. Test all sources using potable testing kits. 4. Collect samples and transfer to sub-divisional water testing laboratory for testing both chemical and biological parameters. 5. Record details of water supply sources and systems in the village/GP. 6. Collect tariffs; manage water supply scheme at the GP level.	1. Ascertain water- and excreta-related diseases at the house hold level as per the NRHM format. 2. Collect sample and transfer to PHC for testing biological parameters.. 3. Carry out sanitary inspection of all sources. 4. Take corrective measures along with VWSC member to prevent pollution of drinking water sources 5. Record all water and sanitation disease-related data. 6. Advocacy on hygiene promotion and disease prevention issues at the household level.

2. SOURCE SUSTAINABILITY AND PROTECTION

This information sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

Additionally, some information and best practices on source sustainability and elements of a village water security plan are also shared at the end of this information sheet.

SECTION I

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

State level findings from ASHWAS

The ASHWAS report indicates that rural drinking water systems in 87 percent of Karnataka GPs are dependent on single source – groundwater. More and more water being pumped out of the aquifer, without any efforts at recharging and replenishing it, is causing groundwater levels to decline, leaving the source inadequate for the needs of the community. There is also evidence of over-extraction leading to water quality problems.

- ***Impact on quantity:*** ASHWAS findings clearly show that 45 percent of citizens face water shortage for more than a month. Twenty two percent receive drinking water only during some parts of the year.

- ***Equivalent GP data available in the district-wise table:*** Fifty-two percent of GP presidents interviewed reported a shortfall in water supply (read as quantity) during the previous year, largely as a result of unsustainable sources. Twenty six percent reported source depletion (groundwater), 14 percent, drying of sources (surface water) and eight percent bad quality of water. To summarise, about 50 percent of the causes were attributed to unsustainable sources.

- *Impact on quality:* Tests conducted during ASHWAS indicated that 60 percent of samples were contaminated with fluoride, 20 percent had elevated nitrate levels and 38 percent had bacteriological contamination. Bad quality also affects the quantity of water available for drinking.

Discussion point 1: With so much dependence on groundwater, does your GP face problems of sustainability, such as groundwater depletion, drying or contaminated sources? Why?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Conjunctive use of groundwater, surface water (where applicable) and rainwater: Create awareness among households on merits and mechanisms of harvesting rainwater. Rain is the purest form of water. All we need to do is keep the rooftops and gutters clean, and connect it to a tank through a filter so that all impurities are removed. Unless contaminated with fluoride it can be used for drinking after boiling.

2. ***No open defecation:*** Create awareness about open defecation and the benefits of using toilets to protect water sources from bacterial contamination; maintaining better sanitary conditions in and around the house and the drinking water source, not draining wastewater into a system leading to a water body.

3. ***Adverse impacts of fertilisers and benefits of organic farming:*** Excessive use of fertilisers and pesticides result in leaching of nitrates and pesticides (both of which are harmful to the human body) into water sources.

- ***Planning and implementation:***

1. Implement recharge schemes: Leverage funds for recharge from convergence of various national programes such as NREGA.
2. Rainwater harvesting: Integrate household/community rainwater harvesting systems into the village water supply system. For example, properly collected and stored rainwater can be used drinking and cooking, while untreated groundwater and rainwater can be used for bathing and washing.
3. Organic farming: Organic farming is a form of agriculture that relies on crop rotation, green manure, compost, biological pest control, etc. GPs can access knowledge on Karnataka's organic farming policy and use its sub-committees to help farmers adopting organic farming, by making them eligible for crop loans at three percent interest. Although, the nationalised banks extend farm loans at seven percent interest, a four percent subsidy by the state government bring the interest rate down to three percent. The budgetary allocation for the same during 2009-2010 is INR 100 crore.
4. Draw up a participatory source sustainability and protection plan as per the Village Water Security Plan under the NRDWP guidelines

II b. Support from other agencies

- ***Build on conjunctive use of groundwater:***

Use surface water (where applicable) and rainwater; taking appropriate measures to reduce the impact of using fertilisers, preventing sources of bacterial contamination and institutionalising source sustainability measures.

- ***Education and skill-building of GPs:***

1. Recharge programmes: Explore opportunities and advantages of convergence of various national programmes like NREGA, TSC, scheme for artificial recharge of dug wells and how to leverage these funds to ensure source sustainability through watershed management, groundwater recharge, toilet construction, water quality monitoring, etc.

2. Participatory source sustainability and protection plan
3. Plans to encourage organic farming.

Best practices: Identifying GPs that are implementing source protection plans effectively, and sharing their best practices with other GPs.

II c. Changes required in existing schemes/introduction of new schemes

- ***Rainwater harvesting scheme:*** Could address multiple issues related to quality and quantity. Schemes introduced to subsidise rainwater structures could encourage their usage.

- ***Mapping of groundwater resources:*** It would be useful to undertake a comprehensive mapping of drinking water sources in the state (at the GP level) to ascertain the extent of groundwater use, its depletion and availability. Once made accessible to the ZPs and GPs, this data can be used to facilitate informed planning decisions. [Department of Mines and Geology along with RDPR]

SOURCE SUSTAINABILITY: INFORMATION AND BEST PRACTICES

What is source sustainability?

- According to the guidelines of the NRDWP, sustainability of drinking water sources and schemes facilitates the provision of safe drinking water in adequate quantity, even during distress periods, duly addressing equity, gender, vulnerability, convenience and consumer preference issues. To ensure this we need to understand the different lenses of sustainability – source, system (technical), financial and social (see Box). Of these, the most critical is source sustainability.

Achieving source sustainability

As discussed source sustainability has two aspects: Preserving the quantity and the quality of the source.

1. Quantity

This may be maintained through multiple approaches:
a. Conjunctive use of groundwater, surface water and roof water harvesting: Karnataka receives an average annual rainfall of 1,000 mm. A rooftop area of 100 square metres can yield an average of 80,000 litres of water per annum. This could fulfill the water needs of a

Lenses of Sustainability

1. Source (environmental) sustainability: Ensuring that the source is recharged and replenished and the catchment is protected so as to provide adequate safe drinking water throughout the year.

2. System sustainability: Optimising the cost of production of water so that it is affordable; devising proper protocols for O&M, and proactively engaging in maintenance and repairs of the system. To execute this, capacity of PRIs must be built and awareness generated.

3. Financial sustainability: Proper utilisation of funds, cutting the costs of water supply by reducing inefficiencies, and encouraging cost recovery through flexible methods devised by the local self government and improving energy efficiency.

