Accelerating Sanitation and Water for All (ASWA II)

Baseline Report

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Acknowledgement

Authors:

1. **Ms. Selina Chan, International Team Leader (Consultant, Progress Inc.)**
2. **Ms. Pooja Koirala, Consultant (Director, Progress Inc.)**
3. **Mr. Bibhav Basnet, Consultant (Director, Progress Inc.)**

Executive Summary

Introduction

To address the challenge pertaining to Water, Sanitation and Hygiene (WASH) UNICEF Nepal is implementing ASWA II project from the support of DFID through UNICEF Headquarters. The project will be implemented mainly in eight Terai districts which include (i) Saptari, (ii) Siraha, (iii) Dhanusha, (iv) Mahottari, (v) Sarlahi, (vi) Rautahat, (viii) Bara and (viii) Parsa. The objective of ASWA-II is to support federal, provincial and local governments to strengthen their capacity and systems to plan, implement, monitor and sustain WASH services, building both community and government ownership by strengthening the enabling environment while ensuring sustained use of safely managed water supplies and the elimination of Open Defecation and hygiene by people in targeted districts, especially by women and girls and persons with disability. Major interventions under this programme are supporting people to have improved access to basic sanitation and safe water, WASH in Schools and Health Care Facilities.

In this regard, UNICEF Nepal had subcontracted a national level external research firm, Progress Inc. to carry out baseline survey in the intervention areas in order to measure the progress to improved and sustained sanitation, safe water and hygiene practices. The key outcomes of this baseline survey were:

1. To conduct a pilot study to test survey tools developed by UNICEF HQ for use in all ASWA-II programme countries. Provide feedback on improvements and adjustments required prior to global launch of the tools.

2. To collect household and community informant data needed to inform the log-frame indicators and establish a reference/baseline situation - data collected at mid-line and end-line surveys will be compared to the baseline data to assess progress and results achieved through the programme. This will help UNICEF take appropriate measures for course correction, results will be periodically reported to the donor, and the assessment of progress and results will serve for evaluation purposes at the end of programme implementation.

3. To establish a baseline situation for future sustainability checks.

Methodology

The global ASWA-II programme has multi-level Impact, Outcome and Output indicators common across all intervention countries. In Nepal – for the purpose of this baseline study – only Outcome Indicators 1, 2, 3 and 4 were required to be measured.

- Outcome Indicator 1: Proportion of externally verified ODF communities attributed to DFID support that maintain their ODF status for at least one year

- Outcome Indicator 2: Proportion of people in the intervention communities that use household toilets, disaggregated by sex, disability, and wealth quintile

- Outcome Indicator 3: Proportion of people in intervention communities that practice handwashing with soap or an alternative handwashing agent such as ash, and water disaggregated by sex disability and wealth

- Outcome Indicator 4: Proportion of people using basic, safe water supplies, disaggregated by sex, disability and wealth ranking.

The baseline study used **quantitative surveys**: (1) household questionnaire survey, and (2) community questionnaire. The survey questions were developed by UNICEF Water, Sanitation and Hygiene Section and Evaluation Office in New York and piloted in Nepal as part of this study. The data sources were derived from the respondent interviews in households, observations by the interviewer and interviews with community key informants from the same communities. The water quality testing utilized a presence and absence test vial developed in Nepal and endorsed by UNICEF NCO. These test vials indicated the presence of microbiological bacteria in water samples.

A sample size of 3000 was selected for the study. A design effect of 2 was selected given that the characteristics of ODF vs Non-ODF is heterogeneous in the Terai region. To determine prevalence percentage, the indicator "access to improved toilet facility" was considered, which is at 63% according to NDHS, 2016. The household sampling protocol was multi-staged; sampling municipalities at the first stage using population proportionate to size (PPS), based on the selected municipalities, intervention communities (also known as the village/tole) were selected once again using the PPS method. Following the model adopted in Nepal specific MICS and NDHS, where 25-30 household were selected within each intervention community, 20-25 households were targeted for survey in each intervention community for the ASWA-II programme. A sub-sample from the sampled households was taken to conduct a water quality testing. The targeted number of water testing samples was a minimum of 1000 (33.3 per cent) of the sampled households. These 1000 samples were tested for presence of coliform. Household water were tested from household stored drinking water vessels or directly from the source as accessible and at the discretion of the enumerators.

Part of quality data collection consists of a piloting as well as field pre-testing. A training was held in Jhamsikhel, Lalitur with one representative from UNICEF HQ for piloting purpose of the school, health, community and water supply questionnaire. Piloting was conducted in Kalaiya, Bara along with representatives from UNICEF HQ, UNICEF ROSA, UNICEF NCO, Bangladesh UNICEF representatives, research firms from India, Pakistan, and Bangladesh, and local government representative.

Key Findings

The survey captured a total of 23,348 individuals, with 11,453 female (49 per cent) and 11,895 male (51 per cent). The findings below are presented as per the key indicators of the outcome of the project.

For the outcome 1 indicator that is "Proportion of externally verified ODF communities attributed to DFID support that maintain their ODF status for at least one year", the baseline captured the number of communities that were externally verified as ODF. Results demonstrated that 47 out of 100 communities were externally ODF certified. Out of these ODF certified communities, 29 communities upon observation was found to be free of evidence of open defecation, while the remaining 18 did show some evidence of open defecation despite being ODF certified. Positively, there were 11 communities out of 53 that were not ODF certified, but free from evidence of open defecation.

ODF certified	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	40%	40	100
Externally verified/certified ODF	Externally verified/certified	62%	29	47
	Not verified/certified	21%	11	53

The outcome indicator 2 states "Proportion of people in the intervention communities that use household toilets, disaggregated by sex, disability, and wealth quintile". Results from baseline survey demonstrates that more than half of the total population (55 per cent) used toilets. The proportion of female members and male members in use of toilet did not show any variance. Moreover, the proportion was comparable with the population with no disability (54 per cent) and with disability (58 per cent). In assessing the results per the wealth quintile, it shows that use of toilet increased as the quintile increased from first (20 per cent) to fifth (92 per cent). This results indicates that the use of toilet ascended as the wealth quintile increased. According to the JMP toilet categorization, there were almost half proportion of population that used improved toilets that were not shared, and a mere 2 per cent used improved toilets that were shared.

Use of toilet	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	55%	11690	21326
Sex	Female	55%	5752	10468
	Male	55%	5938	10858
Head of Household	Female headed	52%	433	831
	Male headed	55%	1076	1941
Wealth Quintile	Q1 (lowest)	20%	824	4067
	Q2	30%	856	2818

	Q3	51%	2321	4564
	Q4	69%	4088	5966
	Q5 (highest)	92%	3601	3911
Disability Status	No disability	54%	9047	16743
	Disability	58%	2643	4583
JMP Toilet Category	Improved and not shared	51%	10932	21326
	Improved and shared (limited)	2%	507	21326
	Unimproved	0%	48	21326

In slight variation with the observation, there were 54 per cent of the households that had reported to use toilets always. Among the households where toilets were observed, 87.4 percent had flush toilet and 12.6 percent had pit latrine.

The outcome indicator 3 states "Proportion of people in intervention communities that practice handwashing with soap or an alternative handwashing agent such as ash, and water disaggregated by sex disability and wealth". Results show that 64 per cent of the total population had an access to handwashing facility, with provision of water and one form of cleansing agent. There was no variation among the male and female population. Similarly there was no stark variation between population with no disability (64 per cent) and population with disability (63 per cent) in adopting handwashing practice. In case of the population belonging to different wealth quintile, the trend was increasing as the quintile ascended. Handwashing practice was lowest in fist quintile (48 per cent) and highest in fifth quintile (85 per cent).

Handwashing practice	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	64%	14882	23348
Sex	Female	64%	7280	11453
	Male	64%	7602	11895
Head of Household	Female headed	64%	588	916
	Male headed	64%	1345	2118
Wealth Quintile	Q1 (lowest)	48%	2010	4211
	Q2	49%	1484	3016
	Q3	56%	2782	4924
	Q4	71%	4691	6576
	Q5 (highest)	85%	3915	4621
Disability Status	No disability	64%	11845	18517
	Disability	63%	3037	4831
Handwashing definition	Any handwashing facility	93%	21726	23348

	Handwashing facility with water but no soap or cleansing agent	29%	6844	23348
	Handwashing facility with water and alternative cleansing agent	16%	3651	23348
	Handwashing facility with water and soap	48%	11231	23348

The practice of handwashing was followed by majority of the households; only 2.5 per cent reported that they do not usually wash their hands. The critical times of handwashing was reported to be after defecation, before eating, after eating and while washing body and face.

Lastly, outcome indicator 4 states "Proportion of people using basic, safe water supplies, disaggregated by sex, disability and wealth ranking". In the baseline, PA vial to test faecal coliform was tested in 1000 households. Results reveal that more than half (59.3 percent) of the tested household showed presence of coliform on their tested water, whereas 40.7 percent were clear of it. Results showed that contamination in water was found in water collected from covered or uncovered containers as well as directly from source. The proportion of contaminated water was 68.2 percent in uncovered container, 65.5 percent in covered container and 57.5 percent in direct source of water.

Implications

In regards to access to toilet, a high number of households were observed to have improved toilet. Despite this, the fact that about half of the households lacked the provision of toilets, shows the lack of awareness or requirement for a stricter provision by the local government in order to standardize the need and use of toilets across Province 2 in both ODF and non-ODF certified areas is imperative. In addition to this, both ODF and non-ODF communities needs stricter policy and regulation in place, so that the communities internalize the necessity of toilets and are sensitized about its usage.

It was also assessed that more than half of the population of the sampled households were consuming contaminated water. The lack of households who practice any type of water treatment is evident enough for the high ratio of contaminated water samples from the communities. Proper reinforcement and awareness, with a rigorous monitoring mechanism in place through established community or WASH committees to further sensitize as well capacitate the community in potential ways of water treatment is required. In addition to this, linkage to the committee members with WASH department within the new government structure is vital in order to be inculcated and supported for water safety measures. Overall, communities are aware on the need of handwashing, its importance, and the consequences it brings about to various health concerns. Due to this fact, handwashing knowledge was adequate, the available facility for it was adequate, and however its practice needs to be closely observed for the long run.

List of Abbreviations

ASWA	Accelerating Sanitation and Water for All
DFID	Department for International Development
DK	Don't Know
GoN	Government of Nepal
GPS	Global Positioning System
HCF	Health Care Facility
HH	Household
HQ	Headquarters
IRA	Initial Rapid Assessment
JMP	Joint Monitoring Programme
KII	Key Informant Interview
LG	Local Government
MDG	Millennium Development Goals
MICS	Multiple Indicators Cluster Surveys
NCO	Nepal Country Office
NDHS	Nepal Demographic and Health Survey
NGO	non-governmental organization
NPR	Nepalese Rupees
ODF	Open Defecation Free
ODK	Open Data Kit
PPS	Population Proportionate to Size
ROSA	Regional Office of South Asia
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Science
ToR	Terms of Reference
UNICEF	United Nations Children's Fund
US$	United States Dollar
WASH	Water Sanitation and Hygiene

Definition and Note

The definition provided in this page are for the purpose of understanding and usage in the report. Some definitions may described here could be different from the universal definition utilized

Terai - Nepal is divides into 3 regions. i.e. Mountain region, Hilly region and Terai region. Terai region is located on the bottom part of Nepal. Terai is usually known as the grain house of Nepal since most the crops that are sold throughout Nepal are farmed from Terai region. The land area of Terai region is also very plain or flat i.e. it is most suitable for growing crops and other food items. The Terai is a region of grasslands, savannas and forests between the foots of the Hilly region.

Wealth Quintile - The wealth index gives each person in the population a score that represents how wealthy he or she is based on the characteristics of his or her household. The score is generated through a method known as principal components analysis. After ordering respondents based on their score, they are divided into groups. Quintile 1 (First) is considered the poorest and Quintile 5 (Fifth or Five) is considered the wealthiest in the group.

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1.1 Overview of the ASWA-II Programme in Nepal

1.1 Context and rationale for the programme

Over the last five years, sanitation coverage in Nepal has improved significantly. The open defecation rate decreased from 38 per cent to 13 per cent as a result of the Open Defecation Free (ODF) social movement. However, huge disparities remain in terms of sanitation coverage, 83 per cent in the mountain regions, and 96 per cent in the hills and it is 77 per cent in the Terai. Similarly, handwashing with soap during critical times such as before breast feeding or feeding a child and after changing nappies continues to be very low at 9 per cent. 71 per cent of water sources were found to have microbial contamination and 82 per cent of household water are contaminated with coliform, a major cause of diarrhea (MICS, 2014).

Even though water and sanitation coverage in schools has been improving, critical bottlenecks remain particularly as they relate to girls and children with disabilities. WASH in health facilities remains a significant challenge, due to inadequate coverage (20 per cent of facilities do not have access to drinking water, 22 per cent do not have access to toilets) and poor hygienic use of existing facilities, leading to water borne diseases and infections.

Achieving SDGs in Nepal will be a big challenge for the sector, Joint Monitoring Programme (JMP)-2015 estimates indicate that only 27 per cent of the population have access to safely managed drinking water supply (a drop of 60 per cent from the MDG improved coverage of 87 per cent). An estimate for safely managed sanitation is not yet available but it will be much lower than JMP estimate of improved sanitation of 46 per cent.

Despite some good progress, stunting still remains a serious public health problem in many regions of the country adversely affecting the cognitive, intellectual, and physical productivity of children under five. The prevalence of stunting at national level is 37 per cent while it is high in rural areas (39 per cent) as compared to urban areas (24 per cent); among the poorest wealth quintile (55 per cent) as compared to richest (15 per cent).

To address some of the challenges mentioned above, UNICEF Nepal has received financial assistance - ASWA II project with funding from DFID through UNICEF Headquarters (HQ) will be implemented. This will be implemented mainly in eight Terai districts which include (i) Saptari, (ii) Siraha, (iii) Dhanusha, (iv) Mahottari, (v) Sarlahi, (vi) Rautahat, (viii) Bara and (viii) Parsa. At present the development partners such as UN Habitat, UNICEF, SNV Netherlands Development Organization, Water Aid, Plan International and Oxfam are working in the eight Terai districts,

however not all of them are present in all districts and even within the districts there is a huge gap of WASH interventions.

1.2 Programme objectives

The objective of ASWA-II is to support federal, provincial and local governments to strengthen their capacity and systems to plan, implement, monitor and sustain WASH services, building both community and government ownership by strengthening the enabling environment while ensuring sustained use of safely managed water supplies and the elimination of Open Defecation and improving hygiene of people in targeted districts, especially by women and girls and persons with disability. Major interventions under this programme are supporting people to have improved access to basic sanitation and safe water, WASH in schools and healthcare Facilities.

1.3 Key programme components, activities and implementation strategy

The key results to be achieved are (i) 350,000 additional people including children and women in eight Terai districts who are in the most deprived areas will have access to improved sanitation, (ii) 25,000 people to have access to safely managed water supply by 2022. In the same target communities (iii) 50 schools and (iv) 20 healthcare facilities will be provided with access to the safe and reliable WASH services according to the national standards and (v) central and local governments will be provided with technical and financial assistance for enabling environment for WASH.

About 1,000-1,500 communities (depending on the size of the community) will be targeted for triggering and accelerating the sanitation social movement to reach to 1.5 to 2 million people (depending upon the size of the selected communities). Technical support and different appropriate options will be presented in the target communities to enable them progress along the sanitation ladder and meet the requirements for safely managed sanitation facilities. It is expected that as a result of sanitation interventions, the targeted communities in 44 Local Governments will achieve ODF status bringing about 1.5 to 2 million people living in ODF environment.

To supplement government's effort in the provision of improved water sources through rehabilitation of dysfunctional schemes and construction of new systems, this project will focus on construction of improved toilet, water safety plans and reinforce behaviour transformation on the use of safe water and sanitation. Special focus will be given at household level to promote safe handling, storage and use of safe water including water treatment option. A strong behavioural change communication component will be part of the hygiene promotion interventions aiming at reducing WASH related diseases.

1.4 Duration/timeframe and budget

The implementation period of the ASWA-II programme in Nepal will be from September 2017 to December 2022; with a budget of US$ 6,526,533.75; whereby US$ 476,500.00 is from UNICEF's own resources and US$ 6,050,033.75 is from DFID support.

1.5 Intervention setting and areas

The ASWA-II programme will be implemented in eight Terai Districts in Nepal's south-eastern Province 2. The Government of Nepal (GoN) has very recently introduced a new government structure under which there will be 753 Local Governments (LGs) and seven provinces. The LG's being targeted under this proposal will be in Province 2. All these districts on the southern border of Nepal and falls in the geographical area known as the **Terai**.

UNICEF ASWA II Project Area - Province 2

Project Area

Parsa, Bara, Rautahat, Sarlahi, Mahottari, Dhanusha, Siraha, Saptari

Picture 1: ASWA II intervention areas in Nepal

1.6 Eligibility/prioritization criteria for selecting communities within targeted districts/municipalities

The eight Terai districts include (i) Saptari, (ii) Siraha, (iii) Dhanusha, (iv) Mahottari, (v) Sarlahi, (vi) Rautahat, (viii) Bara and (viii) Parsa. Four of the eight districts being selected under ASWA II (i.e., Siraha, Dhanusha, Mahottari and Rautahat) were part of the ASWA I programme. Targeting these four districts under ASWA II will give continuity to accelerate progress on sanitation and build on lesson learned during the implementation of ASWA I. Three other districts (viz. Salyan, Doti, and Baitadi) under ASWA I achieved the ODF status and will not be included in this phase. In 2015, GoN declared these eight Terai districts as sanitation dark districts. Following this declaration,

different activities were planned namely regional and district level sanitation conferences with the involvement of multi-sector stakeholders whereby a consensus was made to promote sanitation in coordination and collaboration with all stakeholders. 44 municipalities were selected through a joint consultation with the government based on the available statistics on the number of households without access to toilet.

1.7 Stakeholders involved in the programme and their respective role including implementing partners

Implementation will be carried out through local governments, divisions of water supply and sanitation at provincial and central government; local and national level NGOs may also be identified for the delivery of the results. At present, the development partners such as UN Habitat, UNICEF, SNV Netherlands Development Organization, Water Aid, Plan International and Oxfam are working in the eight Terai districts, however not all of them are present in all districts and even within the districts there are huge gaps. During the inception phase, priority Local Governments and most vulnerable communities will be identified for intervention under ASWA II considering the needs and presence of other partners.

1.2 Survey objectives

As part of the Inception Phase of the ASWA II programme, UNICEF Nepal engaged Progress Inc., an external firm to conduct a baseline survey in order to measure the progress to improved and sustained sanitation and hygiene practices. The key outcomes of this baseline survey were:

4. To conduct a pilot study to test survey tools developed by UNICEF HQ for use in all ASWA-II programme countries. Provide feedback on improvements and adjustments required prior to global launch of the tools.

5. To collect household and community informant data needed to inform the log-frame indicators and establish a reference/baseline situation - data collected at mid-line and end-line surveys will be compared to the baseline data to assess progress and results achieved through the programme. This will help UNICEF take appropriate measures, results will be periodically reported to the donor, and the assessment of progress and results will serve for evaluation purposes at the end of programme implementation.

6. To establish a baseline situation for future sustainability checks.

Further, specific objectives of the baseline study were:

*   To assess baseline conditions of households' access to and use of sanitation, drinking water sources, and handwashing facilities with soap at district via a household outcome survey.

*   To assess baseline conditions of sustained latrine use behavior, ODF status (in existing ODF communities at the time of baseline survey) at community-level via ODF outcome survey.

1.3 Survey organization – Progress Inc.

The pilot study and baseline survey for UNICEF Nepal was conducted by Progress Inc., a Nepal registered company provides research, monitoring and evaluations, capacity building and other managerial support to the public, private and non-profit sectors in Nepal. The organization works with a broad network of highly skilled, experienced international and national consultants and advisors from various sectors including education, agriculture, governance, livelihood, disaster, information technology, WASH, health and much more. Progress Inc. is a gender responsive and socially inclusive organization. In all of its assignments, Progress Inc. involves a mix of the youths, marginalized and experienced freelancers while promoting paperless data collection through android based mobile data collection applications such as KoboTool, SurveyCTO, ODK, fieldtask and AKVO. These technologies enable rapid field assessments, producing less errors due from data entry, offers real-time analysis and traceability of data. The company's website can be found on http://progressincnepal.com.