4. Social sustainability: Active participation and involvement of all key stakeholders in source protection, governance and other aspects of water management.

family of five. Depending on the pattern of rainfall, small tanks of 5,000 litres could be filled on rainy days. Their cost of installation varies from Rs 4-5 per litre. Storage of rainwater for drinking both at the community and the household levels would ensure drinking water security even in adverse conditions for a few months. With sufficient storage capacity, it would be sufficient for the whole year.

b. Recharge of groundwater sources: Multiple approaches, such as recharge of functional wells, revival of ponds and lakes for enhancing recharge and construction of farm ponds, etc. are available.

c. Watershed management: In a typical village ecosystem, forest land and water interact very closely. A watershed is synonymous with a catchment; both refer to an area that drains to a common point. A watershed can be of any size, as small watersheds are subsections of large watersheds, and can ultimately be scaled up to entire river basins.

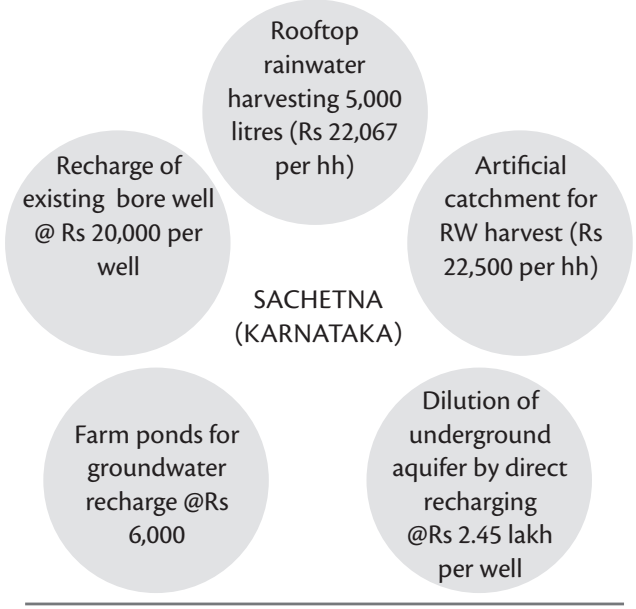
Watershed management is about protecting the catchment by afforestation, construction of check dams, gully plugs, etc. to reduce the velocity of water to minimise soil erosion and maximise soil moisture. Water harvesting in turn benefits farms further downhill by providing irrigation, either via surface water or by recharging groundwater that can be drawn from wells. On an average, the cost is about Rs 5,000 per hectare.

2. Quality

Catchment or watershed of your water source, ground or surface, must be protected from polluting activities. These include the following:

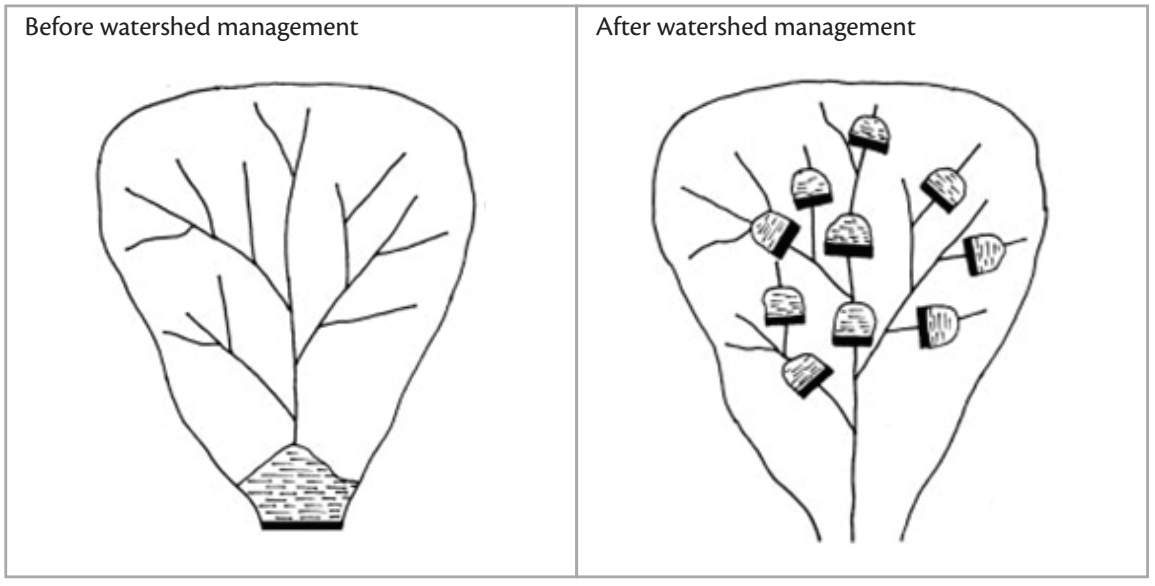
a. Human and animal waste: Protecting a source at the GP level involves proper planning for solid and liquid waste management. Open defecation in the catchment results in faecal matter reaching the water source, leading to waterborne diseases such as diarrhoea, cholera, etc. Unscientific disposal of wastewater is also an issue. If you have a pit toilet in a shallow groundwater area, the faecal matter will reach the groundwater and contaminate it. Site your toilet in such a way that it does

Figure 1: Costs of various water harvesting and recharge options in SACHETNA[1]



[1] Sachetna is a partnership between 64 villages in three districts of Karnataka, BIRD-K, Government of Karnataka and Arghyam to provide safe drinking water in fluoride affected areas.

Figure 2: Watershed Management



Source: Drought: Try capturing the rain, Centre for Science and Environment, New Delhi

not pollute groundwater. Do not dispose of black and grey water into the village pond and do not allow it to accumulate near water sources. The same applies to animal waste. Dumping of solid waste (garbage) also leads to water contamination.

b. Agriculture: Another important aspect of source protection is to understand agricultural practices in the catchment of water source. Excessive use of fertilisers and pesticides results in leaching of nitrates and pesticides into water sources. Increasing soil productivity and effective pest control calls for organic farming, and avoiding or strictly limiting the use of synthetic fertilisers and pesticides, plant growth regulators, livestock feed additives, etc.

ELEMENTS OF A VILLAGE WATER SECURITY PLAN

1. Technical intervention (see Figure 1, 2)

a. Catchment area treatment under watershed programmes
b. Reviving ponds and lakes and develop them as recharge points (@Rs 2.45 lakh per pond/recharge structure
c. Recharging existing bore well and hand pumps (approximate cost @Rs 20,000)
d. Recharging dug wells (converge with Ministry of Water Resources Artificial Dugwell Recharge Scheme)
e. Rainwater harvesting structures at household level and community buildings such as GP office, schools, etc
f. Constructing toilets and stopping open defecation (convergence with TSC)
g. Ensuring that garbage and solid waste does not accumulate near the drinking water source
h. Regularly using field test kits for water quality monitoring

2. Social intervention

a. Constituting, energising and empowering VWSCs to work with the community to develop and implement source protection plans.
b. Developing community monitoring systems to prevent people from defecating near drinking water wells or indulge in any activities that can pollute a water source.

3. BACTERIOLOGICAL CONTAMINATION

This information sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

I a.Bacteriological contamination

Statewide, about 38 percent of the sources surveyed had bacteriological contamination. Of the 28 districts surveyed, only one percent of samples in Belgaum were contaminated, whereas Gadag district was the worst affected with 100 percent of its sources recording the presence of disease causing microorganisms. According to the Bureau of Indian Standards (BIS), E.coli should be completely absent.

- ***Causes and impact of bacteriological contamination:*** Microbial contamination is associated with improper disposal of human and animal waste. According to the WHO, the greatest microbial risks are associated with ingestion of water contaminated with human or animal (including bird) faeces. Faecally derived pathogens (bacteria) in water increase disease risks considerably and may trigger outbreaks of waterborne diseases such as cholera, dysentery, diarrhoea, etc. Over 70 per cent of the surveyed households in ASHWAS reported no toilets.

Coordinator to note equivalent GP data, before GP meeting

Discussion point 1: What do you think are the causes of bacteriological contamination? Is there a link between individual behaviour and practice in this situation?

I b.Quality testing and prevention

Fifty eight percent of GPs have not received the water testing kits, and of those who do have the kit, only 49 percent have used it.

- ***Excreta and disease:*** Proper disposal of excreta is crucial for preventing bacteriological contamination. Inadequate and unsanitary disposal leads to contamination of groundwater and drinking water sources. It allows flies to lay eggs and transmit infection from faeces to other human beings.

Faecal borne diseases and worm infestations are the main causes of death in communities that indulge in indiscriminate defecation. It is interesting to note that such diseases are controllable or preventable through good sanitary barriers raised by safe disposal of human excreta. Equally important in preventing bacteriological contamination is the maintenance of personal hygiene practices. Simple measures such as washing hands with soap after defecation prevent the entry of pathogens into the human body.

Discussion point 2: There is a strong link between personal hygiene, liquid and solid waste disposal and bacterial contamination. What preventive measures is the GP planning to take?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Create demand and ensure community participation in testing of village water sources and its follow up, contribute to the refilling of the water testing kit (average contribution per household per annum: Rs. 1).

2. Create awareness on the impact of bacteriological contamination, its causes and remedies.

3. Avoid defecating in the open, use toilets. Wash hands with soap after defecation. Wash hands before touching a water pot or glass. Boil water for at least one minute (only if bacteriological contamination is present. Do not boil water if multiple contaminants are present).

4. Do not build the toilet close to a water source. According to UNICEF and DDWS, a minimum distance of 10 meters must be maintained between the two. However, this varies from one soil condition to another.

- ***Planning and implementation:***

1. Ensure water quality testing kits are used and follow-up action taken on the basis of the results. The kits must be refilled after one year (roughly about Rs. 500).

2. Ensure VWSCs/ASHAs work with households to create demand for toilets, and raise awareness on the impact of and precautionary measures against bacteriological contamination.

3. It is the responsibility of ASHA to collect samples for testing and transfer them to PHC for analysing biological parameters. Consider the NRHM provision for testing water quality (biological parameters) at the PHCs (1 per 30,000 population, i.e. approximately for 30 to 40 villages/cluster of GPs)

II b. Support from other agencies

- Training ASHAs/VWSC for awareness generation on causes and impact of bacteriological contamination, preventive measures
- Streamlining distribution of water quality testing kits
- Access to water sources and quality-mapping report of the state to facilitate informed decision making and planning at GP and ZP levels.

4. EQUITY

This information sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

Here, equity refers to equal access to basic services across various groups. People experience discrimination due to various factors such as economic status, caste, education level or physical disability. This discussion takes into account differences in access to water and sanitation services based on economic status and vulnerability.

I a. Income differentiation

- ***Water:***

1. Access to piped supply: State level averages indicate difference in access to piped water supply based on income. Only 15 percent of low income households had a piped water connection to their house, as compared to 24 percent of mid-income and 33 percent of high income households[2].
2. Water storage: There was similar difference in behaviour related to storage of water in bindiges. Among low income households, 55 percent stored water in *bindiges*, as compared to 43 percent in the mid-income and 36 percent in the high income groups.
3. Water treatment: Water treatment habits are only marginally different among different groups.
4. Payment of water charges: There was also very little difference among the income groups in payment of water charges. Thirty-seven percent of the low income group, 31 percent of the mid-income group and 27 percent of the high income did not pay water charges.

- ***Sanitation:***

There was a substantial difference among the income groups in access to toilets. Only 13 percent of the low income group and 28 percent of the mid-income groups had access to toilet, compared to 56 percent of the high income group.

Coordinator to note equivalent GP data, before the GP meeting.

Discussion point 1: Access to water: Why is there a difference in access to water among different income groups, whereas there is similar behaviour in payment of water charges? Do people store more when they have inadequate access to piped water?

Discussion point 2: Access to toilets: Why is there a substantial difference in access to toilets among different income groups? Is it related to the availability of finances, space or both? Or is it related to awareness and education?

I b. Gender differentiation

Seventy-two percent of people who collect water are women, and another 18 per cent are children.

Coordinator to note equivalent GP data, before the GP meeting.

Discussion point 3: What are the problems that women face in collecting water? What can be done to make things easier for them?

I c. Problems faced by vulnerable populations[3]

- ***Collecting water:*** Twenty-four percent of the vulnerable population has to collect water from sources outside their homes. On an average, they take about 51 minutes to collect water.

[2] Economic grouping into low, middle and high income households is based on assets owned, including type of house, source of cooking energy, livestock, vehicles and household electronic gadgets.

[3] Vulnerable people are defined as people who are differently abled, aged, sick and pregnant women.

- ***Access to toilets:***

Thirty percent has access to toilets. Most others find it inconvenient to go to the toilet in the open.

Coordinator to note equivalent GP data, before the GP meeting.

Discussion point 4: What problems does the vulnerable population face in collecting water and/or not having access to toilets? What can be done to make things easier for them?

Discussion point 5: Are there any other aspects on which differentiation happens in the GP?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

All government schemes and guidelines emphasise that water and sanitation services are to be provided to all citizens, absence of which can be taken up with the concerned authority.

- ***Planning and implementation:***

1. The location of water supply systems such as mini-water supply, hand pumps and piped water supply must allow all citizens equal access. Mapping (see background information sheet Access to Water for all Citizens) can throw up issues that need to be addressed to ensure equity.

2. The timing of water supply impacts access. For example, if water supply is stopped in the evening, citizens returning home late in the evening after work may have no access.

II b. Support from other agencies

- Absence of WATSAN services for the vulnerable population must be highlighted during reviews and taken up on priority.

- Assisting the GPs in mapping their water supply and sanitation systems in a fair and objective manner

5. FLUORIDE CONTAMINATION

This information sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

Ia. Extent of fluoride contamination in Karnataka

According to the ASHWAS survey, 60 percent of water sources in Karnataka have fluoride levels that exceed the permissible limit of 1.0 ppm. BIS guidelines for drinking water (IS 10500:1991) prescribe a maximum permissible range of 1-1.5 ppm in the absence of an alternate source.

Coordinator to note equivalent GP data, before the GP meeting.