For this assignment, Progress Inc. created **three tiered teams**: central, district and enumerators. The central team consisted of a Team Leader, an Epidemiologist, and two Field Coordinators. The central team designed the study protocols, assured quality, liaised with UNICEF HQ, ROSA and NCO and provided feedback and reporting for the study. Along with supporting and performing the work of the central team, the Field coordinators lead the District field team and lead the training with six other researchers for support. The District team provided supervision of enumerator teams and conducted quality assurance throughout the field work. This ensured consistency in survey approach and protocols, delivery of training and activities during the field work. The enumerator teams were primarily responsible for the data collection.

Baseline Survey Team Composition, Structure & Responsibilities

Central Management Team (4 persons)

The Central Team will be responsible for planning, developing project documentation and reporting. The team will develop the sampling protocols, training modules, contextualize the tools, provide data analysis and control, liase with Unicef, provide human resources and logistical arrangements for the study. They will support the District field teams to ensure quality data and facilitate a productive operating environment for the field teams.

WASH Team Leader

Epidemiologist & Data Controller

Training & Field Co-ordinator (x2)

District Field Teams (8 persons)

The field coordinators (also part of the Central Team) will oversee all field activities and lead the training. The field coordinator and field researchers who will enact the role of supervisor will be placed in the districts to guide enumerators. The field coordinators and supervisors will also conduct spot and back checks to ensure quality on a daily basis along with local supervisors. The field team will also ensure to solve any issues from the field.

Training & Field Co-ordinator (x2)

Field Supervisors (x6)

Enumeration Teams (54 enumerator + 11 local supervisors)

Enumerators will participate in trainings on data collection tools, testing and conduct household questionnaire and community questionnaire. Each of the enumerator team will have a team leader within their group, who will be responsible to report to their designated local supervisor, who in turn reports to supervisor from Progress Inc..

| Saptari (x5) Siraha (x5) | Dhanusha (x12) Mahrottari (x8) | Rautahat (x5) Sarlahi (x8) | Parsa (x11) Bara (x11) |

1.4 Survey period and timeline phases

The baseline study was conducted in four distinct phases as outlined in the table below.

Table 1: Phases of baseline study	
Activities	**Dates**
Phase 1 – Inception and Development Includes contractual arrangements, finalizing of inception report, desk review of UNICEF and governmental documentation, develop sampling protocol and determine sampling size, adaptation of training materials and survey tools and methodology for Nepal context, translation and testing of materials, digitizing questionnaires into KoboTool tool, selecting team leaders and enumerators, training of researchers.	Apr 11 – May 30, 2018
Phase 2 – Piloting Baseline Survey Includes training of enumerators in WASH issues and survey tools, in-depth collaboration with UNICEF HQ tool designers to determine changes to be made to tools, conduct surveys in pilot area, feedback piloting changes to UNICEF HQ team to determine modifications to training and survey	Jun 25 – July 25, 2018

tools for Household, Community, HCF and Schools for generic global tools.	
Phase 3 – AWSA-II Nepal Baseline Survey Includes enumerator training at district level and quantitative data collection using KoboTool tool. Only the Household Outcome Surveys and Community Surveys were required for Nepal. Water quality testing in households were done additionally for UNICEF NCO purposes.	Aug 4 – Aug 24, 2018
Phase 4 – Data Analysis and Reporting Includes data cleaning and verification, data analysis and reporting according to UNICEF templates, preparation of presentation for key stakeholders meeting of key findings and recommendations.	Sep 3 – Sep 30, 2018

Chapter 2: METHODOLOGY

2.1 M&E indicators for the programme

The global ASWA-II programme has multi-level Impact, Outcome and Output indicators common across all intervention countries. The full set of indicators can be found in the Annex 2 of this document. In Nepal – for the purpose of this baseline study – only Outcome Indicators 1, 2, 3 and 4 were required to be measured. The baseline for Outcome Indicators some of 4 to 6 are planned for future studies by UNICEF NCO, however the data collection tools for those indicators developed by the UNICEF HQ team were tested during the pilot study by the study team.

Outcome indicators relevant to ASWA-II Nepal Baseline

Outcome	Outcome Indicator
Sustained use of safe water supplies and sanitation services, and sustained adoption of hygiene practices, by poor and vulnerable people in targeted areas, especially by women and girls.	**Indicator 1:** Proportion of externally verified ODF communities attributed to DFID support that maintain their ODF status for at least one year
	Indicator 2: Proportion of people in intervention communities that use household toilets, disaggregated by sex, disability and wealth ranking
	Indicator 3: Proportion of people in intervention communities that practise handwashing with soap or an alternative handwashing agent such as ash, and water, disaggregated by sex, disability and wealth
	Indicator 4: Proportion of people using basic, safe water supplies, disaggregated by, sex, disability and wealth ranking
	Indicator 5: Proportion of externally verified water safe communities attributed to DFID support that maintain water safe status at least 1 year
	Indicator 6: Proportion of intervention schools with water supply and sanitation facilities being used by students at least one year after intervention

Baseline Indicators relevant to Nepal Baseline

2.2 Overview of data collected, data sources and data collection methods

The baseline study used **quantitative surveys**: (1) household questionnaire survey, and (2) community questionnaire. The survey questions were developed by UNICEF Water, Sanitation and Hygiene Section and Evaluation Office in New York and piloted in Nepal as part of this study. The resulting *ASWA-II, Baseline Survey: Training Guidance and Data Collection Tools, which can be found in Annex 3* was used in the Nepal baseline study. The data sources were derived from the respondent interviews in households, observations by the interviewer and interviews with community key informants from the same communities. The water quality testing utilized a presence and absence test vial developed in Nepal and endorsed by UNICEF NCO. These test vials indicated the presence of microbiological bacteria in water samples. The categorization and coding of the questions was as follows:

Household Questionnaire

- HI – Household information

- HC - Household characteristics

- HA – Household assets and wealth

- HS – Household sanitation and hygiene

- HN – Household social norms

- HW - Household water access

- HO - Household sanitation observation

- HH – Household hygiene observation

- HQ - Water quality test at source and household

Community Questionnaire

- CI – Community information

- CK – Community Key Informant Interview

- CO - Community observation: transect walk

Table 2: Summary of outcome indicator, data sources and collection method		
Outcome Indicator	Data Sources	Data Collection Method
1 – 3 communities achieve sustained odf status and people use a basic toilet and hygiene facilities	Household and community Survey, observation of facilities and transect walk	Digital collection using mobile phone based technology
4 people using safe water from new or rehabilitated	Hh survey, water quality test	Digital data collection using mobile phone based technology and e-coli presence test

2.2.1 Household Outcome Survey

This household survey aimed to estimate district-level or targeted community-level representation on outcome indicator 2 (Proportion of people in intervention communities that use household toilets), 3 (Proportion of people in intervention communities that practice handwashing with soap or an alternative hand washing agent such as ash, and water), in particular household access to drinking water sources, its type and functionality, at the baseline (i.e. prior to programme implementation).

The household survey aimed to establish the situation in the sampled communities regarding:

- Outcome Indicator 1 – Observations of excreta in environment

- Outcome Indicator 2 – Use of toilets by all members of the household

- Outcome Indicator 3 –Use of handwashing facilities with soap or alternative agent

The survey included questions aimed to disaggregate data for sex, disability and wealth quintiles during the analysis stage.

Observations was made during each household visit to verify output indicators relating to household toilets and handwashing.

2.2.2 Community Survey

The community survey or also known as the ODF outcome survey would set the baseline benchmark relating to outcome indicator 1: proportion of externally verified ODF communities attributed to DFID support that maintain their ODF status for at least one year. There were two ODF districts in the intervention area: Saptari and Siraha, the objectives for these ODF districts include (1) to understand levels of slippage (proportion of households going back to open defecation within an ODF community) that will inform benchmark for estimating indicator 1 as the programme evolves, (2) to identify community-level factors associated with sustaining ODF status to inform post-ODF programming, and (3) to test data collection tools, using existing ODF communities in or near sanitation target programme areas.

Community Questionnaire with Key Informant: The main aim of the Community Survey was to:

- Confirm the number of households in the community.

- Determine survey interval (skips) based on household number.

- Confirm the ODF status and timeframe of ODF certification (if applicable).

- Determine whether the community is aware of any households who are not using toilet facilities.

- Assess whether the community has taken any action to protect its ODF status.

- Number of public taps.

- Report on challenging contexts (e.g. soil types, groundwater conditions, or climate events)

2.2.3 Observations

Households: Observations were made and recorded at each household visited. The observations validated the type of toilet facilities being used and evidence of handwashing being practiced at the household. A photo was taken at each household where toilet was existent.

Community: A transect walk was conducted in the planned intervention communities with the main aim to inspect previous and potential sites of open defecation (outside the areas visited during the household survey) to check that the practice is evident. Open spaces, bushlands, drains and water bodies were checked for human and animal excreta.

2.2.4 Household Water Quality Testing

Water testing was carried out at the same households with the aim of measuring the presence or absence of coliform in household stored drinking water, however this was only performed in one third of the sample size of the study. Every third household was selected for this purpose. A more comprehensive testing of water parameters will be later conducted by UNICEF NCO when schools, health care facilities and communities are selected to receive DFID supported water supply interventions.

2.3 Sampling approach and criteria for the selection of the surveyed sites and households

A sample size of 3000 households was selected for the study. A design effect of 2 was selected given that the characteristics of ODF vs Non-ODF is heterogeneous in the Terai region. To determine prevalence percentage, the indicator "access to improved toilet facility" was considered, which is at 63% according to NDHS, 2016. According to the SDGs, Nepal performs the poorest in access to improved sanitation compared to access to improved drinking water source and hand washing facilities. Therefore the adoption of "access to improved toilet facility" as the sample size calculation captures the worst performing indicator, and validates that using it would provide a large enough sample size to measure all the indicators for the study.

The reasoning and calculation of selecting to sample 3000 households is provided in Annex I.

2.3.1 Household Outcome Survey

Household Sampling Protocol: The household sampling protocol was multi-staged; sampling municipalities at the first stage using population proportionate to size (PPS), based on the selected municipalities, intervention communities (also known as the village/tole) were selected once again using the PPS method. Following the model adopted in Nepal specific MICS and NDHS, where 25-30 household were selected within each intervention community, 20-25 households were targeted for survey in each intervention community for the ASWA-II programme. The table below shows the number of selected municipalities in each district after the first stage PPS protocol.

Table 3: Selected districts and target households after PPS	
Districts	Number of municipalities
Saptari	2
Siraha	1
Dhanusha	4 (1 municipality is selected twice)
Mahottari	2
Sarlahi	2
Rautahat	2
Bara	4
Parsa	3 (1 municipality is selected twice)

Once the municipalities were selected, the intervention communities were selected based on PPS[1]. Twenty five (25) households were kept as benchmark and surveyed from each of the intervention communities. In cases where municipalities had been selected twice, 50 households were surveyed. A total of 100 intervention communities across 20 municipalities were selected for the study.

Household Sampling Interval: To set the sampling interval in each community, the existing approximate household number was obtained from the community questionnaire which consisted of a survey with either a WASH committee member, government, community leader, elected representative or other prominent figure in the community (In cases where the informant was unable to provide this, the enumeration team either considered household level data provided by UNICEF or from another source from the community). The total number of household in the community was then divided by the proposed sample size (25 or 50) to calculate the sampling interval. For instance, a community with 100 households would have an interval of four. In addition to this, the community questionnaire also sought a rough sketch of a map of the community. This enabled the enumerators who figure out the demarcation and pathway of the intervention community for ease of survey planning.

A household at the intervention community was randomly selected as the entry point at the discretion of the local supervisor and enumerators. Applying the sampling interval number for that intervention community, the corresponding number of houses were skipped and the household was surveyed. In case the selected household was unoccupied or did not have an adult able/willing to participate in the questionnaire, the enumerator surveyed the adjacent household. In communities where the targeted 25 or 50 (applicable to communities where municipalities were selected twice) households were not sufficient, the remaining samples were collected from the adjacent intervention community

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[1] This has been calculated from the intervention district, municipality, wards and community data provided by UNICEF Nepal Country Office.

using the same rule. The demarcation of the intervention community was verified with the community leader through the sketching of map as aforementioned.

The table below shows the name of municipality selected according to PPS, and the minimum number of household to be sampled from the intervention communities within the municipality. The number of sample in each municipality varies as per the population of the municipality.

	District	Name of Municipality	HH Sample	Intervention Communities to Sample
Table 4: Household number sample size and intervention communities
1	Saptari	Rupani Rural Municipality	73	3
		Tilathi-Koiladi Rural Municipality	85	3
		Total HH Selected	**158**	**6**
2	Siraha	Dhangadhi Mai Rural Municipality	127	5
		Total HH Selected	**127**	**5**
3	Dhanusha	Janakpur Sub-Metropolitan**	428	9
		Ksheereshwarnath Municipality	99	4
		Dhanauji Rural Municipality	53	2
		Total HH Selected	**580**	**15**
4	Mahottari	Bardibas Municipality	190	8
		Matihani Municipality	74	3
		Total HH Selected	**264**	**11**
5	Sarlahi	Lalbandi Municipality	187	7
		Malangawa Municipality	112	4
		Total HH Selected	**299**	**11**
6	Rautahat	Garuda Municipality	111	4
		Durgabhagwati Rural Municipality	45	2
		Total HH Selected	**156**	**6**
7	Bara	Kalayay Sub metropolitan	240	10
		Simraugadh Municipality	199	8
		Jitpursimara Sub-metropolitan	289	12
		Adarsh Kotwal Rural Municipality	61	2
		Total HH Selected	**789**	**32**
8	Parsa	Birgunj Metropolitan**	549	11
		Pokhariya Municipality	78	3

Total HH Selected	627	14
GRAND TOTAL HH	3,000	100

*The full list of district, municipality, ward and communities name of the sampled area is provided in Annex 4

**Municipality that has been selected twice, where double the sample from the intervention community will be selected. 25 household were sampled from a particular intervention community. On this note, the total household sample from a particular municipality will be divided by 25 or 50 (where municipality was selected twice), to determine the number of intervention communities to sample from a particular municipality. It should be noted that the number of intervention communities have been rounded to the nearest figure and is a minimum estimate for the study. The above total sample does not reflect the actual data collected and was the process planned for the field data collection.

Household Wealth Assessment: The Wealth Assessment was included in the household questionnaire using questions applicable to Nepal from the Equity Tool. Progress Inc. elected to use the Equity Tool, as compared to the Wealth Assessment used in the DHS 2016 and MICS 2014 surveys; the Equity Tool simplifies the number of questions reducing the need to extend number of training days for enumerators and the interview times. The online tool enables simplified wealth calculations minimizing possible errors for the analysis phase.

2.3.2 Water Quality Tests

A sub-sample from the sampled households was taken to conduct a water quality testing. The targeted number of water testing samples was a minimum of **1000 (33.3 per cent)** of the sampled households. These 1000 samples were tested for presence of Coliform. Household water were tested from household stored drinking water vessels or directly from the source as accessible and at the discretion of the enumerators.

Every third household was selected for the random household level water quality test. Each water quality testing vial was labelled with a unique code, date, time and source of water, district, and municipality. Within a 48 hour period, the water were observed and the result were recorded by the researcher. All the information labelled on the bottle was entered on excel extracted from KoboTool. The enumerators were provided with a matrix which contained the same information as mentioned above. During collection of information on KoboTool during the household visit, enumerators were directed to also fill in the matrix. The results were recorded on the matrix by the enumerators and verified by the supervisors. During the analysis phase, the result of the water tests were recorded on KoboTool system through verifying data entered on KoboTool and the matrix. A sample of the matrix used is provided in Annex 5.

2.4 Data collection tools

2.4.1 Brief description of the questionnaires used and surveyor manual
The household and community questionnaires and surveyors' manual were provided by UNICEF HQ, *Accelerating Sanitation and Water for All (ASWA II) Baseline Survey Guidance and Questionnaires, Version 1.11 – 26 July 2018*.

2.4.2 Adaptations made on the survey questionnaires
Each question from both the Household Questionnaire and Community Questionnaire were reviewed individually for relevance and appropriateness for the activities proposed and adapting to Nepal's context. The survey team were guided by the color coding of each question, which identified questions that could be removed or adapted, or if they were core questions. The team decided to keep most questions as much as possible. Modifications that were made were to align with questions from MICS 2014. For example, response categories for language and religion were drawn from the NDHS 2016. The Equity Tool question relevant to Nepal (http://www.equitytool.org/equity/), was adopted for Wealth related questions.

Equally, the Surveyors Manual was also adapted for Nepal with a view to simplify training of enumerators. Where categories and definitions were irrelevant, these were removed from the manual and training. Where possible, photographs with Nepal examples or brands were used as part of the training material.

2.4.3 Translation
The adapted questionnaires were first translated into Nepali from English. The translated version was utilized in the pilot training session. Feedback from enumerators and learnings from the pilot training session were used to adjust and refine the questionnaire for use in Nepal. Each Nepali questions was then back translated to English by a staff at Progress Inc. to ensure the theme of the question was intact. The finalized Nepali questionnaire was then uploaded into the data collection software KoboTool for field use.

2.4.4 Use of mobile-to-web technology
The quantitative data was collected using the mobile-to-web based tool called KoboTool. This open-source software can be found in https://www.kobotoolbox.org. The advantages to using KoboTool compared to conventional paper based data collection methods are:

- Back checks are unnecessary;
- GPS location of survey can be accessed;
- Automatic skip checks;
- Quick and efficient data collection;
- Exact time of interview conducted can be accessed;
- Consistency checks can be performed when enumerators are in the field;
- Analyzing and archiving data are simpler.

The tool enables rapid field assessments while minimizing errors and checks, ensuring quality assured data.

2.5 Selection, organization and training of the survey team

Local enumerators from respective baseline districts were selected to conduct the survey. It was ensured that the selected enumerators would have familiarity with the WASH sector. The selection of the final set of enumerators was collaboratively conducted by UNICEF WASH officers and Progress Inc. A set criteria was utilized to ensure the quality and standardization of the enumerators. The criteria is provided in the below table.

- Enrolled in undergraduate or above
- Data collecting experience through mobile phones
- Ability to speak Nepali as well as local language and dialects
- Good communication and networking skills
- Honesty and dedication
- Access to android mobile phone
  *Female were given preference given the low number of working female in the baseline districts (22 were female out of a total of 65 enumerators and local supervisors)

After the selection of the enumerators was finalized, a piloting training, followed by four sets of training was scheduled. The training were scheduled in the following locations:

S.N.	Training Venue	Participating Enumerators	Dates
	Table 5: Training dates venue		
1	Jhamsikhel, Lalitpur (Piloting)	Progress Inc. Team	June 25, 2018
2	Kalaiya, Bara (Piloting)	Bara	June 26-30, 2018
3	Kalaiya, Bara	Bara and Parsa	Aug 5, 2018
4	Lalbandi, Sarlahi	Sarlahi and Rautahat	Aug 10-11, 2018
5	Janakpur, Danusha	Mahottari and Dhanusha	Aug 13-14, 2018
6	Lahan, Siraha	Siraha and Saptari	Aug 16-17, 2018

The enumerators were organized in groups of two or four depending on the sample size of the community. Each enumeration group was assigned a team leader. The role of the team leader was to conduct the community questionnaire with a key personnel at the community level, prior to commencing the household survey. Their role also included confirming collection of required data at the end of the day. These enumerators reported to the field supervisor, who was assigned to roam in the data collection districts for purpose of cross check, back check as well as support the enumerators. Another layer of supervision was added to each district; a field coordinator was assigned. The role of the field coordinator was also to conduct similar activity as the supervisor, but was the focal district person to be contacted and report to. All final reports and materials was communicated or handed over to the field coordinator.