Discussion point 1: What is the extent of contamination in the GP? Do you know how many wells are contaminated? When was water quality last tested?

Ib. Causes and impact of fluoride contamination

- ***Causes:*** The presence of fluoride can be attributed to natural as well as man-made processes. Fluoride appears in groundwater when fluoride-bearing minerals present in rocks are leached out due to natural processes such as soil formation. However, these are normally confined to deeper layers of aquifers. When these aquifers are over-exploited (i.e. when extraction exceeds recharge), the chances of encountering fluoride are higher.

- ***Impact:*** Exposure to high levels of fluoride can affect the teeth (dental fluorosis) as well as the bones (crippling skeletal fluorosis).The health impact in the affected GPs is yet to be ascertained.

Discussion point 2: How deep are the wells in the GP? Are there any trends regarding the depth at which fluoride is encountered? Do you know of people with dental and skeletal fluorosis? Has there been a health survey to identify the same?

Ic. Use of field test kits

Under the National Water Quality Monitoring and Surveillance Programme of the Government of India, all GPs are supposed to receive field test kits for checking the quality of their water sources. However, ASHWAS found that 58 percent of GPs have not received the water testing kits, and of those who have, only 49 percent have used it.

Using these kits is important as they help the GP and village waterman to identify and exclude contaminated wells from the water supply system. Water from these wells may be used for purposes other than drinking and cooking instead.

Discussion point 3: Have you received the kits? Do you know how to use them? Have you used them to test water quality?

Dental Fluorosis: Impact of fluoride in water
Source: Sachetna project, Arghyam, Bangalore

[4] Dental fluorosis is an irreversible condition caused by excessive ingestion of fluoride during the tooth forming years. Fluoride causes dental fluorosis by damaging the enamel-forming cells.

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Create demand for water quality testing and ensure participation in water testing of village sources, its follow-up and contributions towards refills for water quality testing kits (average contribution per household per annum: Rs. 1).
2. Create awareness on the impact of fluoride and dietary recommendations to reduce the impact of fluoride.
3. Create awareness on implementing rooftop rainwater harvesting at the household level to supplement the water source (see information sheet on source sustainability).

- ***Planning and implementation:***

1. The GP should map all drinking water wells, depth to water and the quality of water. Paint all fluoride, nitrate and microbially contaminated wells in red and caution the villagers from using them for drinking or cooking. Such a map may be displayed at the GP office or the local school.
2. Ensure that water quality testing kits are used and follow up action taken on the basis of the results. They must be refilled after a year (average cost: Rs 1,800).
3. Ensure ASHAs work with households to create demand for water testing and awareness on the impact and precautionary measures against fluorosis. Explore alternate sources, such as rainwater harvesting (see Box on best practices at the end of this information sheet)

II b. Support from other agencies

- ***Awareness creation:***

1. Training ASHAs for awareness generation on causes and impact of fluoride, dietary recommendations.

2. Training and capacity building of GPs/VWSC on use of water quality testing kits, interpretation of results and follow-up action.

- ***Planning and implementation:***

1. Streamlining distribution of water quality testing kits.
2. Access to water sources, quality-mapping report of the state to facilitate informed decision making and planning at GP and ZP levels.
3. Comprehensive health mapping to determine extent of health problems due to fluoride.
4. Scheme for rooftop rainwater harvesting, artificial and direct recharging for dilution of fluoride.

Best Practices: Sachetna (2006-2008)

BAIF Institute for Rural Development, Karnataka (BIRD-K), a non-profit organisation based in Tumkur district started a programme on fluoride mitigation through rainwater harvesting in 1998. A number of innovations including different models of rooftop rainwater harvesting and groundwater recharge were successfully tried out. The success of BIRD-K's work caught the attention of the RDPR, Government of Karnataka. A project by the name of Sachetna was launched in 2006 to address fluoride issues in 60 villages comprising four talukas in three affected districts.

The project provided assistance to create 5,000 litre rainwater harvesting tank at households and artificial catchments in mud roofs, the land to facilitate rainwater harvesting, recharge existing bore well, direct recharge structures for dilution of fluoride and farm ponds for recharge.

The average cost of the intervention is Rs. 25,450 per household (see Figure 1 in the information sheet on source sustainability). Arghyam introduced the concept of revolving funds to facilitate the beneficiary contribution. In this context, Rs 20 lakh (1.3 percent) of the project cost was earmarked as revolving funds.

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6.NITRATE CONTAMINATION

This information sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

1a. Extent of nitrate contamination in Karnataka

Nitrate was found to be higher than 45 ppm prescribed by IS 10500:1991 in 20 percent of the samples tested during ASHWAS. Results indicate that Koppal district is the most affected with 56 percent of its samples recording nitrate contamination.

- ***Causes and impact of nitrate contamination:***

According to the WHO, nitrate may arise from the leaching of untreated or poorly treated domestic sewage (point source) or other organic industrial waste into surface water and groundwater. It is also caused by agricultural runoff containing excessive application of nitrogen fertilisers (non- point source). The presence of nitrate and nitrite in water has been proven to be the cause of methaemoglobinaemia (blue baby syndrome), especially in bottle-fed infants. However, the health impacts in the affected GPs are yet to be ascertained.

Coordinator to note equivalent GP data, before GP meeting

Discussion point 1: What do you think are causes of groundwater contamination with nitrate? Is there a link between individual behaviour and practice in this situation?

I b. Quality testing and prevention

Fifty-eight percent of GPs have not received the water quality testing kits, and of those, only 49 percent have used it.

Discussion point 2: What action is the GP taking to prevent people, especially babies, from drinking nitrate contaminated water?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Creating demand and ensuring participation in testing of village water sources and its follow-up, raising contributions for refills for the water testing kit (average contribution per household per annum: Rs. 1) – to be taken up by ASHAs.
2. Creating alternate sources, such as rainwater harvesting (see the information sheet on Source Sustainability for details)
3. Encouraging the use of toilets and discouraging open defecation. Human excreta must be disposed of in a scientific manner (see information sheet on Sanitation: Access to toilets for all).
4. Encouraging organic farming to prevent excessive use of fertilisers that contaminate water sources (see the information sheet on Source Sustainability).

- ***Planning and implementation:***

1. Ensuring quality of kits used and follow up action taken on the basis of the results. The kits must be refilled after a year (average cost: Rs1,800)

2. Ensuring ASHAs work with households to create demand for toilets, and build awareness on the impact and precautionary measures against nitrate pollution

II b. Support from other agencies

- ***Awareness creation***:

1. Training ASHAs/VWSCs for awareness generation on the causes and impact of nitrate, and preventive measures against it.

2. Understanding the extent of health problems created by nitrate through comprehensive health mapping.

3. Streamlining distribution of water testing kits

4. Access to water sources, quality-mapping report of the state to facilitate informed decision making and planning at GP and ZP levels.

7. SANITATION: ACCESS TO TOILETS FOR ALL

This information sheet should be read with the next information sheet on Sanitation (Disposal). This sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION I

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

I a. Open defecation and access/use of toilets

- ***Extent of open defecation in Karnataka:*** Only 28 percent of households across the state have toilets. Seventy-two percent resort to open defecation. Sub-region 4, comprising Chikmagalur, Kodagu, Shimoga, Dakshin Kannada, Udupi and Uttara Kannada, has the lowest percentage of open defecation at 38 percent, while sub-region 1 (districts of North Karnataka) has the highest at 88 percent, with Raichur leading with 98 percent.

- ***Reasons for not constructing toilets:*** Financial constraints and lack of space were the two most commonly cited reasons for not constructing a toilet.

- ***Total Sanitation Campaign (TSC):*** While the TSC covers all the GPs in Karnataka, many GPs covered in the survey reported that it had not been implemented.

- ***School toilets:*** Eighty-two percent of schools have toilets. According to the GPs, six percent of toilets are not in use. The main reason for this was the lack of water. However, ASHWAS surveyors found that several school toilets are in a state of disuse.

- ***Nirmal Gram Puraskar (NGP):*** The 14 NGP GPs surveyed also showed slippages with the percentage of households having toilet access ranging from 47 percent (Chikmagalur) to 97 percent (Mysore).

Coordinator to note equivalent GP data, before GP meeting

Discussion point 1: Why is there such a high percentage of open defecation in your GP? The TSC is a scheme from the government to ensure total sanitation facilities for all. Why is it not effective in your GP?

I b. Impact of open defecation

Open defecation near water sources can lead to bacteriological contamination. Similarly, not washing hands after defecating is unhygienic and can lead to bacteriological infections.

Discussion point 2: Are you aware of impact of open defecation?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Raising awareness on the impact of open defecation near water sources can prevent or minimise bacteriological contamination. Not washing hands after defecating is unhygienic and can lead to bacteriological infections. A sustained effort to increase awareness on the impact of open defecation on health, hygiene and environment must be made.

2. Supplementing IEC efforts with discussions and meetings with the households to encourage the construction and use of toilets.

3. Awareness building in schools

- ***Planning and implementation:***

1. Preparing a village sanitation plan (as per the revised TSC guidelines) or strategy for total sanitation in the village, taking care of the concerns of the individual

households, differently abled and other disadvantaged people and schools/anganwadis. These village plans must be made in such a way that the sanitation facilities created do not pollute water sources. They must include dissemination of funds, awareness activities, and goals with timelines for increasing sanitation coverage

2. Ensuring access to TSC schemes and funds and implementing the scheme in campaign mode (by increasing awareness, ensuring toilets and built and used, etc.) to ensure complete sanitation coverage. Cite the examples of Shimoga (71 percent access to toilets) and Dakshina Kannada (84 percent) where TSC has been implemented effectively.

3. Implementation in schools

a. Ensuring that the number of toilets is proportional to the number of students in the school. Typically, one toilet and three urinals are required for a school with 150 students.

b. In co-educational schools, there should be separate toilets for girls and boys.

c. Ensuring that toilets have adequate water supply

d. The school can consider staggering the school closing time so that all students have a chance to use the toilets.

II b. Support from other agencies

- Provide IEC material to increase awareness on the use of toilets.
- Ensure formation of sub committees such as VWSC/ VWHC/ASHA groups and build capacity to ensure effectiveness of the awareness activities.
- Provision of best practices/case studies of other GPs who have successfully achieved sanitation and assisted in 'out-of-the-box' thinking (see Box on Best practices later in this information sheet).

II c. Changes required in existing schemes/ introduction of new schemes

- Review TSC, specifically in the light of reasons for not constructing toilets – financial and lack of space
- Institute intermediate awards and incentives to encourage GPs to work towards total sanitation

Best practices in sanitation (toilets): Gramalaya

Sanitation needs handholding, collective action

The initiatives of Gramalaya, a non-governmental organisation in Tiruchirappalli district in Tamil Nadu, clearly explain the importance of community participation and collective action to bring about behavioural change in the community towards sanitation.

Gramalaya works in 158 villages in 28 panchayats in the Thottiam block of the district. Its two-pronged approach involves working with panchayats and with women's SHGs. Many panchayat members first constructed toilets in their own houses and then acted as role models for others. The SHGs also worked with the communities to create demand for toilets.

One of the key issues was mobilising community contributions (20-40 percent of the total cost) for toilet construction. Since about 58 percent of the households were associated with SHGs, revolving funds were set up to provide loans to individuals, repayable in six months to construct individual toilets. The sum of Rs 4,000 was given as an interest-free loan to members. Rs. 3 lakh was set aside for this for construction of 800 toilets. SHGs also mobilised Rs. 3.3 lakh from banks for toilet construction.

Contact Information
GRAMALAYA
No.12, 4th Cross West
Thillainagar,
Tiruchirappalli – 620 018
Tamil Nadu, India
Tel: (0431) 2761263

Different toilet types and costs

S. No.	Types and costs	Single Pit Latrine	Twin Pit Latrine	Ecosan Toilet
1.	Non-water dependent	A conventional pit latrine is a non-water dependent latrine that does not require water for functioning although a small amount may be used to clean the squat plate occasionally Not completely sanitary, they pose the risk of groundwater pollution. Unsuitable in waterlogged, shallow water table areas	When one pit gets filled, move to the next, allowing the first to decompose Unsuitable in waterlogged, shallow water table areas	These segregate water, urine and excreta. Faecal matter is allowed to decompose in the pits. They recycle nutrients and organic matter in the excreta Suitable for water scarce, deep water table, waterlogged and hard rock or impervious soil areas
	Cost (Rs per toilet)	3,000-3,500	5,000-6,000	8,000-12,000
2.	Pour flush	1-2 litres of water required for manual flushing. Excreta disposal system (pit latrine) where excreta is collected and decomposed within a pit. Risk of groundwater pollution. Unsuitable in waterlogged, shallow water table areas.	Risk of groundwater pollution; Not suitable in waterlogged, shallow water table areas.	Not Applicable
	Cost (Rs per toilet)	3,000-3,500	5,000-6,000	

Source: Wateraid, UNICEF, Arghyam; Ecological Solutions by Paul Caulvert

8. SANITATION: DISPOSAL OF SOLID AND LIQUID WASTE

This information sheet should be read with the previous information sheet on Sanitation (Toilets). This sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

1a. Liquid waste

Liquid waste is categorised into grey[4] and black[5] water. One of the key aspects of disposal is separation of black water and grey water to reduce the amount of highly polluted water that creates bacteriological contamination.

Only 28 percent of households in the state have toilets. Of these, 96 percent are flush toilets which discharge into single pits or soak pits. The following table provides findings on where grey and black water go, and comments on each disposal system.

Statewide, 42 percent of households are connected to drains. Sub-regions 2 and 3 have the highest access to drainage facilities with 59 percent connected to drains[6] .It is interesting to note that drainage facilities top the list of demands in the WATSAN sector. However, as explained later, drains with improper disposal systems may not be an optimal solution for rural households.