2.6 Field pre-testing and revision of the data collection tools

Part of quality data collection consists of a piloting as well as field pre-testing. A training was held in Jhamsikhel, Lalitur with one representative from UNIEF HQ for piloting purpose of the school, health, community and water supply questionnaire. In Kalaiya, Bara along with representatives from UNICEF HQ, UNICEF ROSA, UNICEF NCO, Bangladesh UNICEF representative, research firms from Bangladesh, Pakistan, India and local government representative, training to pilot the household questionnaire was conducted. The training for piloting was scheduled as follows:

Table 6: Dates of piloting	
Date	**Activity**
June 25, 2018	Community, School, Health, Water Supply - Classroom
June 26, 2018	Household Survey - Classroom
June 27, 2018	Household Survey – Classroom
June 28, 2018	School, Health, Water Supply – Pre-testing
June 29, 2018	Household/Community Survey – Pre-testing

The revision and adaptation to the questionnaire based off the piloting is mentioned in section 2.4. Field pre-testing for the piloting was conducted in Musahar and Muslim Tole of Gadhimai – 8, Bara and Samari Tole of Jitpursimara – 12, Bara. Once the questionnaire was finalized after the piloting phase, for the enumerators trained in Lalbandi, Janakpur and Lahan, due to time and budget constraints, selective community people were invited to the training venue to assist the enumerator practice the questionnaire. This activity gave the enumerator a real sense of the field.

Picture 2: Water testing in Bara District

2.7 Implementation of the survey, field supervision, and real-time verification of collected data

After the conclusion of each of the trainings, the enumerators were assigned in communities to conduct the survey. To ensure quality data was collected by the enumerators, field supervisor and field coordinator were mobilized to the communities to conduct back checks, cross checks and support the enumerators as required. A central level consultant was also added as another layer of supervision to cross verify all activities being conducted. The central level consultant visited the field to ensure effectiveness of the data collection.

Since data were collected through KoboTool, GPS of majority of the household and community visited were tracked. GPS was not captured in some instances due to climatic condition. However, it should be noted that layers of supervisors ensured to report of these errors immediately to the central team. At the conclusion of collecting all required data from the respective community, the data was verified by the field supervisor. The field supervisor would submit the data through access of Wifi or 3G network. In case, where there were network challenges, data was sent once access to internet was available. The data was then reviewed by a central team member for quality purpose. Furthermore, the data was also reviewed for missed aspect. It should be noted that such discrepancies were not found. However, on two instances, less data were collected, where the enumerators were sent out to collect the missed data.

2.8 Data capture, cleaning, analysis, disaggregation and reporting

The field data collection was concluded after receiving notification from the central level member that reviewed the data and provided confirmation of receipt of all required data. Immediately after this process, two members were assigned to clean the data. One cleaned the community level data and another cleaned the household data. The aspect of cleaning involved uniformity of names, community, supervisor initials, and codes. In addition to this, any incomplete or practice data were also deleted. Furthermore, open ended questions were also categorized in brief sentences. Finally data which did not provide quality or were illogical due to its result were omitted from the survey to provide quality to the existing data. At the completion of the cleaning process, the data were analyzed. The team leader verified the data cleaning, prior to commencement of analysis.

The data was analyzed using excel and SPSS 25.0. The existing data in excel was exported to SPSS 25.0, and analyzed using frequencies and cross tabulations as required. In addition to this, excel template provided by UNICEF HQ which consisted the major indicator calculation was also utilized. The excel template was utilized to showcase snapshot of the baseline study, whereas SPSS was used to analyze frequencies and cross tabulations. Excel 2013 was used to illustrate graphs, charts and tables from the analyzed SPSS results.

During frequencies, data was disaggregated in regards to gender of respondent and districts. Furthermore, where applicable, data was disaggregated as per sex, wealth quintile and disability status. The acquired data from the analysis was categorized in the report template provided by UNICEF HQ.

2.9 Ethics

The study was conducted in compliance with UNICEF's Procedure in Ethical Standards in Data Gathering Activities. There was no direct interaction with children under 18 years of age. There was informed consent and verbal assent obtained from survey respondents which was recorded on KoboTool. Privacy and anonymity were ensured for all respondents. Disturbance of households were minimized where possible and no stress or coercion was applied to household members to participate in the survey. Enumerators were selected from within the same districts to ensure respect for local language, religious and cultural practices were inherent to the interviewing process. All questions were mindful of these parameters and all materials relevant to the interface of the respondents was translated into the local language. No benefit or compensation, either financial or social, were offered to respondents. All data collected was handled in a confidential manner and data was securely stored within Progress Inc.'s server.

2.10 Survey limitations

Methodological issues/weaknesses

The baseline consisted of only quantitative approach to access data sought from the indicators. The baseline was targeted to carry out in both non-ODF and ODF districts, hence during the sampling strategy, all possible intervention municipality and community had equal opportunity to be selected. In this context, in Parsa, only ODF municipality (Birgunj and Pokhariya) were selected while strategizing the sampling through PPS. Given the questionnaire was designed for global use, a lot of the options which would likely not exist in the local context gave a lot of confusion among the enumerators.

Logistical constraints affecting the comprehensiveness of survey data and results

In some instances, community questionnaire could not be performed due to absence of a key informant, however informal community information were sought from community members.

The selection of the community was conducted through an existing data provided by UNICEF. 20 per cent of the community names was missing. On this note, in Rautahat, a ward was selected as part of the process. During the training, through local information, this was corrected to select a community within the selected ward.

In Rautahat, about 34 data was less than anticipated and proposed through the PPS. During analysis, some data which were illogical were removed from the survey. Few had declined to be surveyed and other removed due to possibility of the data not provide the actual scenario. However, cumulatively, the survey extracted 3034 data, when only 3000 sample was planned.

Chapter 3:

Community and Household Characteristics

Chapter 3: Community and Household Characteristics

3.1 Community characteristics

A total of 100 communities from within 18 municipalities/ rural municipalities from across 8 districts from province 2 were selected. There is a segregation of rural and urban setting. There are a total of four urban municipalities and remaining 14 rural municipalities.

S.N.	Districts	Urban / Rural	Municipality	Intervention Community
1	**Parsa**	**Urban**	Birgunj Metropolitan	Dom Tole
				Bypass Naya Tole
				Bhagwti Tole Dalit Basti
				Bimtoli Tole
				BP Udhan
				Pashupati Nagar
				Dalit Basti - Maniyari Ram Tole
				Sabai Tauwa
				Mauje Tole
				Musheli
				Bhediyahi
		Rural	Pokhariya Municipality	Sothiriya
				Paschim Mahi Dalit Basti
				Dalai Tole
2	**Bara**	**Urban**	Jitpursimara Sub-metropolitan	Khasiyol Majhi Tole
				Aama Darko Majhi Tole
				Simati Tole
				Pipariya
				Pota Tole
				Pachuli Tole
				Raj Ghatta Chaudhary Tole
				Ghagar Jati Tole
				Dumarwana Chaudhary tole
				Bhawanipur Chaudhary Tole
				Badafar Mushahar Tole
				Lama Tole
			Kalaiya Sub-metropolitan	Aadur Tole
				Barewa Tole
				Bairiya Tole

				Ram Tole
				Dhanuk Tole
				Majhauliya
				Majahuliya
				Mushhar Tole
				Shreepur
				Maheshpur
		Rural	Simraugadh Municipality	Mansagara Ghat
				Amritgunj Dalit Basti
				Nayak Tole Dalit Basti
				Hariharpur Musahar Basti
				Ganganagar Dalit Basti
				Uchadi Tole
				Sakubasi
				Kawalpur
			Adarsh Kotwal Rural Municipality	Dalit Tole
				Boha Tole
3	**Rautahat**	**Rural**	Garuda Municipality	Pachwari Tole
				Purano Basti
				Mahmadpur
				Shreepur
			Durga Bhagwati Rural Municipality	Dalit Basti
				Musahar Tole
4	**Sarlahi**	**Rural**	Lalbandi Municipality	Atole Purnawas
				Lekhali
				Lama Tole
				Pokhari Dum Tole
				Sukumbasi Tole
				Bimba/Katarbot
				Dalit Tole
			Malangawa Municipality	Muslim Tole
				Mahara Tole
				Nuniya Basti
				Bazar Chetra
				Yadav Tole
5	**Mahottari**	**Rural**	Bardibas Municipality	Swami Gachi Tole
				Markaha Raja Bas
				Teentale Gauri Gaun
				Rana Tole
				Prem Nagar

				Tori Tole
				Chanaut
				Bhotiya Tole
			Matihani Municipality	Shreesiya
				Bardaha Tole
				Muslim tole Sabik
6	Danusha	Urban	Janakpur Sub-metropolitan	Jaladpur
				Bijayanagar
				Chamar Toli
				Kataiya Chauri
				Jaladpur
				Kuwa Tole
				Hanuman Nagar
				Salesh Tole
		Rural	Kshreereshwamath Municipality	Ramdaiya
				Mangalpuri
				Mahara Tole
				Ichyapur
			Dhanauji Rural Municipality	Dhobiya
				Bhariya
7	Saptari	Rural	Rupani Rural Municipality	Raipur Mabi najik Sada Ram Basti
				Makari Tole Sabik
				Bus Bitti Sabik
			Tilathi Koilada Rural Municipality	Sakarpura
				Mansapur
				Topa
8	Siraha	Rural	Dhangadimai	Bhawanipur
				Nimchowk
				Mochi Tole
				Bhagwan Tole
				Mushahari

3.2 Household characteristics

Eight districts from Province 2 were selected to form base for the study. As aforementioned in the previous section, the number of survey to be conducted per district was determined through PPS. As shown in Table 7, the study collected the highest number of survey from Bara (853), followed by Para (621). The least was collected from Rautahat (122).

The total population of the surveyed households (3034) was 23,348, with 11,453 female (49 per cent) and 11,895 male (51 per cent).

Table 7: Sample size in each district	
Districts	**Sample size**
Parsa	621
Bara	853
Rautahat	122
Sarlahi	297
Mahottari	289
Dhanusha	581
Siraha	126
Saptari	145
Total	**3034**

In regards to the survey respondents, there was more than half of the female respondents (67.1 per cent). As shown in Figure 1, in Rautahat, there were only 31.1 per cent of the female respondents, whereas, in Dhanusha and Parsa, 66.8 per cent and 61.5 per cent were female respondents.

Gender of the respondent

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Female	57.1%	61.5%	57.2%	31.1%	46.1%	55.0%	66.8%	46.0%	55.9%
Male	42.9%	38.5%	42.8%	68.9%	53.9%	45.0%	33.2%	54.0%	44.1%

Figure 1: Gender of the respondents

The context of Terai shows male dominance in household, family and financial decisions. This correlates with the data obtained during the baseline, where all the districts had majority of their household head as male. As illustrated in Table 8, overall, there was a representation of 69.8 per cent of the households with male household head. The highest disparity was observed in Rautahat, where the household head were 78.7 per cent male and 21.3 per cent female. The lowest was reported in Saptari with 51.7 per cent male household head and 48.3 per cent female household head. On average

across Province 2, 69.8 per cent were reported to be male headed household and 30.2 per cent female headed household.

	Table 8: Gender of the household head				
	Gender of household head				
	Female			Male	
	Count	%		Count	%
Parsa	153	24.6%		468	75.4%
Bara	235	27.5%		618	72.5%
Rautahat	26	21.3%		96	78.7%
Sarlahi	82	27.6%		215	72.4%
Mahottari	120	41.5%		169	58.5%
Dhanusha	186	32.0%		395	68.0%
Siraha	44	34.9%		82	65.1%
Saptari	70	48.3%		75	51.7%
Total	**916**	**30.2%**		**2118**	**69.8%**

As referenced in Table 9, out of the 3034 households, 90.2 per cent were Hindu, 6.5 per cent were Muslim and 3.1 per cent reported to be Buddhist. There was a negligible representation of the households following Christianity (0.1 per cent) were obtained. The highest ratio of Muslim households was reported in Mahottari with 20.4 per cent whereas the highest per cent of Buddhist was reported in Sarlahi with 17.8 per cent.

	Table 9: Religion of the respondents									
	Religion									
	Buddhism		Christianity		Hindu		Muslim		No religion	
	Count	%	Count	%	Count	%	Count	%	Count	%
Parsa	2	0.3%	0	0.0%	579	93.2%	40	6.4%	0	0.0%
Bara	13	1.5%	1	0.1%	803	94.1%	36	4.2%	0	0.0%
Rautahat	0	0.0%	0	0.0%	107	87.7%	15	12.3%	0	0.0%
Sarlahi	53	17.8%	0	0.0%	223	75.1%	21	7.1%	0	0.0%
Mahottari	19	6.6%	2	0.7%	209	72.3%	59	20.4%	0	0.0%
Dhanusha	2	0.3%	1	0.2%	557	95.9%	18	3.1%	3	0.5%
Siraha	5	4.0%	0	0.0%	117	92.9%	4	3.2%	0	0.0%
Saptari	0	0.0%	0	0.0%	142	97.9%	3	2.1%	0	0.0%
Total	**94**	**3.1%**	**4**	**0.1%**	**2737**	**90.2%**	**196**	**6.5%**	**3**	**0.1%**

Overall, the most common language spoken was Bhojpuri (48.4 per cent), followed by Maithali (31.7 per cent). Only in Sarlahi, Nepali was spoken was a mother tongue by 52.5 per cent of the households. Bhojpuri was predominantly spoken in Bara (92.5 per cent) and Parsa (95.5 per cent). Data revealed that Maithali was highest in Dhanusha (96.2per cent) and Siraha (90.5per cent). Overall, across Province 2, Bhojpuri dominated with 48.4 per cent with Maithali being second at 31.7 per cent,

followed by Nepali at 13.2 per cent. About 5.9 per cent also reported to speak other languages than the listed. The dominant language in this category was "Bajka", which was found highest in Rautahat at 38.5 per cent. The aforementioned has been shown in detail in Table 10.

	Table 10: Language spoken at home									
	Language									
	Bhojpuri		Hindi		Maithali		Nepali		Other language	
	Count	%	Count	%	Count	%	Count	%	Count	%
Parsa	593	95.5%	3	0.5%	1	0.2%	24	3.9%	0	0.0%
Bara	789	92.5%	0	0.0%	8	0.9%	38	4.5%	18	2.1%
Rautahat	71	58.2%	2	1.6%	1	0.8%	1	0.8%	47	38.5%
Sarlahi	14	4.7%	5	1.7%	42	14.1%	156	52.5%	80	26.9%
Mahottari	1	0.3%	0	0.0%	163	56.4%	96	33.2%	29	10.0%
Dhanusha	0	0.0%	10	1.7%	559	96.2%	11	1.9%	1	0.2%
Siraha	0	0.0%	0	0.0%	114	90.5%	9	7.1%	3	2.4%
Saptari	0	0.0%	4	2.8%	75	51.7%	66	45.5%	0	0.0%
Total	1468	48.4%	24	0.8%	963	31.7%	401	13.2%	178	5.9%

In regards to ethnicity, survey showed that 42.5 per cent of the households belonged to Dalit caste, followed by 36.4 per cent of Janajati as shown in Figure 2 below.

Ethnicity of the households

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Brahmin/Chhetri	6.6%	3.5%	3.0%	0.0%	17.8%	11.4%	10.7%	2.4%	0.7%
Dalit	42.5%	59.7%	40.0%	37.7%	9.8%	19.0%	45.8%	58.7%	73.8%
Janajati	36.4%	30.9%	52.4%	23.0%	49.8%	45.3%	21.7%	9.5%	14.5%
Other group	14.5%	5.8%	4.6%	39.3%	22.6%	24.2%	21.9%	29.4%	11.0%
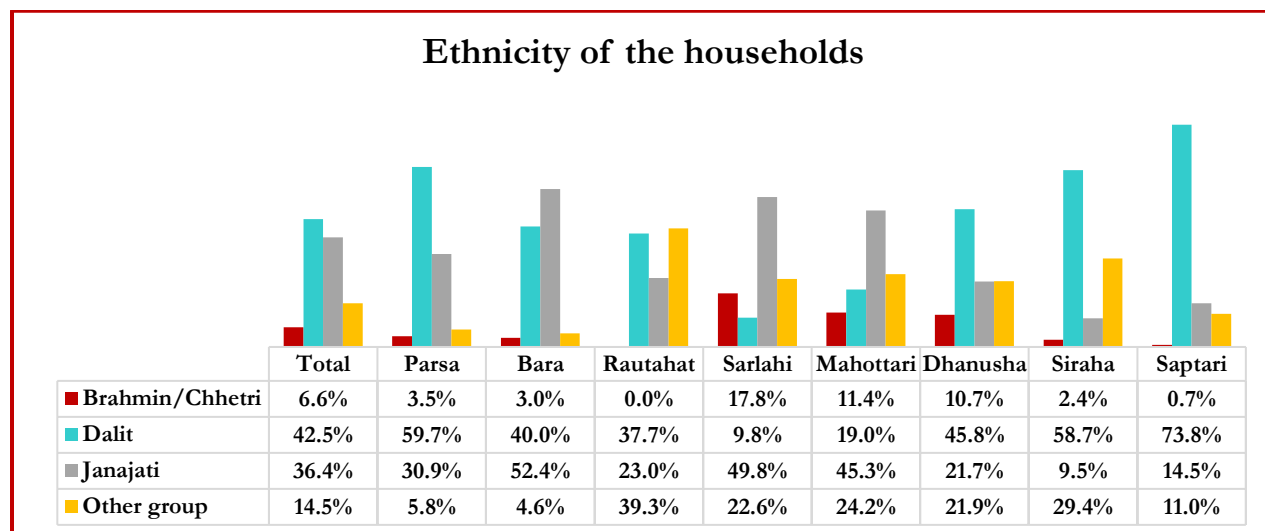
Figure 2: Ethnicity as per district

3.2.1 Status of disability among households[2]

The baseline captured disability through the Washington group of questions. On this, the types of disability assessed were as follows:

1. Difficulty in communicating (speaking, understanding, or being understood)

2. Difficulty with self-care (washing or dressing)

3. Difficulty in remembering or concentrating

4. Difficulty in climbing stairs

5. Difficulty in hearing

6. Difficulty in seeing

Table 11: Status of disability				
	At least one type of disability			
	No		Yes	
	Count	%	Count	%
Parsa	550	88.6%	71	11.4%
Bara	688	80.7%	165	19.3%
Rautahat	109	89.3%	13	10.7%
Sarlahi	213	71.7%	84	28.3%
Mahottari	232	80.3%	57	19.7%
Dhanusha	452	77.8%	129	22.2%
Siraha	108	85.7%	18	14.3%
Saptari	110	75.9%	35	24.1%
Total	**2462**	**81.1%**	**572**	**18.9%**

As shown in Table 11, about 18.9 per cent (N=3034) among the respondents claimed to have one form of disability among their household members. In Saptari, 28.3 per cent claimed to have one form of disability which was the highest reported among the surveyed districts. The lowest was reported in Rautahat with only 10.7 per cent.

As shown in Figure 3 below, difficulty with seeing, even when wearing glasses was reported highest by 8.5 per cent of the household. This was followed with 5.9 per cent reporting to have difficulty with climbing stairs. 4.8 per cent had difficulty with hearing and 4.1 per cent had difficulty with self-care.

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[2] The disability questions constituted to the shorter version of the Washington Groups of Questions. However, the question was modified to only obtain the presence or absence of such abilities among the household members of the respondents.

Types of difficulty

Type	Percentage
Difficulty in communicating, for example, speaking, understanding or being understood	3.1%
Difficulty (with self-care such as) washing all over or dressing	4.1%
Difficulty in remembering or concentrating	2.9%
Difficulty in climbing stairs	5.9%
Difficulty in hearing	4.8%
Difficulty in seeing	8.5%
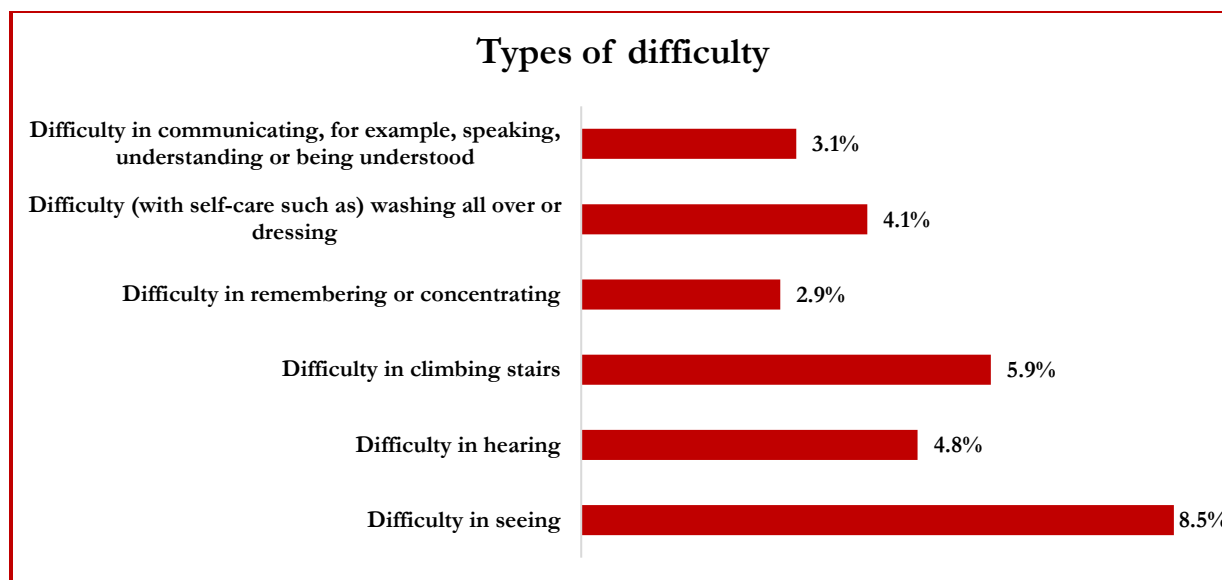
Figure 3: Types of disability

3.2.2 Family size

The mean of the family size in all four category (Adult – Male and Female and Children – Male and Female) ranged between 1 and 2 among the districts. The maximum number of female in a household was reported to be 10 which was similar to the male. Among the children, the data revealed maximum to be 16 among the male children and 13 among the female children. The median standard deviation in all categories ranged between 1 and 2 as referenced in Table 12.

Table 12: Average family size

	Mean	Median	Standard Deviation
Adult Female (18 years and above)	2.2	2	1.17
Adult Male (18 years and above)	2.3	2	1.34
Children Female (Below 18 years)	1.57	1	1.44
Children Male (Below 18 years)	1.65	1	1.42

3.2.3 Wealth quintile

Wealth quintile

- First quintile
- Second quintile
- Third quintile
- Fourth quintile
- Fifth quintile

18%
14%
20%
28%
20%
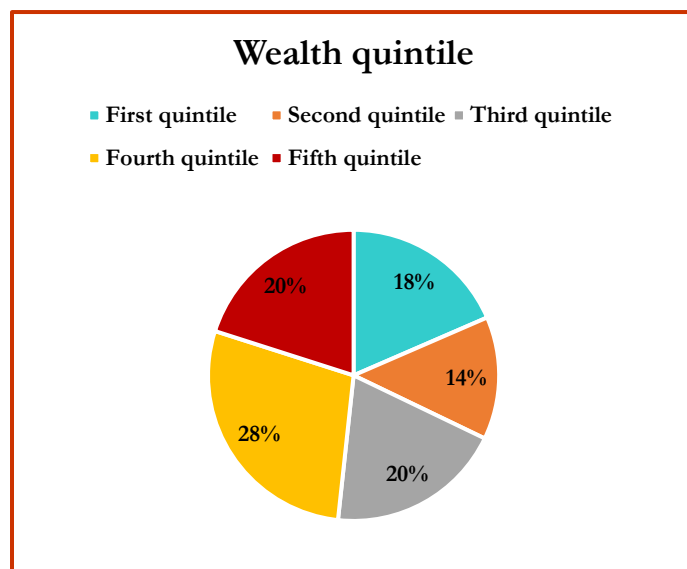
Figure 4: Wealth quintile

Equity tool developed by Metric for Management was used to measure relative equity tool. The January 2018 version was used for the purpose of this baseline. In context of Nepal, eight questions were assigned. As shown in Figure 4 on the right, results from the survey shows that 18 per cent of the households fell in first quintile, 14 per cent under second, 20 per cent under third, 28 per cent under fourth and 20 per cent under fifth quintile. Results show that the households on the topmost quintile (20 per cent in fifth and 28 per cent in fourth) are higher than the ones in the bottom quintile.

Data further reveals that people from Sarlahi (47.5 per cent) belonged to fifth quintile, while in Saptari 20.7 per cent belong to first quintile. (Refer Figure 5 below)

Wealth quintile as per districts

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Fifth quintile	20.1%	24.6%	9.7%	10.7%	47.5%	10.4%	29.3%	11.9%	2.8%
Fourth quintile	28.2%	24.0%	25.8%	34.4%	35.4%	38.4%	28.4%	24.6%	22.8%
Third quintile	19.6%	20.8%	22.7%	19.7%	5.4%	25.3%	15.8%	19.8%	28.3%
Second quintile	13.6%	11.6%	13.6%	19.7%	11.4%	17.3%	9.5%	20.6%	25.5%
First quintile	18.5%	19.0%	28.1%	15.6%	0.3%	8.7%	17.0%	23.0%	20.7%
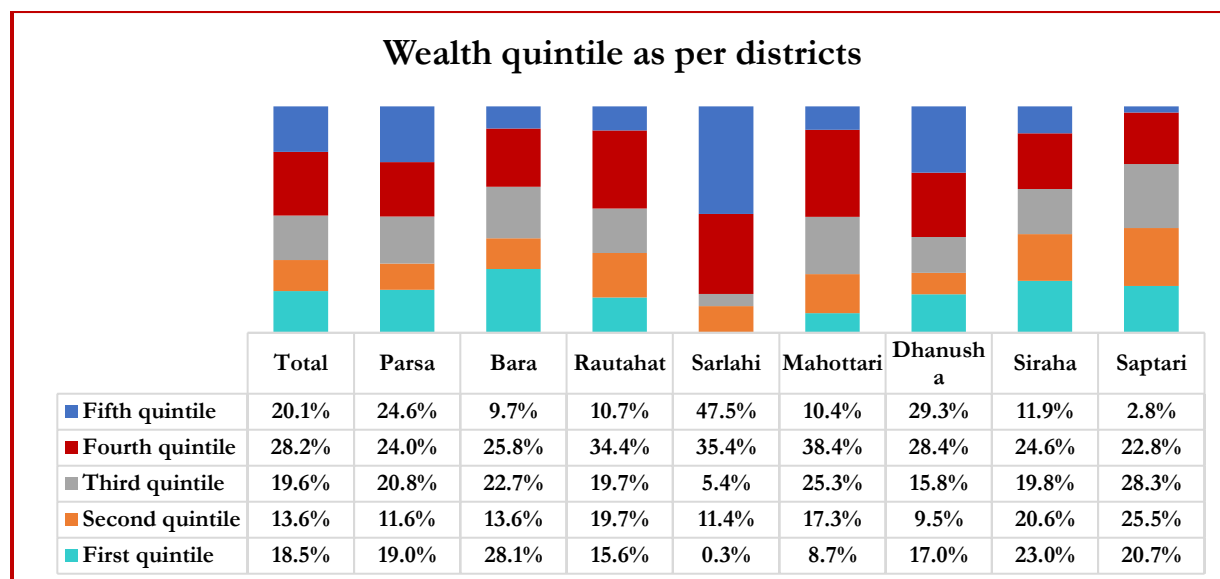
Figure 5: Wealth quintile as per district

Moreover, in assessing the relation between the ethnicity of the households and the wealth quintile they belonged to, as demonstrated in Table 13, the Brahmin/Chhetri ethnicity had almost half of its people in fifth quintile (49.5 per cent), while Dalit had 33.8 per cent in the first quintile and 19.8 per cent in the second quintile. In case of Janajati 38.2 per cent belonged to fourth quintile and 23.5 per

44

cent in fifth quintile. The finding assert that Brahmin and Chhetris are relatively wealthier than Janajatis and Dalits.

		Ethnic group							
		Brahmin/Chhetri		Dalit		Janjati		Other group	
		Count	%	Count	%	Count	%	Count	%
Quintile	First	0	0.0%	436	33.8%	97	8.8%	28	6.4%
	Second	14	7.0%	255	19.8%	109	9.9%	36	8.2%
	Third	29	14.5%	265	20.6%	217	19.6%	83	18.9%
	Fourth	58	29.0%	247	19.2%	422	38.2%	129	29.3%
	Fifth	99	49.5%	86	6.7%	260	23.5%	164	37.3%

Table 13: Wealth quintile disaggregated by ethnicity

3.3 Characteristics of population living in areas targeted for sanitation interventions and water supply interventions

In the baseline, the same areas were selected as sanitation intervention areas and water supply areas, hence the characteristics are identical.

A total of 23348 population were targeted from surveying 3034 households. Data shows that 49 per cent were female members and 51 percent were male members. Only 20 per cent of the total households were female headed while the remaining 51 per cent were male headed. There were only 21 per cent of the total population that had at least one type of disability.

In assessing the wealth quintile, 18 per cent belonged to first quintile, 13 per cent in second, 21 in third, 28 in fourth and 20 in fifth. This indicates that highest proportion of households belonged to fourth quintile.

Chapter 4:
Results on Sanitation and Hygiene

Chapter 4. Results on Sanitation and Hygiene

The data below demonstrates the population disaggregated as per sex, household head, wealth quintile and disability status that use toilet based on the observation.

Use of toilet	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	**55%**	11690	21326
Sex	Female	**55%**	5752	10468
	Male	**55%**	5938	10858
Head of Household	Female headed	**52%**	433	831
	Male headed	**55%**	1076	1941
Wealth Quintile	Q1 (lowest)	**20%**	824	4067
	Q2	**30%**	856	2818
	Q3	**51%**	2321	4564
	Q4	**69%**	4088	5966
	Q5 (highest)	**92%**	3601	3911
Disability Status	No disability	**54%**	9047	16743
	Disability	**58%**	2643	4583
Ethnicity	Brahmin	**80%**	955	1200
	Dalit	**37%**	3338	9136
	Janajati	**63%**	4941	7809
	Others	**77%**	2456	3181
JMP Toilet Category	Improved and not shared	**51%**	10932	21326
	Improved and shared (limited)	**2%**	507	21326
	Unimproved	**0%**	48	21326

4.1 Physical environmental context

The different options for type of soil presented were mud, gravel or coarse sand, rocky, sandy and others. As illustrated in Figure 6, one half of the soil type was mud (48 per cent) among 100 communities, followed by gravel or coarse sand (33 per cent). Communities in Saptari (83.3 per cent) and Rautahat (83.3 per cent) had mud as a dominant soil type. 87 per cent of the communities did not face any problem in construction of toilets owing it the soil type.

Soil type

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Mud	48.0%	21.4%	56.3%	83.3%	16.7%	27.3%	78.6%	20.0%	83.3%
Gravel or coarse sand	33.0%	57.1%	25.0%	16.7%	66.7%	18.2%	14.3%	60.0%	16.7%
Sandy	12.0%	0.0%	18.8%	0.0%	8.3%	27.3%	7.1%	20.0%	0.0%
Rocky	5.0%	21.4%	0.0%	0.0%	0.0%	18.2%	0.0%	0.0%	0.0%
Other	2.0%	0.0%	0.0%	0.0%	8.3%	9.1%	0.0%	0.0%	0.0%

Figure 6: Type of soil

Problems of soil type in construction of toilet

- High groundwater table — 30%
- Strong winds — 9%
- Flooding — 22%
- Collapsible soils — 26%
- Hard soils — 13%

Figure 7: Problem of soil type in construction of toilet

As reported by the key informant of the community and shown in Figure 7 below, there was 13 communities that faced some difficulties attributable to the high groundwater table (30 per cent), collapsible soil (26 per cent) and flooding (22 per cent). Communities in Dhanusa (28.6 per cent) and Bara (18.8 per cent) faced some difficulty in construction of toilets.

Due to the high groundwater table, communities faced difficulty in digging pits. Similarly, collapsible soils resulted in superstructures to collapse. The same applied to flooding that destroyed superstructures.

4.2 ODF status and Sanitation Intervention

Data shows that 47 out of 100 communities were ODF certified as reported in community key informant interview. Positively result from transect walk shows that 29 communities out of 47 were free of evidence of open defecation, while the remaining 13 had an evidence of open defecation. This points us to the fact that reinforcement of the ODF status is missing and sustainability is a challenge. However, in 11 of the non ODF communities, there were no evidence of open defecation. (Refer Table 14)

Table 14: ODF status of the communities and an evidence of open defecation						
		Communities that are ODF certified				
		No		Yes	
	Yes	41	77.4%	13	27.7%
Evidence in transect walk	No evidence of open defecation	11	20.8%	29	61.7%
	Not sure	1	1.9%	5	10.6%

According to the community key informant, a total of 47 per cent of the communities were ODF certified. 100 per cent of the sampled communities in Siraha and Rautahat were ODF certified. Contrarily, only 6.3 per cent of communities in Bara and 28.6 per cent of communities in Dhanusa were ODF certified. The responsibility of certifying ODF was with the district across all districts.
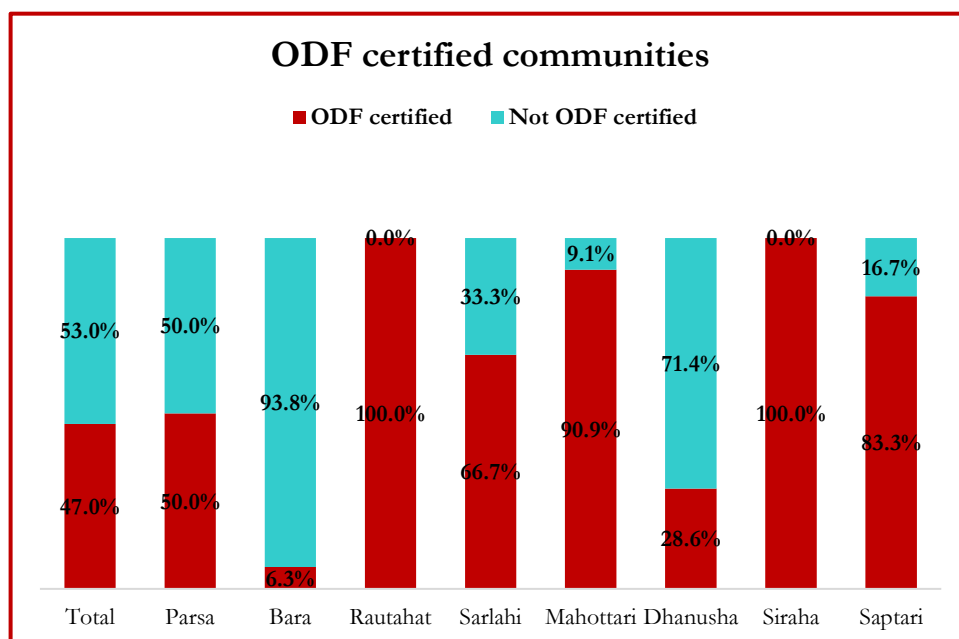
Figure 8: ODF status

Positively, as illustrated in Figure 8, having all communities been ODF certified in Rautahat and Siraha, no evidence of open defecation was observed in Siraha and only 18 per cent of the time, evidence of open defecation was found in Rautahat. In case of Bara, where 6.33 per cent of the communities are only certified ODF, the evidence of open defecation was high (81.3%). **_Refer to Annex Table CO1_**

There were various organizations working towards community led total sanitation activities. The most prominent was the presence of local NGOs in 23.6 per cent of the communities, followed by WASH interventions of UNICEF in 21.4 per cent of the communities. It is to be noted that UNICEF works through local NGOs, municipality or WSSDO. There were 15.7 per cent of the community key informants that were unaware of any support. (refer to Table 15)

Table 15: Major WASH actors			
		Count	%
Major WASH actors	Local government	11	7.9%
	Health facility	17	12.1%
	Health extension workers	11	7.9%
	Local NGO	33	23.6%
	International NGO	8	5.7%
	UNICEF	30	21.4%
	Other	8	5.7%
	Don't know	22	15.7%

4.3 Access to basic toilet and types of toilet

Households use toilet

■ Yes, always ■ Yes, sometimes ■ No
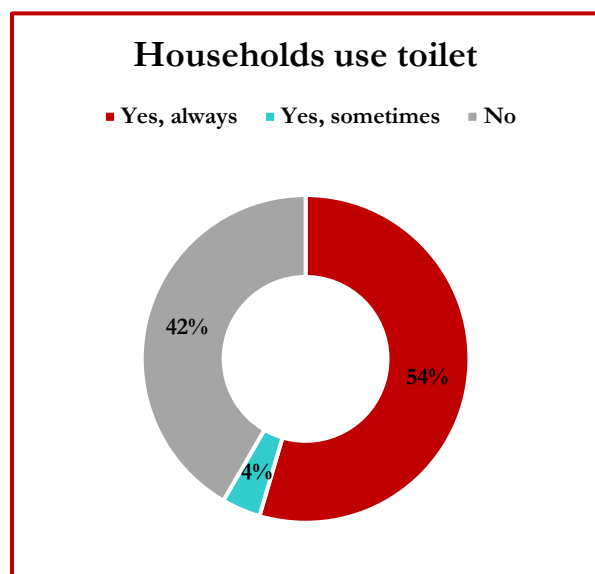
Figure 9: Use of toilet

As mentioned in Figure 9, the survey results showed that 54 per cent of the households self-reported that they always used a toilet while 4 per cent used it sometimes and 42 per cent did not use toilet at all. A total of 9,636 individual were not using toilets, which included 4,716 female. The proportion of female members and male members in use of toilet did not show any variance. Moreover, the proportion was comparable with the population with no disability (54 per cent) and with disability (58 per cent).