In addition, cleaning the drains seems to be an issue of concern. Forty-five percent of respondents stated that the GP is responsible for cleaning the drains, while 52 percent of respondents reported cleaning the drains themselves. However, many surveyors noted that most drains were clogged with plastic and other solid waste. This reflects on the people's perception on cleanliness. Only 14 percent across the state reported that their GP is clean everywhere. Sixty-one percent stated that the GP was clean in places, while 25 percent stated that their GP was unclean everywhere.

Coordinator to note equivalent GP data, before GP meeting:

Discussion point 1: Discuss the findings and comments on each disposal system. What system is predominantly used in the GP? Why is there a need for multiple systems for disposal of liquid waste?

I b. Solid waste

ASHWAS findings reveal the following methods of disposal of solid waste:

Disposal into open places can create unhygienic conditions and lead to the spread of disease in the villages. Disposal into the open as well as into unlined waste pits can cause water to seep into the ground during the rainy season and contaminate groundwater.

Discussion point 2: Are you aware of the implications of disposing solid waste in open areas or even in an unlined waste pit? Is there a facility to segregate and collect the waste and then dispose it?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Creating awareness about different methods for liquid waste disposal: Drains must not be used to dispose of wastewater from toilets. Wastewater from kitchen and bathrooms can be drained into kitchen garden wherever there is one (see Table on liquid waste disposal above).
2. Creating awareness about using less soap, detergent and cleaners, as wastewater with too much soap and detergent can be harmful to plants. Discourage throwing children faeces into drains. Educate children against defecating in the drains.
3. Creating awareness about disposal of solid waste in the open, as well as segregating degradable and non-degradable waste at the household level.

[4] Grey water: Wastewater from kitchens and baths. [5] Black water: Water from toilets.

[6] Bangalore Rural, Chikballapur, Chitradurga, Davangere, Kolar, Ramnagaram, Tumkur, Chamrajnagar, Mandya, Mysore, Hassan

Table: Different types of waste water and their disposal (ASHWAS survey findings)

Where the waste water goes	Waste water after washing clothes	Bath water	Kitchen refuse	From the toilets	Comments on disposal systems
Soak pit	4.2	9.2	7.4	71.9	Black water should go into a soak pit / septic tank if it is not reaching the water table
Kitchen garden	23.8	27.4	28.3	3.8	Not suitable for black, would do for grey water
Cesspool	5.2	6.7	6.7	9.6	Disposal into a cesspool can pollute the water source. Also, cesspools can become breeding ground for mosquitoes.
Drainage	28.1	30.5	30.7	4.9	Wastewater from drains must be disposed in a field if it is grey. Black water should not enter open drains as it will lead to bacterial contamination. Drains must be cleaned periodically
Fields	8.2	8.9	8.9	2.6	Not suitable for black, would do for grey water
Road	19.2	16.2	16.9	3.3	Neither for black nor for grey water as it creates unhygienic conditions
Surface waterbody	11.3	1.0	0.8	2.0	Neither for black nor for grey water as it pollutes the surface water body
Don't know	0.1	0.1	0.3	2.1	
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	

Table: Different types of solid waste disposal methods (ASHWAS survey findings)

Bath water	Compost pit	Waste bin	Waste Pit	This work is not done at GP level	Other
47.5%	4.0%	8.5%	34.5%	5.65%	

4. Supplementing IEC efforts with discussions and meetings with the households to encourage proper use and cleanliness of drains; educating citizens on the ill-effects of dirty and misused drains.
5. Educating children on multiple disposal systems for liquid waste and the difference between degradable and non-degradable solid waste; encouraging schools to build compost pits for solid waste.

- ***Planning and implementation:***

1. Liquid waste
   a. Ensuring multiple disposal options are available to citizens
   b. Keeping drains clean
   c. Not discharging wastewater from the drains into cesspools near water sources so as not to contaminate water sources
2. Solid waste

a. Some GPs are attempting to set up a separate body to segregate biodegradable kitchen waste from non-biodegradable waste (such as plastic, etc). Subsequently, compost pit can be used to convert kitchen/ organic waste to manure, and non-biodegradable waste may be collected and disposed off in a landfill.

II b. Support from other agencies

- Ten percent of TSC funds are available for solid and liquid waste disposal. All GPs are expected to draw up sanitation plans with strategies for open defecation free villages with proper drainage and systems for disposal of solid and liquid waste. For more details, please contact your ZP.
- Ensure formation of sub-committees such as VWSCs, VWHCs and ASHA groups. Build their capacity to ensure that awareness activities are effective.

II c. Changes required in existing schemes/introduction of new schemes

- Most toilets constructed under the TSC are single pit and may become unusable in two years. It is recommended that twin pit toilets are made mandatory to ensure continued usage.
- Best practices for liquid and solid waste management must be provided to the GPs.

9. HEALTH AND HYGIENE

This information sheet should be read with the next information sheet on menstrual hygiene. This sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

1. State level findings

- ***Disease occurrence:*** Twenty percent of the population in 80 of the 172 GPs sampled reported the prevalence of chikungunya, a vector-borne disease spread by mosquitoes that breed in fresh stagnant water. This included 87 percent of households in Dakshin Kannada and 21 deaths in Gulbarga and Bidar. The average amount spent per household on treatment was Rs 2,800. Across the state, 10 percent of households reported the incidence of diarrhoea, which is caused by microbiological contamination either through water, food or other forms of oral intake. Raichur, Koppal and Chikballapur reported the highest incidence of the disease.

- ***Hygiene:*** Ninety-two percent dip their glass or mug into the water pot for drinking. Seventy-one percent wash their drinking water vessels every day. Ninety percent wash their hands with soap and water after handling pesticides but only 50 percent wash their hands with soap and water after defecation.

Coordinator to note equivalent GP data, before the GP meeting:

Discussion point 1: Did your GP experienced incidences of waterborne diseases in the past? What action has been taken to reduce its occurrence?

Discussion point 2: Are you aware of the disease transmission route?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II b. Action for GPs

- ***Awareness building:***

1. Awareness on hygiene practices such as washing hands before eating, cooking and after defecation, taking water from the pot without contaminating it, etc. must be created at the household level.

2. Keeping the area around the water source clean and free of debris, preventing water from stagnating, bringing such issues to the notice of the VWSC, etc.

3. Keeping drains clean and free from garbage to avoid rats and pests such as flies, etc.

4. Building awareness about the link between hygiene and disease, washing hands, how to handle drinking water and other hygiene practices in schools – the school game will aid this activity.

- ***Planning and implementation:***

1. Conducting periodic health camps to reiterate the importance of WATSAN in relation to health and good practices in this regard.

2. Streamlining quality testing, with particular emphasis on bacteriological testing.

II b. Support from other agencies

1. Build capacity of VWSCs and ASHAs to promote safe hygiene practices at the individual level and sanitation measures at the village level.

2. Train GP members and relevant sub-committees on water quality testing.

3. Provide technical and financial resources to conduct periodic health camps to increase awareness on the role of WATSAN to ensure good health.

II c. Changes required in existing schemes/introduction of new schemes

Review the need for two committees, VHSC and VWSC, one for WATSAN and the other for health and sanitation. The activities of both may be combined into a single committee trained to perform tasks related to both departments. This committee could be compensated for the time they spend on these tasks, to raise job appeal and commitment.

10. MENSTRUAL HYGIENE

This information sheet is to be discussed with women by a female ASHWAS Coordinator and should be read alongwith the previous information sheet on health and hygiene.
The sheet is divided into two sections:
Section I: Background discussion points based on information provided
Section II: Discussion points for action and support required by the GPs

SECTION 1

Important note: State level findings from ASHWAS are provided below. Equivalent GP findings as per the GP report/table provided, are to be noted by the Coordinator, as preparation before the GP meeting.

Ia. State findings

- Protection method: A mere 4.94 percent of women use sanitary napkins; the remaining 94 percent use cloth because they are accustomed to it and it is easily available. Sixty- two percent change the cloth ranging from two to six months, and 94 percent use soap to clean it.

- Disposal: Disposal is by throwing into open spaces (37 percent) and burning (39 percent). A smaller percentage (10.25 percent) throws them in a dustbin and 5.67 percent flush them down the toilet.

- Sub-committees: There were 129 VHSCs and 75 VWSCs present in the 172 GPs surveyed.

Coordinator to note equivalent GP data, before the GP meeting:

Discussion point 1: Is there a high occurrence of white discharge among women and adolescent girls? Are women aware of the risks, such as white discharge and reproductive tract infections (RTIs), associated with wet and non-sanitary protection?

Discussion point 2: Are VHSCs and ASHAs present in the GP? What role do they play in promoting menstrual hygiene? How can they become more effective?

Discussion point 3: What actions are being taken to ensure women's and girls' need for privacy during their period?

SECTION II

Important note: The following are suggestions to prompt discussion among participants. Solutions and action plans should emerge from GP members and others present at the meeting.

II a. Action for GPs

- ***Awareness building:***

1. Creating awareness among women and girls of the risks associated with using wet and unclean cloth for protection.

2. Creating VHSCs and ASHAs, if they do not exist; raising awareness among women and girls about the roles and responsibilities of these organisations, and assuring them that they can approach their members with their queries.

3. Educating girls on menstrual hygiene and importance of dry and clean protection as part of school curriculum.

- ***Planning and implementation:***

1. Providing access to menstrual protection alternatives.

2. Mobilising funds and assisting in the construction of toilets under the TSC to provide women and girls the privacy they need.

II b. Support from other agencies

1. Information and necessary skills for TSC implementation, to ensure toilets for women

2. Monitor existence and functioning of ASHAs and VHSCs at each GP, and ensure their capacity building as per NRHM norms.

II c. Changes required in existing schemes/introduction of new schemes

1. Optimal methods that are part of the solid waste disposal system of the TSC must be devised for the disposal of protective cloth and/or sanitary napkins.

2. Sanitary alternatives of menstrual protection must be offered. Low cost sanitary napkins must be introduced. Options must be evaluated for subsidising what is currently available in the market, if specially mass-produced alternatives are not feasible.

11. GOVERNANCE (GP FUNCTIONING)

This information sheet is to help understand the effectiveness of GPs in handling citizens' issues and arrive at key areas on which capacity building efforts may be focussed.

This document is divided into five sections:

I. GP staff
II. Role and capacity of GPs in WATSAN
III. Planning, budgeting and utilisation
IV. Satisfaction with government bodies
V. Criteria for successful functioning

I. GP STAFF:

Make a list of GP staff and their duties.

II. ROLE AND CAPACITY OF GPS IN WATSAN:

At the state level, 98 percent of respondents stated that the GP (including the waterman) was responsible for WATSAN repairs and maintenance. Most GPs felt equipped to bear this responsibility with regard to tools and finances. Seventy-one percent of GPs stated that they possess tools and equipment for repairs and 84 percent have the funds for O&M (six percent said they could arrange for funds if necessary).

Discussion point 1: Discuss the GP's WATSAN related roles and its performance vis-à-vis these roles and the support it needs (see Table 1).

III. PLANNING, BUDGETING AND UTILISATION :

Rs. 2.82 lakh per GP was spent on WATSAN services. Of this, 30 per cent (Rs. 84,000) was spent on electricity, 33 per cent (Rs. 93,600) on O&M, and 27 per cent (Rs. 76,000) on capital expenditure. On an average, water charges collected from households was Rs 94,000, which is equal to the expenditure on operations and maintenance (see Table 2).

Discussion point 2: What support does the GP need in the planning, budgeting and utilization process?

IV. SATISFACTION WITH GOVERNMENT BODIES

a. List programmes being undertaken by the TP/ZP in your GP. Are they being effectively implemented?

-
-
-
-

b. Are you satisfied with the support provided by your TP/ZP? What does the GP require from TP/ZP/state government to be able to function more effectively?

-
-
-

V. CRITERIA FOR SUCCESSFUL FUNCTIONING

a. Can you name 2 GPs which are functioning very effectively?

-
-

b. What conditions are required for effective GP functioning?

-

Table 1: Roles, issues and support needed by GPs

Responsibilities	State findings related to responsibilities	Equivalent GP data	Problems faced by GP in performing their role	Support required from government bodies
O&M	Almost all GPs surveyed reported disruptions in water supply due to O&M issues			
Formation of committees and their effective functioning	75 VWSCs constituted under the NRDWP were present in the 172 GPs; 129 of the GPs had VHSCs constituted under the NRHM, Ministry of Health. Of these, 42% were reported as active.			
Testing water quality	100 of the 172 GPs (58%) did not have the water quality testing kits Of the 72 that did, only 35 had used it. In the two instances of the test indicating non-potable water, the GPs took steps to create awareness of water quality in the villages, but did not send samples for further testing, as per norms.			
Toilet construction	Suboptimal utilisation of sanitation schemes, especially the TSC. Statewide open defecation percentage is 72%			
Solid and liquid waste disposal system	Inadequate or absent in most GPs			
Other roles				

Table 2: GP statement of expenditure

S. No.	Total funds received by the GP, Income Heads	Amount (Rs.)	Total expenses by the GP Expenditure heads	Amount (Rs.)
1.	Schemes under which funds come directly to the GP			
2.	Development grant from RDPR			
3.	12th Finance Commission grant			
4.	Other			
	Total funds		**Total expenditure**	