In assessing the use of toilet disaggregated by the ethnicities, it was revealed that 60.6 per cent of the Dalit households did not use toilet, while the proportion was almost half among other ethnicities. The proportion was lowest among Brahmin/ Chettri households (14 per cent) **Refer to Annex table HS1b**

In Rautahat, 59 per cent reported that households do not use toilet at all; in Bara, 54 per cent reported to not use toilet. In Sarlahi, only 10.1 per cent reported to not use toilet. Hence, the practice of using

toilet was highest in Sarlahi (89.6 per cent), followed by Mahottari (77.2 per cent). In Siraha, about 11.9 per cent claimed that household members use toilet sometimes. (refer Figure 10)

Household toilet use

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Yes, always	54.5%	46.7%	43.3%	33.6%	89.6%	77.2%	49.2%	66.7%	66.2%
Yes, sometimes	3.8%	4.3%	2.7%	7.4%	0.3%	1.7%	4.8%	11.9%	5.5%
No	41.6%	49.0%	54.0%	59.0%	10.1%	21.1%	46.0%	21.4%	28.3%
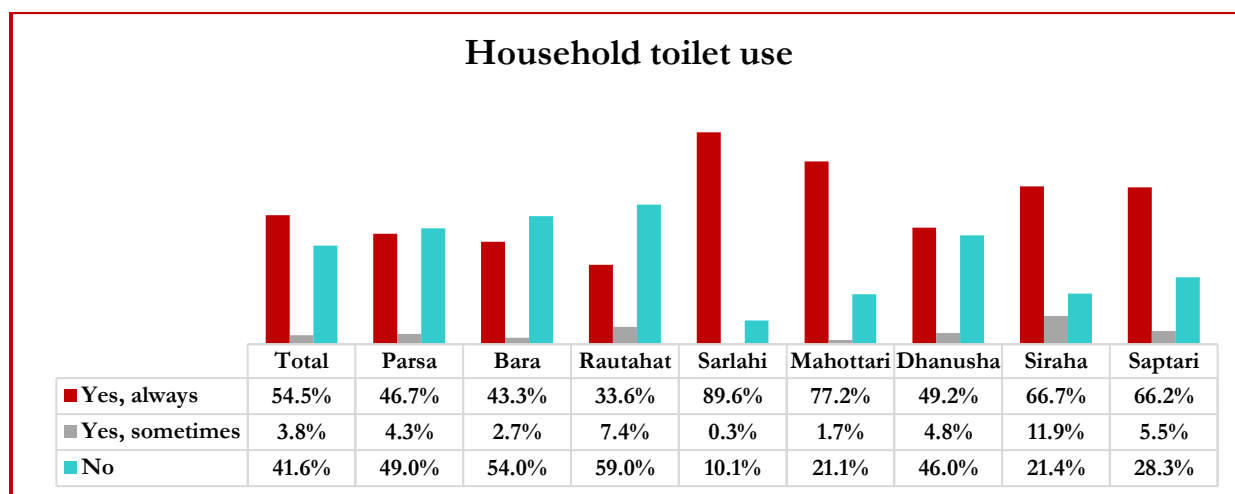
Figure 10: Use of toilet as per district

Comparing the practice of toilet usage among households based on national quintile, an ascending trend was observed. It was seen that people from higher quintile used toilets, while people from lower quintile the practice of using toilet was lower. As detailed out in Figure 11, in the first quintile, toilet practice among households that reported to always use toilet was at 18.4 per cent, and 32.6 per cent in the second quintile. In the fifth quintile 91.6% reported to always use toilet. **Refer to Annex Table HS1a**

Toilet practice based on wealth quintile

	Total	First	Second	Third	Fourth	Fifth
Yes, always	54.5%	18.4%	32.6%	47.5%	67.4%	91.6%
Yes, sometimes	3.8%	4.3%	4.1%	4.4%	4.4%	1.8%
No	41.6%	77.4%	63.3%	48.1%	28.2%	6.6%
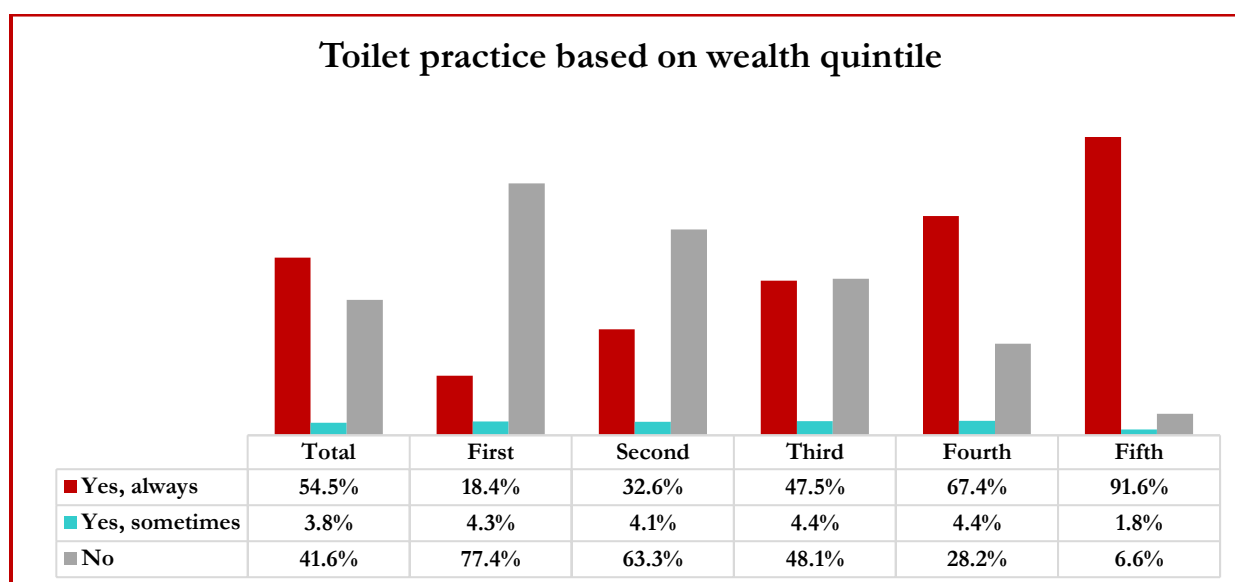
Figure 11: Toilet practice based on wealth quintile

4.3.1 Types of toilet

Types of toilet was assessed based on observation. Out of the surveyed 3034 household, 49.7 per cent of the households consented to observe the toilet facility, 3.7 per cent stated it was inaccessible, another 3.7 per cent refused and remaining 42.7 per cent reported that they do not use toilet. Among the households who permitted to observe toilet (N=1509), it was revealed that 87.4 per cent had flush toilet and 12.6 per cent had pit latrine. Of the flush toilet, 64 per cent flushed to septic tank, 35 flushed to pit as shown in Figure 12. As for the pit latrine 72 per cent was a ventilated improved pit latrine while 25 per cent was pit latrine with a slab as referenced in Figure 13 below. **Refer to Annex Table HO3.**
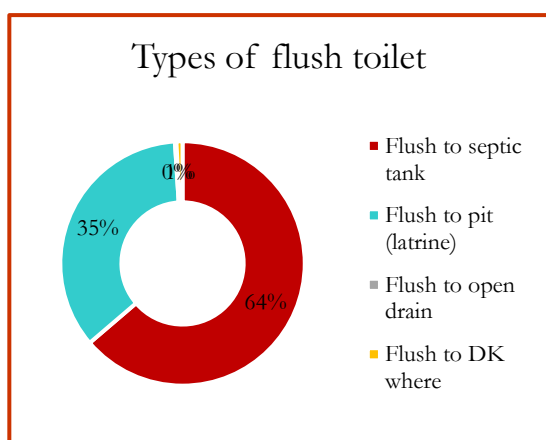
Figure 13: Type of flush toilet
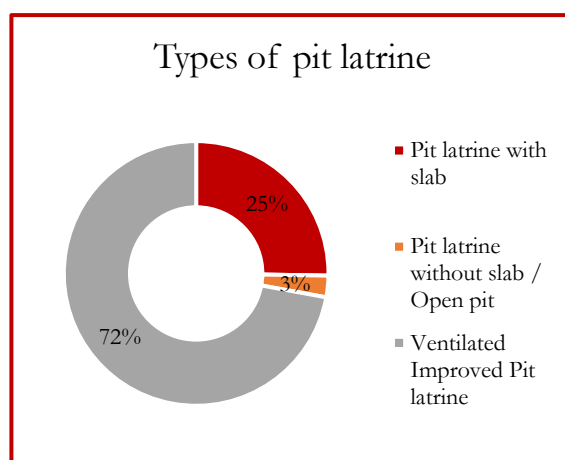
Figure 12: Type of pit latrine

JMP Toilet definition

Improved: Flush to piped sewer system, flush to septic tank or biogas, flush to pit (latrine), flush to don't know where, ventilated improved pit latrine, pit latrine with slab, composting toilet

Unimproved: Flush to open drain, pit latrine without slab/open pit, bucket, hanging toilet / hanging latrine

As highlighted in Figure 14 that out of the toilets that were observed, 99.5 per cent were improved toilets. **Refer Annex Table HOa.** It is seen that across all districts, households had flush toilet. Only in case of Siraha 31.6 per cent had pit latrine (improved) and 26.8 per cent of households in Bara had improved pit latrine.
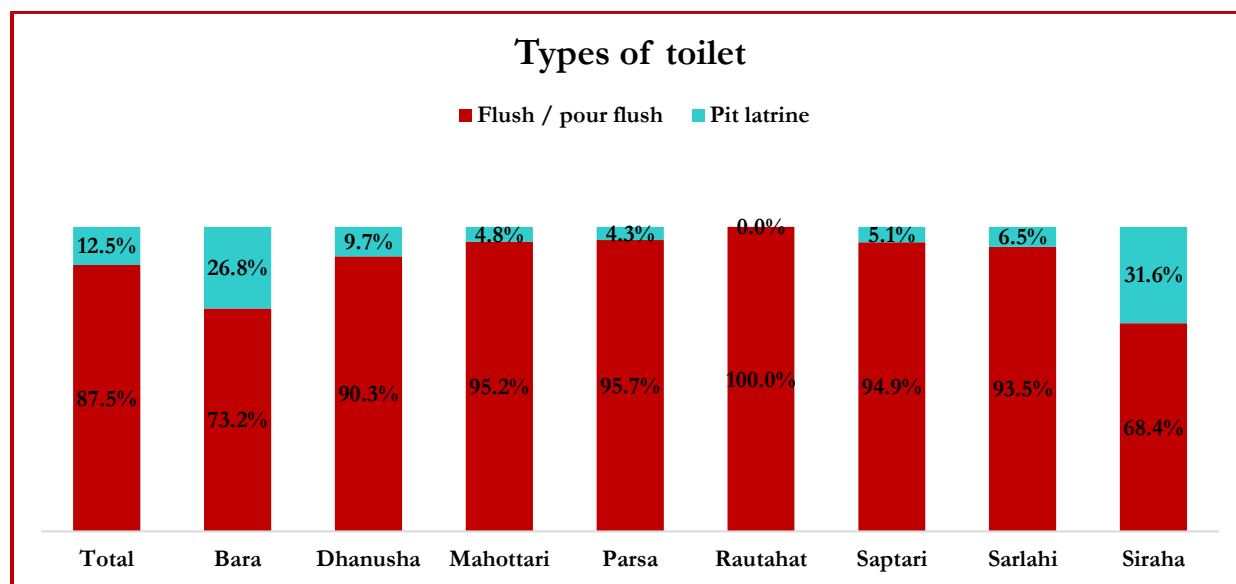
Furthermore, results demonstrate that 0.5 per cent had unimproved toilets. Five per cent had limited (improved but shared), 92.4 per cent had basic (improved and not shared) toilets.

In regards to the construction of the toilet, upon observation it was found that most of the wall were made up of bricks (78.7 per cent). In regards to roofs, 23.6 per cent were CGI sheets (tins), 23.3 per cent were made up of tiles, and about 30.8 had other materials such as concrete, bamboo, or mud.

Overall, it can be reported that 84.6 per cent has a permanent material used for walls around the toilet and 14.5 per cent had used temporary materials. 0.9 per cent had no walls around the toilet. Moreover, 46.9 per cent had used permanent materials used for the roof, while 48.9 per cent had used temporary materials. 3.3 per cent had no roof over the toilet. (refer Table 16)

Roof	Count	%	Wall	Count	%
Metal sheet	356	23.6%	Brick masonry	1187	78.7%
No roof	50	3.3%	Cloth/sack	14	0.9%
Other material (specify)	465	30.8%	Metal sheet	28	1.9%
Plastic sheet	126	8.3%	Mud blocks	35	2.3%
Roof inadequate to protect slab/flooring	13	0.9%	No walls.	14	0.9%
Thatch/grass/reeds	147	9.7%	Other material (specify)	76	5.0%

Table 16: Types of roof and wall in the toilet

			Plastic sheet	21	1.4%
Tiles	352	23.3%	Thatch/grass/reeds	108	7.2%
			Wood	26	1.7%

	Count	%
Cleanable, other smooth material (specify)	5	0.3%
Cleanable, smooth earth/mud	27	1.8%
Cleanable, smooth wood/bamboo	7	0.5%
No slab/floor (open pit)	2	0.1%
Not washable or cleanable, non-smooth material	13	0.9%
Washable, brick masonry	104	6.9%
Washable, ceramic tiles	111	7.4%
Washable, concrete/cement	1240	82.2%

Out of the observed toilets, 82.2 per cent had washable concrete or cement. About 7.4 per cent of the toilet had ceramic tiles. Less than one per cent was observed to not be washable or cleanable, since non-smooth materials was observed. Only in 3.5 per cent of the toilets, it was observed where the flies could access the excreta through the pan or squat hole as shown in Table 17.

Out of all the observed toilet facility, 70.4 per cent of the toilet were clean and free from visible smears of other cleansing materials. However in 28.7 per cent of the facilities, some form of faecal smear or used cleansing materials was observed. In the remaining facilities which consisted of less than one per cent, consisted of other materials.

4.4 Conditions, use and sharing of toilets

Picture 3: Flush pour toilet

Out of the respondents who used their own toilets, 96 per cent that always use the toilet own the toilet they use, while 2.2 per cent used the toilet owned by another households and 2.2 per cent shared public toilet. In Rautahat and Dhanusha, data revealed highest practice of sharing their toilet with other households at 10.9 per cent and 10.8 per cent, respectively. **Refer Annex Table HS5.**

Among those households that owned a toilet of their own, 33.4 per cent had built their toilet more than five years ago. About 25 per cent had recently within the last year built their toilet. In regards to the location of the toilet, 31.8 per cent had it within their dwelling, whereas 59.1 per cent had it within their yard or plot. About 10.1 per cent had it placed elsewhere.

There were 1694 (55.8 per cent) households that owned a toilet. In regards to the respondent's household sharing the toilet with other households, only 5.4 per cent reported that they share their toilet with other households. As detailed in Table 18, out of the households that shared their own toilets with other households, 78 per cent shared with 10 or lesser households. Only 6.6 per cent of the households claimed to share with over 10 households or more. On an average, the households shared toilets with three households including their own. The sharing trend was highest in Parsa, and lowest in Sarlahi. The maximum number of sharing toilets was found in Mahottari and Parsa where nine households shared toilet.

Table 18: Households that share toilets		
Sharing number	Count	%
Don't know	14	15.4%
Less than 10 households	71	78.0%
Ten or more households	6	6.6%

92.2 per cent of the toilets used in the community were fully functional, while 6.3 per cent were partly functional. There was a mere 1 per cent of toilets that were collapsed or full as illustrated below in Figure 15. **Refer to Annex Table HS7**

Functionality of toilets

92.2%	Yes, fully functional
6.3%	Yes, partly functional
0.8%	No - toilet is collapsed/abandoned
0.5%	No - toilet is full
0.2%	No - other reason
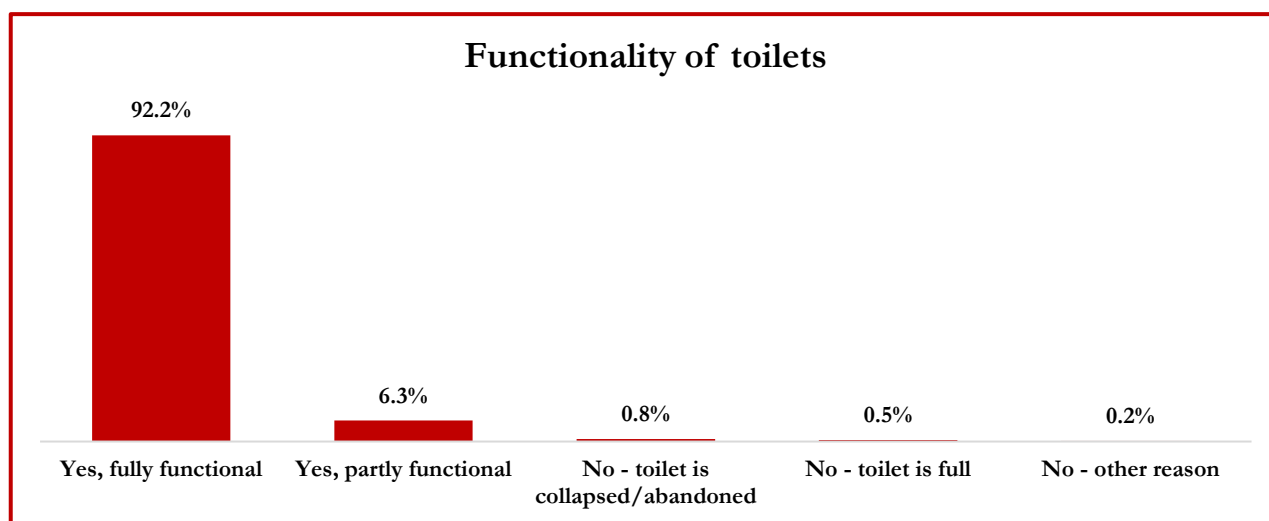
Figure 15: Functionality of toilet

Among the households that used toilets (58%), 93.8 per cent of households reported that all members use the toilet, while 5 per cent claimed that not everyone uses. The usage of toilet by all members was least in Siraha (88.4%) and Rautahat (86%). On an average 3 members from a household did not use toilet. (refer Figure 16)

Use of toilet by every member

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Yes	93.75%	92.95%	95.15%	86.00%	97.36%	96.86%	90.55%	88.42%	93.07%
■ No, not everyone	4.99%	7.05%	4.85%	14.00%	2.26%	1.79%	7.82%	2.11%	2.97%
■ Don't know	1.26%	0.00%	0.00%	0.00%	0.38%	1.35%	1.63%	9.47%	3.96%

Figure 16: Use of toilet by every member

Members who do not use toilet

- ■ Children under 5 years of age
- ■ People with disabilities
- ■ Elderly
- ■ Women
- ■ Girls
- ■ Domestic servants
- ■ Male members
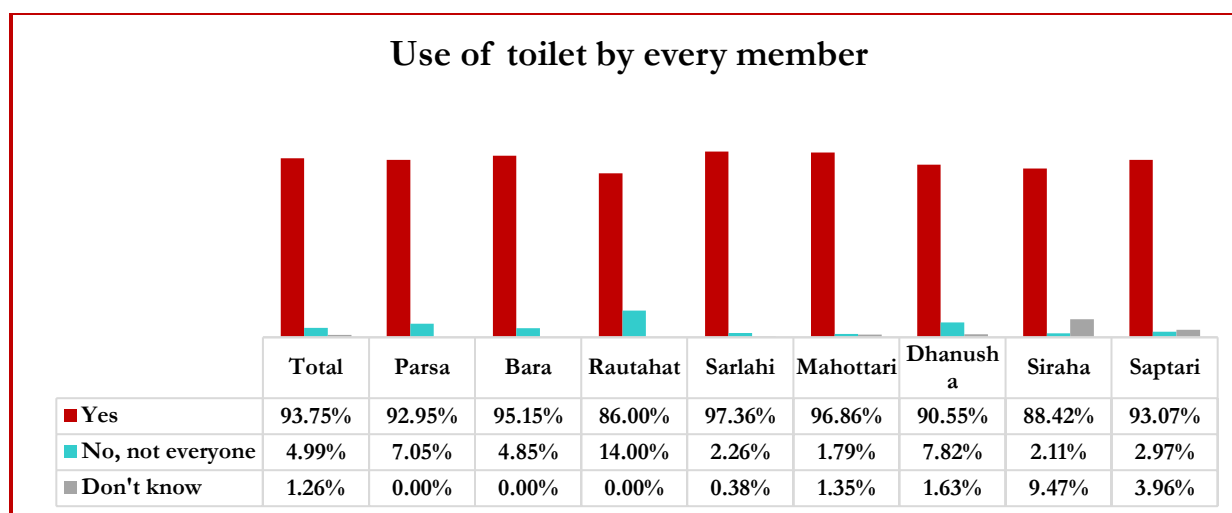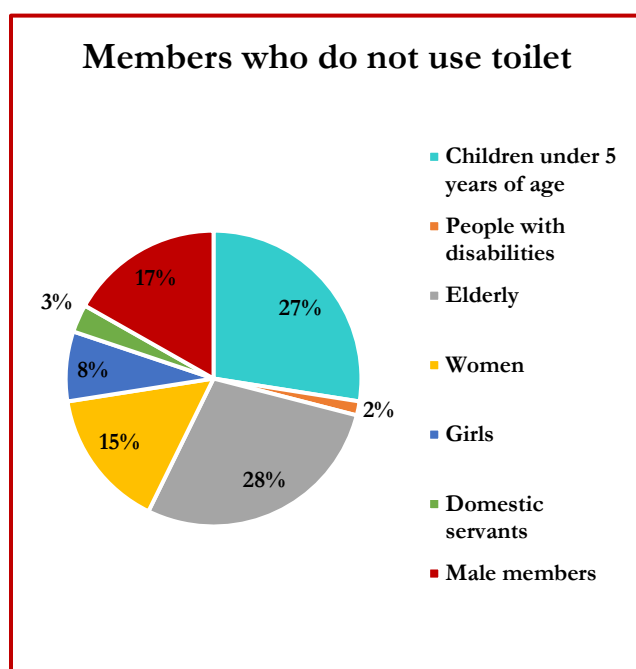
Figure 17: Members who do not use toilet

As mentioned above only 5 per cent of the households who had toilet claimed that not all members use toilet. As shown in Figure 17, among the households whose member did not use toilet, 28 per cent were elderly, 17 per cent were male members, and 15 per cent were women. The reasons cited for not using toilet were: prefer to go outside (29.5%), no access to toilet while working in field (24.2%) and members too young to go to toilet (16.8%). (refer Figure 17)

Types of assistance in using toilet

- Walking Aid
- Raised Pedestal
- Bedpan Potty
- Diaper Nappy

81%
6%
6%
7%
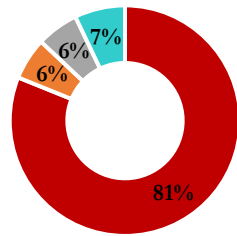
Figure 18: Types of assistance in using toilet

Four per cent of the households reported to have someone in their household that required assistance in order to utilize their toilet. The remaining 95.8 per cent did not have any members in the household that required assistance. Out of the 4 per cent of household that required assistance for using toilet, most of them required walking aids. There were small proportion of members who needed raised pedestal, diaper or nappy or bedpan. (refer Figure 18)

The household members were asked about the ways they disposed their children's feces. Among households that used toilets, 15.1per cent claimed to actually deposit the feces in the toilet itself. This was followed with 12.6 per cent children actually using toilets. About 3.8 per cent left it in the open field. The detailed information on ways of disposal is provided below in Table 19.

Table 19: Faeces dispose of children of the household		
	Count	%
Do not use toilet	1263	41.6
Buried	35	1.2
Child used toilet	382	12.6
Diaper/nappy/cloth washed at water point	43	1.4
Don't know	33	1.1
Left in open	116	3.8
No young children in household	371	12.2
Put into drain/ditch	84	2.8
Put into toilet	459	15.1
Thrown into garbage	248	8.2
Total	**3034**	**100.0**

4.5 Practice of open defecation

Survey respondents reported that 42 per cent does not use toilet at all. Upon observation, 35.8 per cent of the times some evidence of open defection was observed while walking around the yard and ground. A transact walk was also taken through the village to the nearest sites of open defecation to observe evidences of open defection, results demonstrated that in 54 communities, there were evidence of open defecation, while in 40 communities there was no evidence of open defecation. 29 out of these 40 communities were ODF certified, while the remaining 11 were not. 47 out of 100 communities were ODF certified. The remaining 13 communities that were ODF certified had an evidence of open defecation. The evidence was highest in Bara (81.3% of the communities) and none in Siraha. Out of the communities where evidence of open defecation was observed, 88.9 per cent of the times animal faeces was observed, while 70.4 per cent of the times human faeces were observed and 66.7 per cent of the times both animal and human faeces were observed.

Evidence of open defecation during transect walk

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Not sure	6.0%	14.3%	0.0%	0.0%	16.7%	0.0%	14.3%	0.0%	0.0%
■ No evidence of open defecation	40.0%	35.7%	18.8%	83.3%	66.7%	72.7%	7.1%	100.0%	33.3%
■ Yes, there was an evidence	54.0%	50.0%	81.3%	16.7%	16.7%	27.3%	78.6%	0.0%	66.7%
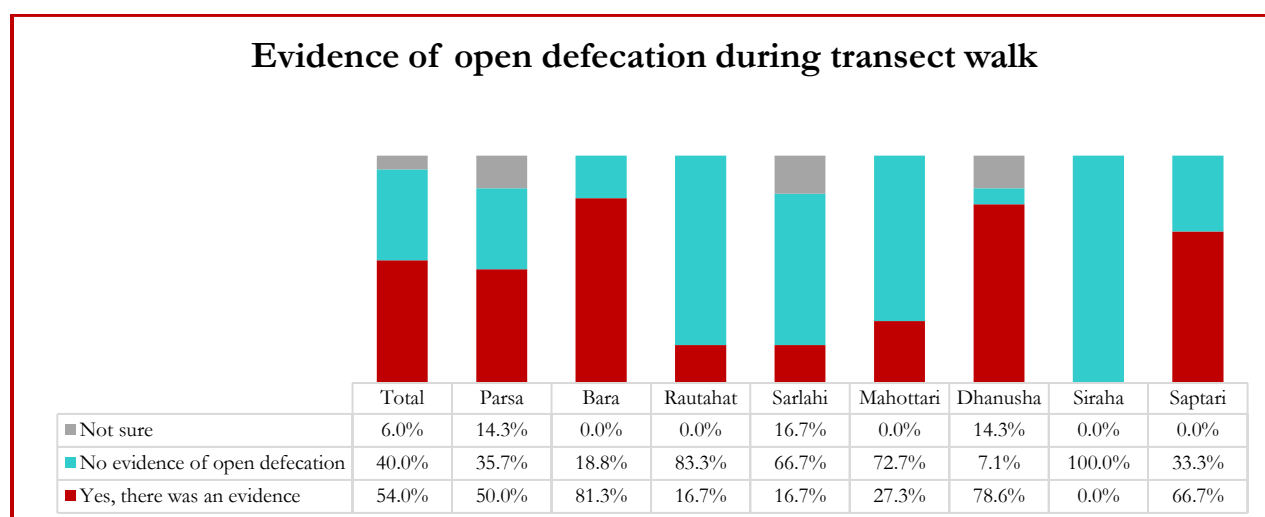
Figure 19: Evidence of open defecation during transect walk

The most common sites for open defecation in across all the communities was field and open ground (21.9%), followed by at the sides or on roads, tracks or paths (18.6%). Practice of open defecation was even reported at the edge or in water bodies (16.6%). (refer Figure 20)

Common sites of open defecation

Site	Percentage
Outside communal or public toilets	4.5%
Behind houses/buildings	13.0%
Road/track/path (at sides or on)	18.6%
Fields/open ground	21.9%
Forest/bushes/jungle	10.1%
Drains/gullys/canyons/depressions	8.9%
Close to water sources/water points	6.5%
River/pond/lake/sea (at edge or in water)	16.6%
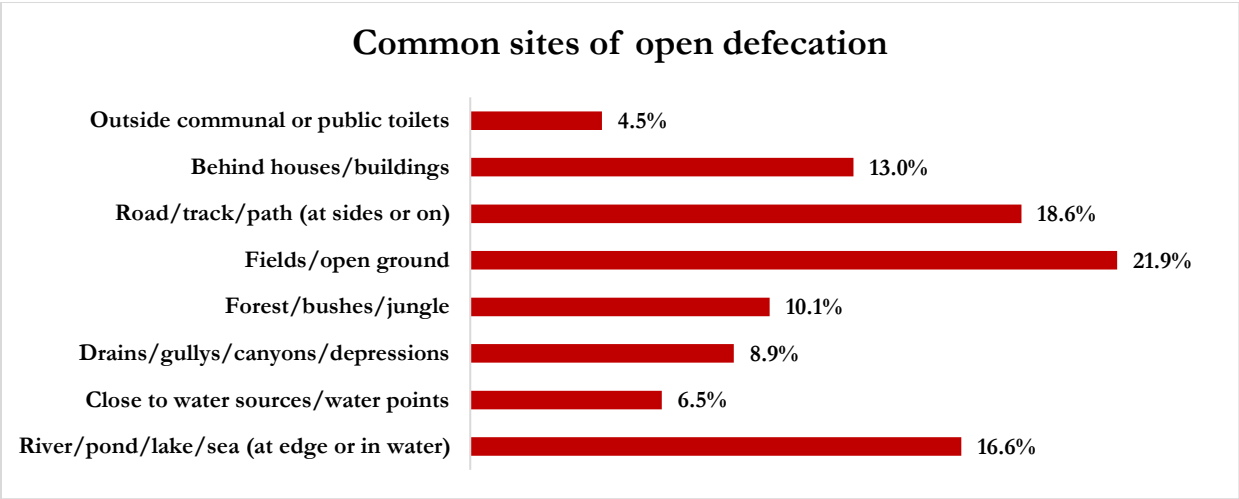
Figure 20: Common sites of open defecation

From the household survey, other conditions observed while walking around the yard that would possibly affect the health and sanitation practice of the people were; 30.5 per cent of the households there was uncollected trash, in 26.5 per cent of households animal feces was found and in 24.2 per cent of the households there was standing water as illustrated in Figure 21 below. **Refer to Annex Table HO10.**

Observed conditions

Condition	Percentage
Overflow from toilet	2.4%
Animal feces	26.5%
Standing water	24.2%
Uncollected trash	30.5%
Free roaming animals	16.4%
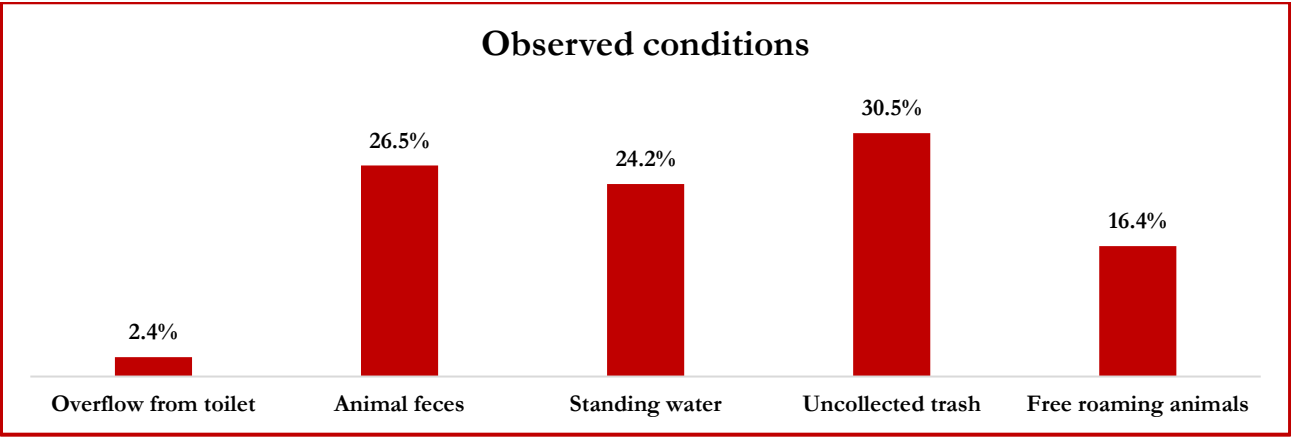
Figure 21: Observed condition while walking in the yard

In the community questionnaire, key informants were enquired about the reasons for not constructing toilets at the household level. The major reason ascribed was lack of affordability (33.7 per cent) and culture of practicing open defecation (23.2 per cent). All the other possible reasons are highlighted in Figure 22. 4.4 per cent reported that the septic tank they used was full pit.

Reasons for not constructing toilet

Reason	Percentage
Don't know	1.1%
Other	8.8%
Full pit/tank (not yet emptied or replaced)	4.4%
Collapsed toilet (not yet rebuilt)	8.8%
Sharing problems (not allowed to use other toilets)	7.2%
Tenants (no toilet provided by landlord)	3.9%
New households (not yet built toilet)	8.8%
Cannot afford to build a toilet	33.7%
Not in our culture/habit: prefer to go outside/in the bush	23.2%
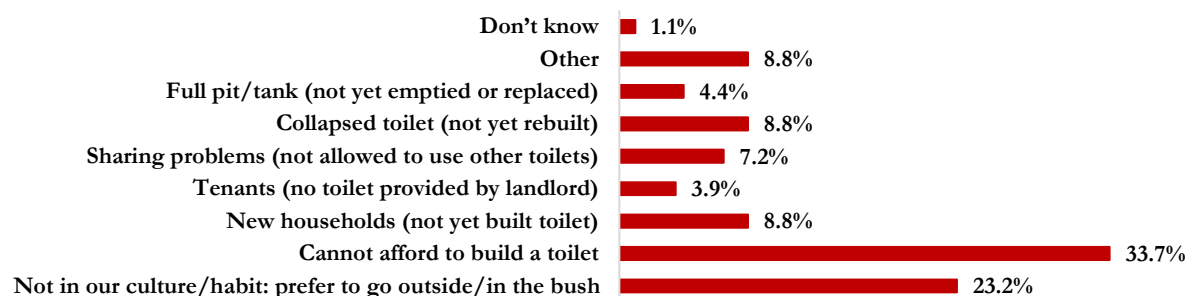
Figure 22: Reasons for not constructing toilet

The question also attempted to capture if communities had been supported in constructing toilets by some national or international organizations. Results from Table 20 shows that in 41 per cent of the communities there had been no support from inside or outside the community, while in the remaining there had been some kind of support.

Table 20: Support in construction of toilets

		Count	%
Support or solidarity mechanisms used to help poor or disadvantaged households construct or improve toilets	Yes, support from inside the community	26	26.0%
	Yes, support from outside the community	23	23.0%
	No	41	41.0%
	Don't know	10	10.0%

At the community level, certain actions had been taken in community to ensure that toilets are constructed. Results from community survey demonstrates that there was community monitoring ODF progress as reported by 25.2 per cent, and among 20.5 per cent of the communities, households had been asked to build, repaid and replace toilet facilities. (refer Table 21)

Table 21: Actions taken by the community in constructing toilet

		Count	%
	No actions taken	50	39.4%
Actions taken by community in constructing toilets	Community is monitoring ODF progress among these households	32	25.2%
	Households have been asked to build/repair/replace toilet facilities	26	20.5%
	Action taken, but households refusing to respond	16	12.6%
	Don't know	3	2.4%

4.5.1 Social norms

In order to understand the underlying causes of open defecation in the communities, a set of questions in regard to the social norms on use of toilet was used. It is ascertained that building norms about sanitation is imperative to change the behavior.

Social norms: How many of your neighbors defecate in the open/field?

■ All   ■ Most   ■ Approximately half   ■ Some   ■ None
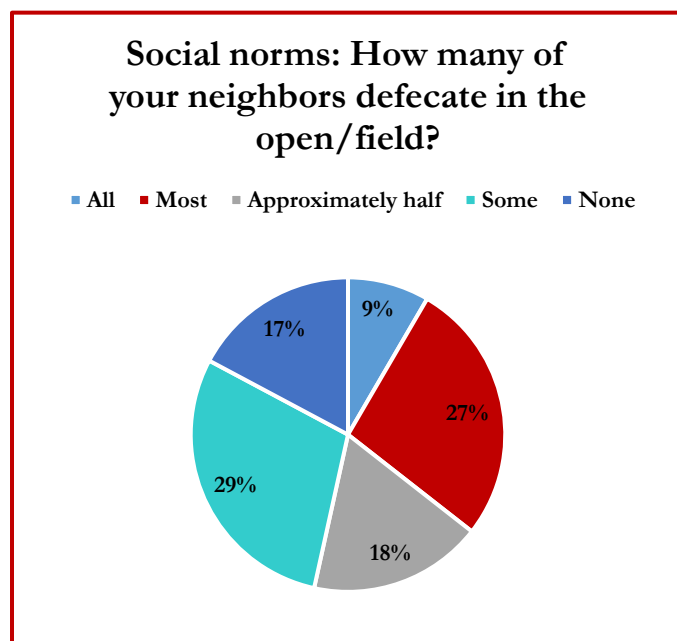
Figure 23: How many of your neighbors defecate in open?

As shown in the pie chart in Figure 23, survey revealed that 29 per cent of the HHs reported that some of their neighbors defecate in open, while 27 per cent of the HHs reported that most their neighbors defecate in open, and 18 per cent reported that approximately half of their neighbors defecate in open. **Refer Annex Table HN1**

As shown in Table 22, assessing the highest proportion of HHs in the districts that reported all their neighbors defecate in open, 19.2 per cent from Parsa reported that all their neighbors defecate in open, while 50 per cent of the HHs in Rautahat stated that most of their neighbors defecate in open. **Refer Annex Table HN2**

Table 22: How many neighbors defecate in open disaggregated by district									
		Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
How many of your neighbors defecate in the open/field?	All	8.4%	19.2%	9%	2.5%	7.0%	0.7%	4.3%	3.2%	2.8%
	Most	27.1%	26.9%	34.3%	50%	12.5%	4.8%	33.6%	36.5%	7.6%
	Approximately half	17.9%	10.5%	31.3%	19.7%	9.1%	13.1%	16%	11.1%	10.3%
	Some	29.3%	24%	18.2%	26.2%	39.7%	55.7%	24.3%	39.7%	57.9%
	None	17.2%	19.5%	7.2%	1.6%	31.6%	25.6%	21.9%	9.5%	21.4%

In the same context, the respondents were asked where their neighbors thought they should defecate to which 82 per cent reported that their neighbors think they should defecate in toilet. There were 12.7 per cent of the households who informed that their neighbors thought they should defecate in open as shown in Figure 24. **Refer Annex Table HN3**

Social norms- Where do your neighbors think you should defecate?

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ They don't care	4.3%	2.4%	2.5%	1.6%	4.7%	0.7%	13.1%	0.8%	0.0%
■ Somewhere else	1.0%	1.3%	1.1%	4.1%	0.0%	1.0%	0.9%	0.0%	0.0%
■ In the open	12.7%	17.7%	14.5%	7.4%	6.1%	6.9%	14.3%	13.5%	3.4%
■ In a toilet	82.0%	78.6%	81.9%	86.9%	89.2%	91.3%	71.8%	85.7%	96.6%
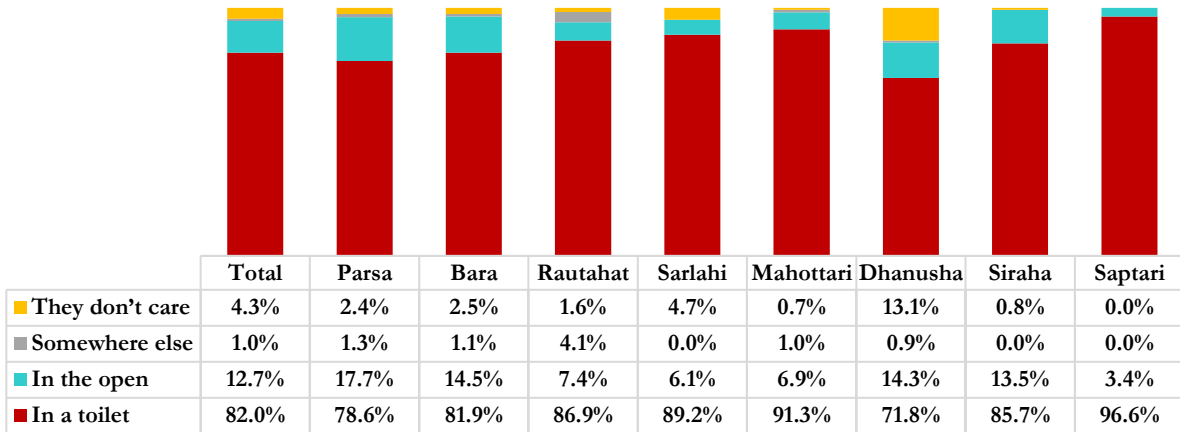
Figure 24: Where do your neighbors think you should defecate

In consistent with the data, 79.9 per cent of the households stated that if someone in their village said, "Everyone should defecate in the open," they would disagree. Only 11.5 per cent claimed that they would agree. As illustrated in Figure 25, 38 per cent households reported that some of their neighbors think it was acceptable to defecate in open, while 20 per cent reported that their neighbors thought it was totally unaccepted to defecate in open. **Refer Annex Table HN4**

Social norms: How many of your neighbors think it is acceptable to defecate in the open?

■ All ■ Most ■ Approximately half ■ Some ■ None
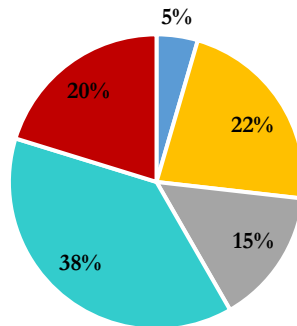
Figure 25: How many of your neighbors think its acceptable to defecate in open?

As illustrated in Figure 26, respondents when asked what would they do if most of the community people were defecating in toilet, reported to defecate in toilet (77 per cent), defecate in open (16.7 per cent), and defecate in both toilet and open (6.3 per cent). The proportion of HHs who reported that even if most of the people in their community were defecating in toilet they would defecate in open was highest in Dhanusa (33.3 per cent) ,followed by Rautahat (27 per cent). The lowest was in Saptari (4.1 per cent). **Refer Annex Table HN5**

Social norms :If Most people in your community used a toilet, where would you defecate?