ANNEXURE J

OBSERVATION AND FEEDBACK FORMAT FOR GP DISSEMINATION					
Note: This sheet must be faxed after every GP meeting.					
I. GP details	Name of GP	Date of meeting	Venue of meeting		Address of GP
	Phone: GP office	Phone: President/*Adhyaksha*	Phone: Secretary		
II. Attendance	Number of participants	Number of women participants	Secretary (Y/N)	President/*Adhyaksha* (Y/N)	TP/ ZP representative (Y/N)
III. Issues discussed and action planning	S. No.	Issues	Whether discussed in detail (Yes/No)		Whether action plan prepared (Yes/No)
IV. Whether the following completed	Discussion on GP governance (Yes/No)	Discussion with women (Yes/No)	Snakes and Ladders game (Yes/No)		

<table>
<tr><td rowspan="10">V. Rate the following</td><td colspan="5">On a scale of 1-5, (1 being very low and 5 being very high)</td></tr>
<tr><td colspan="5">Level of participation of GP members and others present</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td colspan="5">Your assessment of capability of the GP to understand and resolve citizens' issues</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td colspan="5">Level of cooperation extended by the GP to ASHWAS Coordinators</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td colspan="5">Level of cooperation extended by TP/ ZP to ASHWAS Coordinators</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td colspan="5">Usefulness of the reference document provided by Arghyam</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>VI. Comments</td><td colspan="5">Any other comment on the GP meeting, positive and negative experiences</td></tr>
<tr><td colspan="3">Names and signatures of two ASHWAS Coordinators</td><td colspan="3">Names and signature of Arghyam representative, if present</td></tr>
<tr><td colspan="2"></td><td></td><td colspan="3"></td></tr>
</table>

GP resolution

We have participated in the discussion held by ASHWAS Coordinators and resolved to undertake action as decided in the meeting.

Names and signatures of participants present in the meeting

S. No.	Name	Position/Committee	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Signature of *Adhyaksha* and Secretary	Seal of the Gram Panchayat and Date

ANNEXURE K

TEMPLATE FOR GP ACTION PLANNING			
Format for recording discussions and action plans			
Note: This template must be filled in using the background document on the relevant issue.			
This section is divided into two sections: Section I: Background discussion points based on information provided in the GP report Section II: Discussion points for action and support required by the GPs			
Name of GP:	**Date of discussion:**	**Names of communicators:**	**Name of Arghyam representative, if present:**
Section I : Notes on discussion on state and GP findings			
Issue for discussion 1:			
Response to discussion point 1:			
Issue for discussion 2:			
Response to discussion point 2:			
Issue for discussion 3:			
Response to discussion point 3:			

Section II : Action and support required by the GP (maximum 3-4 per issue)				
S. No.	**Action plan**	**Responsibility**	**Time required (years)**	**Support required from (TP/ZP/State government agency)**
1.				
2.				
3.				

Section III : Recommendations by GPs (regarding changes needed in existing schemes/introduction of new schemes)		
Signature: *Adhyaksha*	**Signature: Secretary**	**GP Seal**

SAMPLE GP ACTION PLAN

Section I : Summary of discussion and GP action plan

GP Name: ABC	Taluka: DEF	District: GHI

Results at a glance

GP action plan categories	Related ASHWAS results
Water	• 48 percent get water every day, 35 percent take more than an hour to collect water • VWSC absent • Of the 28 sources tested, 22 are contaminated with fluoride; 10 are contaminated with nitrate
Sanitation	▪ 16 percent toilet coverage

Section II : Summary of action plans and support required

As the heading suggests, this document contains a summary of action plans and support required, as articulated by the GPs themselves.

S. No.	Action plan	Responsibility	Time required (years)	Support required from (TP/ZP/State government agency)
Water Management (to be implemented with the support of the TP/ ZP)				
1.	Build rainwater harvesting systems in schools and GP buildings of Ayarayalli, Kepmanahalli, Bolanahalli, Harohalli, Husenpura villages	GP (under Mahatma Gandhi National Rural Employment Guarantee Act)	2	RDPR and ZP: Release funds (Rs. 7 Lakh) ZP: Provide training on rainwater harvesting
2.	Form separate VWSCs in each of the six villages; provide training and travel facilities	GP	1	TP: Financial support (Rs. 2 Lakh); form VWSC and provide requisite training
Toilet (to be implemented with the support of the TP/ ZP)				
1.	Build 600-700 individual toilets in Amarahalli, Bolanahalli, Harohalli, Husenpura, Kepanahalli and Rangayyana koppalu villages	GP	3	ZP: Ensure timely release of funds (approximately Rs. 24 Lakh) from government, guide community on proper building of toilets
2	Dig two bore wells in Bolanahalli village	GP	1	ZP: Financial support (Rs. 3 Lakh)

Section III : Observations/views/practices on key ASHWAS findings, based on discussions at the GP	
Water source sustainability	Almost everyone in the GP depends on groundwater and digs deep bore wells for it. This is the main reason for depletion and pollution of water. Therefore, it has been decided to harvest rainwater in schools and GP buildings.
Water quality	Excessive nitrate was found in hand pumps in Bolanahalli, Ayarahalli, Husenpura and Rangayyana Koppalu villages. Likewise, excessive fluoride was found in Kempanahalli hand pump water.
Sanitation	VWSCs already exist in Rangayyana Koppalu and Kempanahalli villages of Bolanahalli GP. But they neither function properly nor meet regularly. The committees were formed only to adhere to the government order – committee members have no knowledge of WATSAN issues. Therefore, it was decided to form six separate committees in each village and provide them with the requisite training and exposure visit. When the villagers were asked to try and achieve the NGP, they said they would, if the government aid was increased. Appoint an NGO to train the VWSC.
Toilets	Women, older people, pregnant ladies and children are most affected by open defecation. Lack of privacy and the fear factor forces them to wait until night. In Bolanahalli, 84 percent engage in open defecation. Although the GP provides Rs. 2,500 for building toilets under Total Sanitation Campaign, but the community thought that only Rs. 1,200 was given, as per the earlier norm. People also complained about insufficient water for toilets and asked for another 2 bore wells. They demanded an increase in government aid. Finally, people collectively decided to build toilets. Arghyam has found in ASHWAS that, some households do not have space for building toilets. While discussing about building the community toilets, some people complained about insufficient water and maintenance problems. They recommended for individual toilets.
Menstrual hygiene	Women, older people, pregnant ladies and children are facing more problems in practicing open defecation. Lack of privacy and the fear factor forces them to wait until night. Women also face problems during menstruation.

Section IV : Details of functionaries and finances				
1. Number of staff and break-up:	**No of employees**			
	Secretary		1	
	Bill collector		1	
	Peon		1	
	Borewell mechanic		1	
	Waterman		10	
	Sweeper		3	
	Total		**17**	
2. Break-up of GP budget, as reported by the GP	**Revenue Heads**	**Rs.**	**Expenditure Heads**	**Rs.**
	RDPR Grant	50,000	Fully Utilised	50,000
	12th Finance Commission Grant	3,32,000	Unspent-272000	60,000
	Total	**3,82,000**	**Total**	**1,10,000**

Arghyam
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