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Both in the open and in a toilet	6.3%	12.2%	4.3%	4.1%	4.0%	4.2%	5.7%	11.9%	0.0%
■ In a toilet	77.0%	79.9%	77.5%	68.9%	90.9%	82.0%	61.1%	74.6%	95.9%
■ In the open	16.7%	7.9%	18.2%	27.0%	5.1%	13.8%	33.2%	13.5%	4.1%
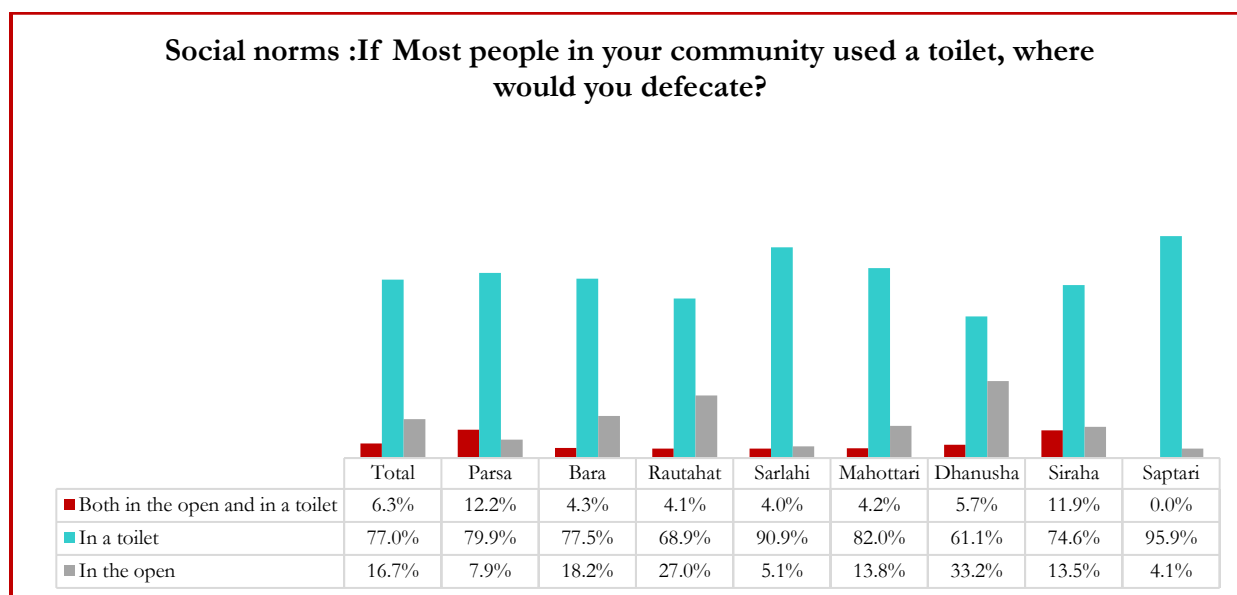
Figure 26: If most people used a toilet, where would you defecate?

As referenced in Figure 27, 38.3 per cent of the households reported that if someone in the community were observed defecating in open the community would ask the person to simply stop doing, while 18.9 per cent stated that nothing would happen. 11.1 per cent reported they would be penalized financially. Financial penalty was highest in Bara (20.6 per cent) and lowest in Saptari (1.7 per cent). 11.6 per cent HHs from Dhanusa and 11 per cent from Saptari did not know about the consequence.

Social norms: If someone in your community was observed defecating in open, what would happen to them?

Community member would ask the person to stop	Community member would report it	Community member would scorn or punish the person	Financial penalty	Nothing happens	I don't know
38.3%	13.1%	13.5%	11.1%	18.9%	5.1%
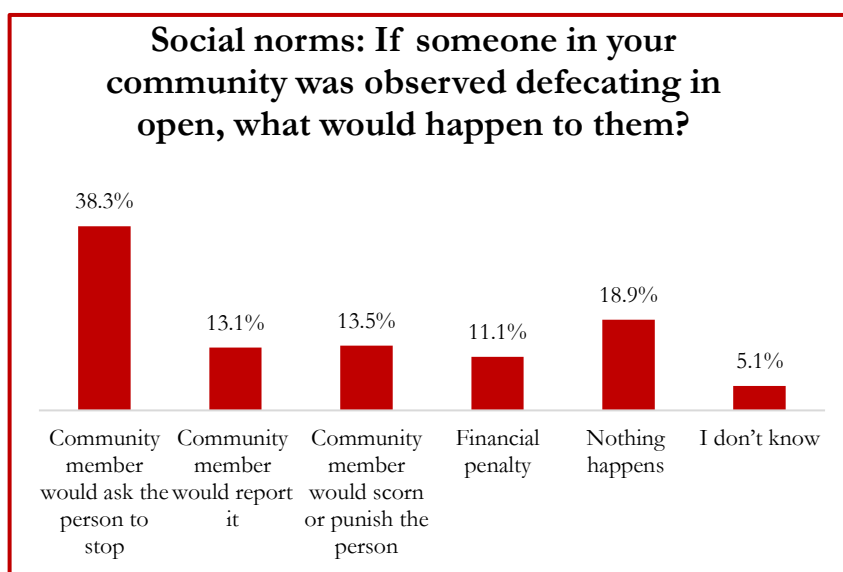
Figure 27: If someone in the community was defecating in open, what would happen?

Communities had their own ways of ensuring that no one defecates in open. As mentioned below in Figure 28, survey revealed that the different ways of ensuring as reported by the households were informal rules agreed by the community members (19.3 per cent), assistance with construction of latrines (18.4 per cent) and instruction from community leader (18.4 per cent). **Refer Annex Table HN6**
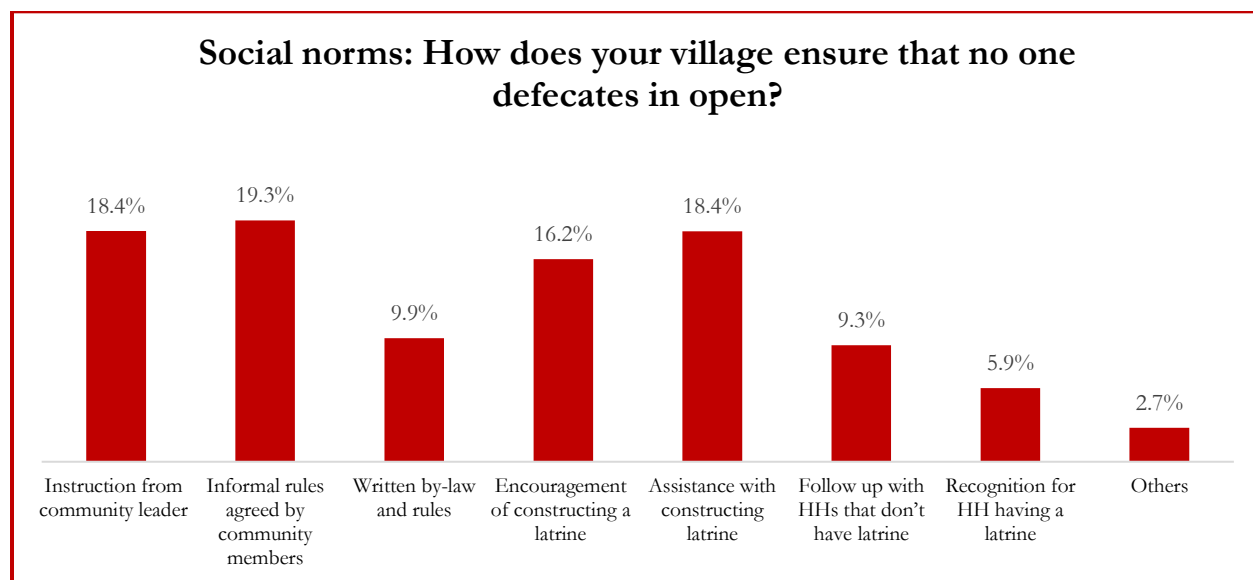
Figure 28: Ways of ensuring that there is no open defecation

4.6 Toilet Emptying

There was a provision of septic tank/ flush to pit toilet in 55.2 per cent of the households with toilet. As detailed in Figure 29, among the ones who had such toilet, only 16 per cent emptied their toilets, while 75.6 per cent had never emptied. The highest proportion of households that emptied their toilets was in Sarlahi (20.5 per cent), followed by Dhanusa (18.3 per cent). It was lowest in Saptari (3.3per cent). **Refer to Annex Table HS15 and HS16**

Toilet emptying

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Yes emptied	16.1%	14.2%	14.4%	15.2%	20.5%	22.8%	18.2%	8.2%	3.3%
■ Never emptied	75.6%	80.9%	84.3%	73.9%	62.2%	69.3%	62.8%	89.7%	96.7%
■ Don't know	8.4%	4.9%	1.3%	10.9%	17.3%	7.9%	19.0%	2.1%	0.0%
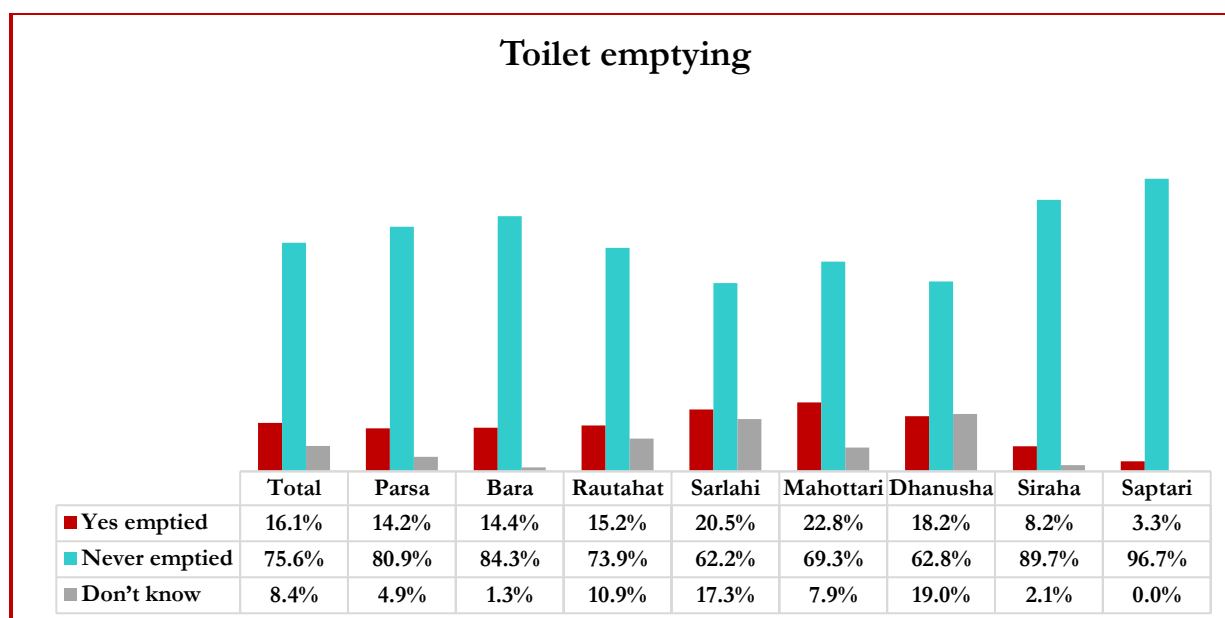
Figure 29: Toilet emptying

Process of toilet emptying

- By a desludging (pit emptying) truck/machine
- By household members or neighbours
- Don't know
- Individuals who are not part of the family and who are paid for this job
- Other

1%
30%
40%
3%
26%
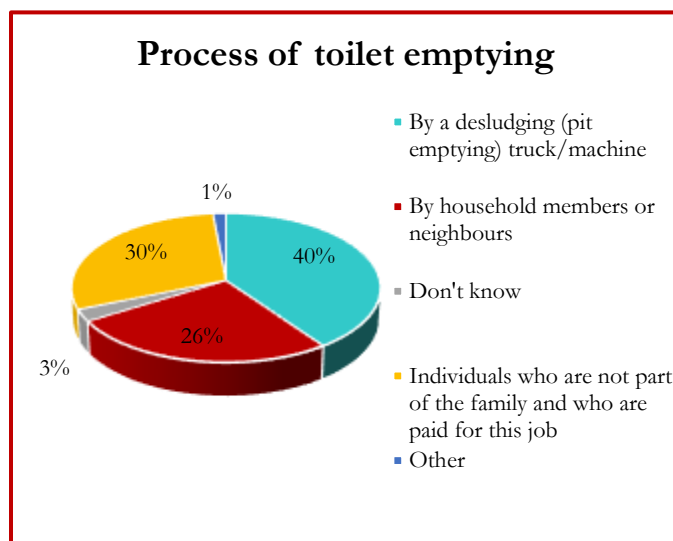
Figure 30: Process of toilet emptying

Figure 30 shows that 40.1 per cent of the toilet that had been emptied, it was reported to be emptied using a desludging truck or machine, which was followed with someone external paid to carry out the work which was reported in 29.7 per cent of the households. About 26 per cent of the households performed the emptying within members from their family or neighbor. **Refer to Annex Table HS17**

Moreover, 49.1 per cent manually emptied the buckets using buckets, 39.2 per cent used vaccum truck and 3.8 per cent used hand pump or gulper. The content was mostly removed using truck or tanker (32.8 per cent). In 17 per cent of the instances the respondents were unaware where the content was emptied.

While performing the emptying, about half proportion (50.9 per cent) reported that it was performed wearing protective and special gear such as either a boot, mask, or gloves. Despite some of the households not having performed emptying, all the valid respondents were queried on their knowledge if they knew who to contact regarding emptying, and 66.1 per cent claimed to know who to contact regarding it. About 3.7 per cent household responded by saying they or their family members could perform the emptying themselves. **Refer to Annex Table HS19 and HS24**

Leakage or overflow of septic tank

1%

10%

89%

- ■ Never
- ■ Sometimes
- ■ Often
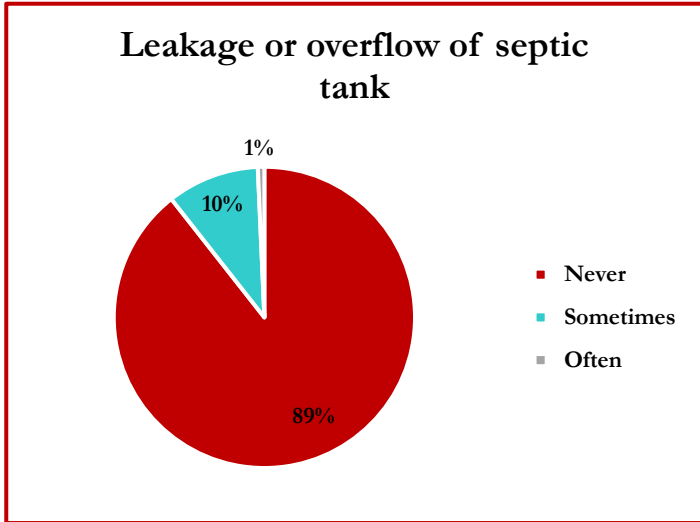
Figure 31: Leakage or overflow in septic tank

The households with septic tanks were also inquired if their septic tank leaked or overflowed at any time of the year, to which 89.4 per cent reported that it never leaked, while 9.9 per cent reported it leaked sometimes and 0.7 per cent reported it leaked usually. (refer Figure 31)

Chapter 5:

Result on Handwashing Practices

Chapter 5: Result on Handwashing Practices

Snapshot of key findings on handwashing practice

The data below demonstrates the population disaggregated as per sex, household head, wealth quintile and disability status that practices proper handwashing. Proper handwashing constitutes of a handwashing facility with provision of water and soap or cleaning agent.

Handwashing practice	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	**64%**	14882	23348
Sex	Female	**64%**	7280	11453
	Male	**64%**	7602	11895
Head of Household	Female headed	**64%**	588	916
	Male headed	**64%**	1345	2118
Wealth Quintile	Q1 (lowest)	**48%**	2010	4211
	Q2	**49%**	1484	3016
	Q3	**56%**	2782	4924
	Q4	**71%**	4691	6576
	Q5 (highest)	**85%**	3915	4621
Disability Status	No disability	**64%**	11845	18517
	Disability	**63%**	3037	4831
Ethnicity	Brahmin	**78%**	1046	1346
	Dalit	**55%**	5381	9786
	Janajati	**70%**	6000	8617
	Others	**68%**	2455	3599
Handwashing definition	Any handwashing facility	**93%**	21726	23348
	Handwashing facility with water but no soap or cleansing agent	**29%**	6844	23348
	Handwashing facility with water and alternative cleansing agent	**16%**	3651	23348
	Handwashing facility with water and soap	**48%**	11231	23348

5.1 Presence, type, location and condition of handwashing station/material

Location of handwashing facility

- ■ In dwelling
- ■ In yard or plot
- ■ Mobile object
- ■ No, due to other reason

1%   4%
16%
79%
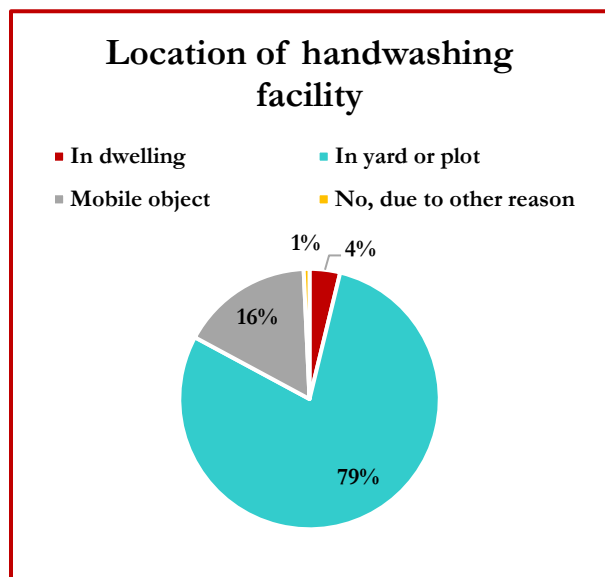
Figure 32: Location of handwashing facility

Survey revealed that 79 per cent of the households had a handwashing facility in the yard or plot, while 16 per cent had a mobile object to serve the purpose. In 4 per cent of the HHs, the handwashing facility was in the dwelling. (refer Figure 32)

As shown in Figure 33, majority of the HHs (82.7 per cent) had a fixed handwashing facility. While 16.5 per cent had a mobile handwashing facility. The use of fixed handwashing facility was highest in Bara (91.7 per cent) and Parsa (91.8 per cent), while the proportion of HHs that used mobile object as a handwashing facility was highest in Mahottari (43.9 per cent). ***Refer to Annex Table HH2a***

Type of handwashing facility

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Fixed handwashing facility	82.7%	91.8%	91.7%	71.3%	70.7%	55.4%	82.6%	77.8%	84.8%
■ Mobile handwashing facility	16.5%	7.4%	8.0%	27.0%	29.3%	43.9%	15.8%	22.2%	14.5%
■ Did not give permission	0.7%	0.8%	0.4%	1.6%	0.0%	0.7%	1.5%	0.0%	0.7%
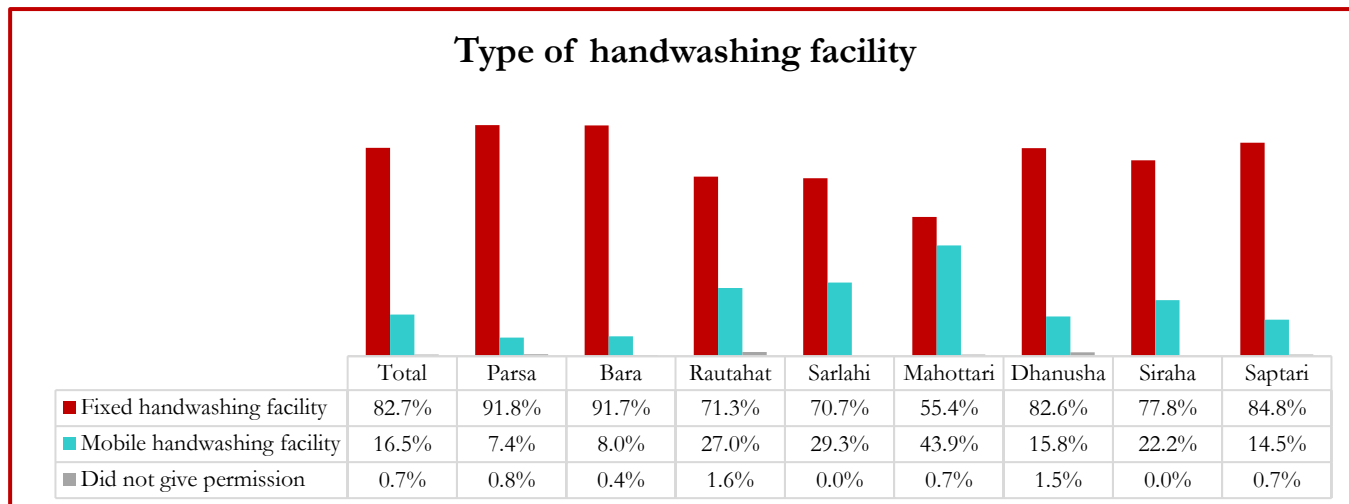
Figure 33: Type of handwashing facility

Assessing the provision of handwashing facility disaggregated by the wealth quintile, proportion of fixed handwashing facility was consistent across all five quintile (first (85.9 per cent), second (83.6 per cent), third (84.5 per cent), fourth (78 per cent), and fifth (84.1 per cent). ***Refer to Annex Table HH2b***

As illustrated in Figure 34, among the fixed handwashing facility, 93 per cent comprised of tubewell, 4 per cent sink with running water and 1 per cent large covered container. As for the mobile handwashing facility, 68 per cent was bucket. jug or kettle, 27 per cent was open water bowl, and 4 per cent was covered water container with cup. **Refer to Annex Table HH2c and HH2c**

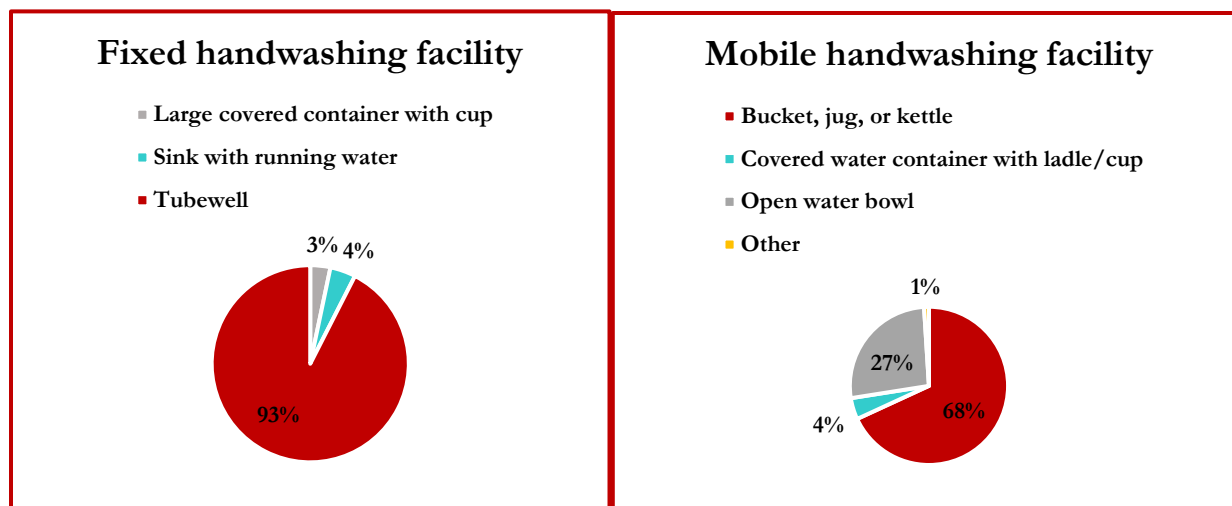Figure 34: Types of fixed and mobile handwashing facility

5.2 Handwashing practices with water and soap or ash

A total of 92.9 per cent of HHs had water available at the handwashing facility. This can be correlated with the fact that majority of the HHs had tubewell that supplied water all day without any obstruction. (refer Figure 35)
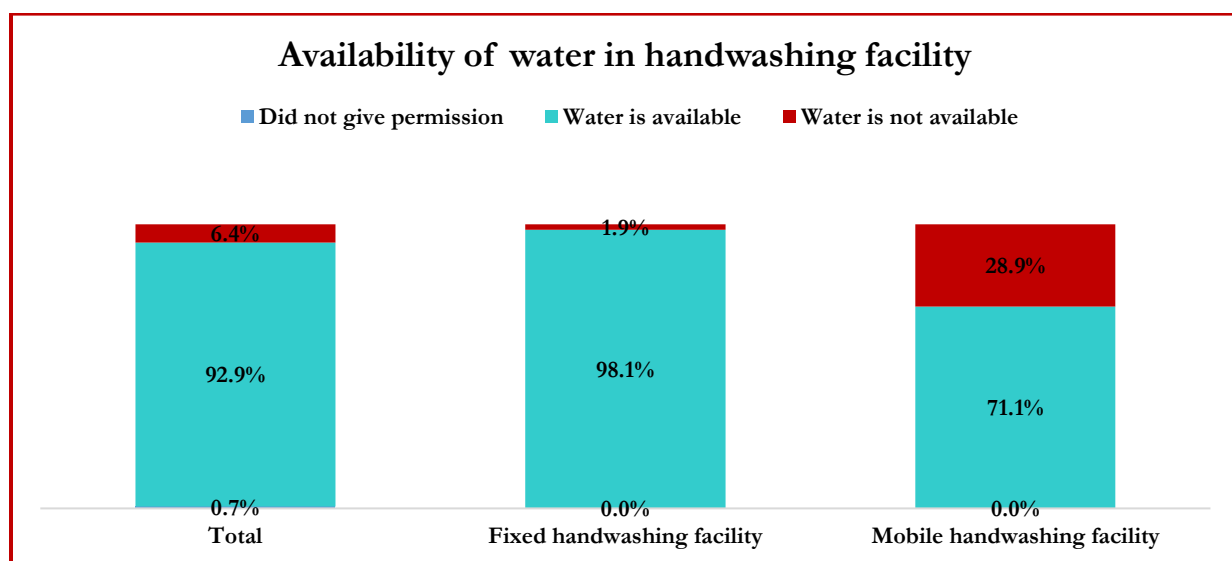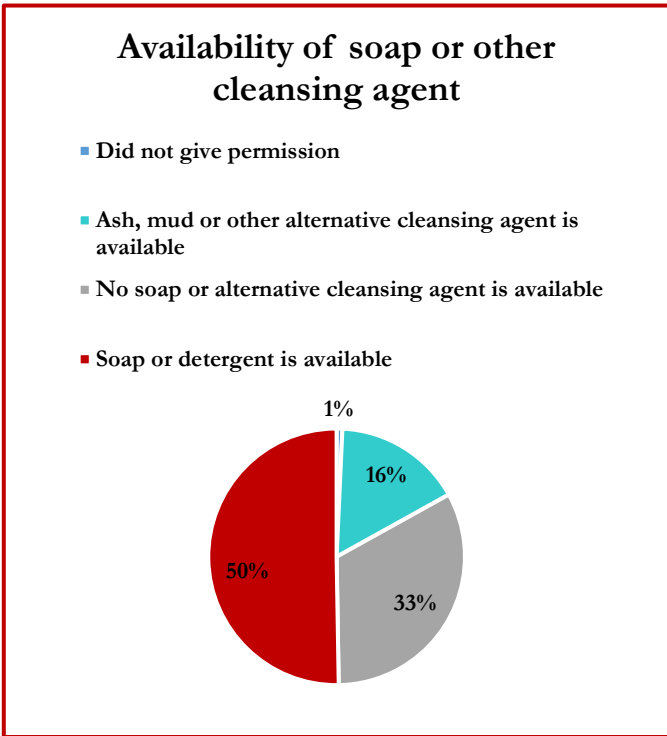

Figure 35: Availability of water in handwashing facility

Availability of soap or other cleansing agent

- Did not give permission

- Ash, mud or other alternative cleansing agent is available

- No soap or alternative cleansing agent is available

- Soap or detergent is available

Figure 36: Availability of soap or other cleansing agent

Moreover, in half of the households (50 per cent), there was a soap or detergent was available at the time of observation; likewise 16 per cent of the households had ash, mud and other form of cleaning products available, while 33 per cent of the households had no soap or other cleansing product to wash hands. (refer Figure 36)

Handwashing Practice

It is a proper handwashing if three conditions are met:

a) There should be a handwashing facility

b) Access to water

c) Availability of soap and other cleansing agents

Results further demonstrated that in 31.4 per cent of the households only water was available without any cleansing agent. In 52.5 per cent water and soap was available and in 16 per cent water and alternative cleaning agent was available.

Results from the household survey showed that in 63.3 per cent of the households practiced proper handwashing. These households had a handwashing facility, access to water, and availability of soap and/or other cleansing agent. There was no variation among the male and female population. Similarly there was no stark variation between population with no disability (64 per cent) and population with disability (63 per cent) in adopting handwashing practice. In case of the population belonging to different wealth quintile, the trend was increasing as the quintile ascended. Handwashing practice was lowest in fist quintile (48 per cent) and highest in fifth quintile (85 per cent).

In assessing the practice of handwashing among different ethnic groups, it is revealed that the lowest proportion of proper handwashing was among Dalit households (53.3 per cent) as shown in Table 23.

Table 23: Handwashing among different ethnic groups								
	Ethnic groups							
	Brahmin/Chhetri		Dalit		Janjati		Other group	
	Count	%	Count	%	Count	%	Count	%
Improper handwashing	40	20.0%	602	46.7%	329	29.8%	130	29.5%
Proper handwashing	160	80.0%	687	53.3%	776	70.2%	310	70.5%

It was also observed that 98.6 per cent of the households has handwashing facility located near the toilet.

As illustrated in Figure 37, the respondents were also inquired about the handwashing times, to which 87.7 per cent washed their hands after defecation, 83.2 per cent washed before eating, 77.8 per cent washed after eating, 70.5 per cent washed their hands when washing body and face.

Handwashing times

- After cleaning child potty — 6.8%
- After changing diaper — 11.7%
- After cleaning child faeces — 27.1%
- Before feeding the child — 23.3%
- Before preparing food for children — 18.1%
- Do not usually wash hands — 2.5%
- After work — 43.0%
- After assisting disabled member — 12.7%
- After cleaning toilet — 48.1%
- After defecation — 87.7%
- After eating — 77.8%
- Before eating — 83.2%
- Before preparing food or cooking — 59.7%
- Washing body and face — 70.5%

Figure 37: Hand washing times

Chapter 6:
Results on Water Supply

Chapter 6. Results on Water Supply and Water Quality

Snapshot of key findings of water supply

The data below demonstrates the population disaggregated as per sex, household head, wealth quintile and disability status that treats their drinking water for drinking.

Water treatment	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	10%	2438	23348
Sex	Female	11%	1221	11453
Sex	Male	10%	1221	11895
Head of Household	Female headed	8%	77	916
Head of Household	Male headed	7%	139	2118
Wealth Quintile	Q1 (lowest)	6%	245	4211
Wealth Quintile	Q2	16%	471	3016
Wealth Quintile	Q3	16%	770	4924
Wealth Quintile	Q4	12%	813	6576
Wealth Quintile	Q5 (highest)	22%	1030	4621
Disability Status	No disability	10%	1919	18517
Disability Status	Disability	11%	519	4831
Ethnicity	Brahmin	23%	290	1271
Ethnicity	Dalit	7%	646	8722
Ethnicity	Janajati	14%	1098	7806
Ethnicity	Others	12%	404	3418

6.1 Presence and type of water supplies

The main source of drinking was tubewell as reported by 93.8 per cent of the households as demonstrated in Figure 38. The proportion was consistent across all eight districts of Province 2. Among 3.2 per cent of the households and 2.9 per cent of the households, primary source of drinking water was public tap and unprotected well, respectively. The highest proportion of unprotected well was in Mohhatari (30.1 per cent) and highest proportion of public taps was also found in households of Mohhatari (10.4 per cent). **Refer to Annex Table HW2**

Main sources of drinking water

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Protected well	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%
■ Public tap	3.2%	4.2%	2.2%	0.0%	0.0%	10.4%	4.0%	0.0%	0.0%
■ Tubewell	93.8%	95.8%	97.7%	100.0%	100.0%	58.8%	95.9%	100.0%	100.0%
■ Unprotected well	2.9%	0.0%	0.1%	0.0%	0.0%	30.1%	0.2%	0.0%	0.0%
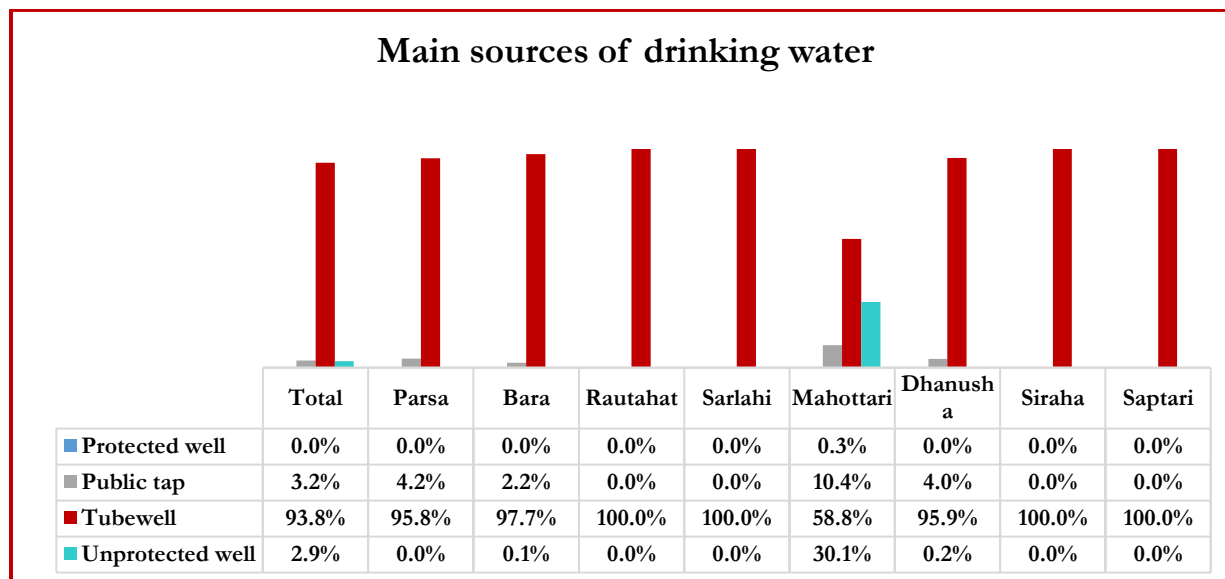
Figure 38: Main source of water

Other sources of water
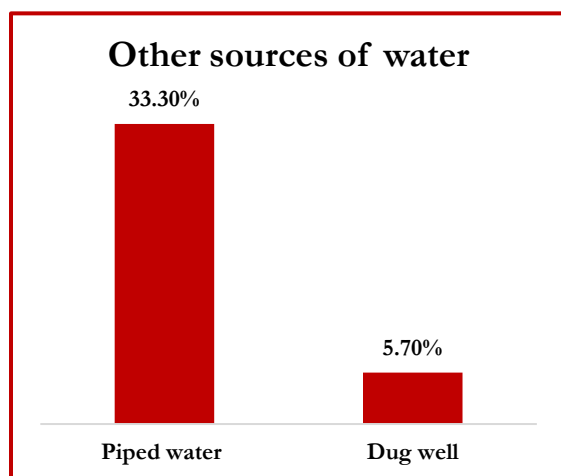
Other than tubewell, the households had other sources of drinking water. Data in Figure 39 showed that 33.3 per cent had piped water, and almost 6 per cent had dug well as other sources.

33.30% — Piped water

5.70% — Dug well

Figure 39: Other sources of drinking water

As mentioned in Tabled 24, 69 per cent of the primary source of water i.e. tubewell were located in the own yard, while remaining 39 per cent were located elsewhere. As for the unprotected well, 30.3 per cent were located in the yard, and 69.7 per cent were located elsewhere. **Refer to Annex HW3**

		Table 24: Location of main source of water								
		Main source of drinking water								
		Total		Protected well		Public tap		Tubewell		Unprotected well	
		Count	%	Count	%	Count	%	Count	%	Count	%
Source located	Elsewhere	1031	34.0%	1	100.0%	87	88.8%	881	31.0%	62	69.7%
	In own yard	2003	66.0%	0	0.0%	11	11.2%	1964	69.0%	27	30.3%

6.1.1 Water collection time and responsibility

As referenced in Figure 40, 34 per cent of the main sources of water were located elsewhere. Survey further reveals that of the sources located elsewhere, 51 per cent reported that it took them 5-30 minutes to reach the source, collect water and come back while only 5 per cent reported that it would take them more than 30 minutes to reach the source, collect and come with an average of 55 minutes. Majority of the adult female were responsible for collecting water (85.8 per cent for the collecting water that takes 5-30 minutes and 80.4 per cent for the collection that takes more than 30 minutes). As for the water sources located more than 30 minutes, the responsibility was taken by 13.7 per cent of female child under 18 years of age. **Refer to Annex HW4 and HW5**
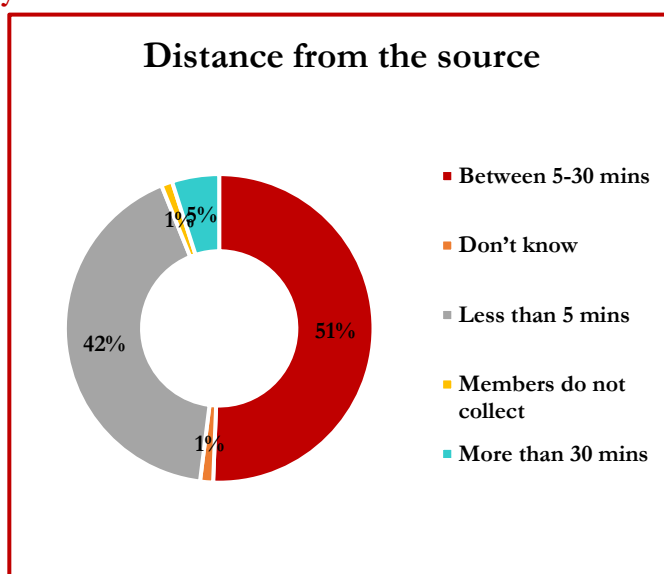
Figure 40: Distance from the source

6.1.2 Functionality of water sources

Respondents from across eight districts reported that majority (99.2 per cent) of the time water was supplied all day every day as shown in Figure 41. The higher proportion is attributed to the fact that majority households owned tubewell (93.8 per cent) that would supply water without any interruption. It was in the case of public tap, where 79.6 per cent reported that water was supplied every day at all hours, while 19.4 per cent reported that water was supplied all days but not all hours,

and remaining 1 per cent reported that water was not supplied everyday but according to a predictable schedule. **Refer to Annex Table HW7**
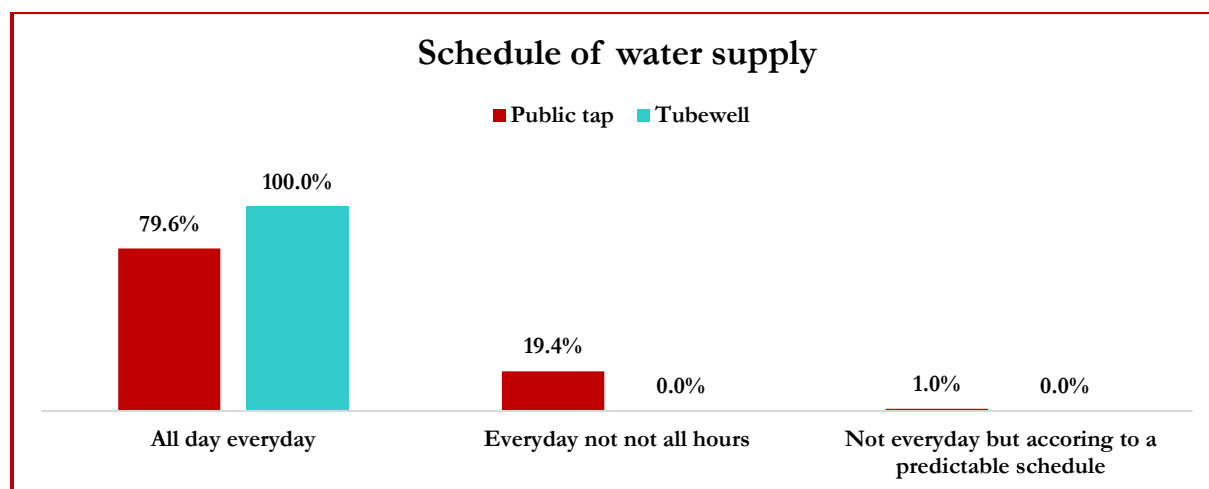
Schedule of water supply

■ Public tap ■ Tubewell

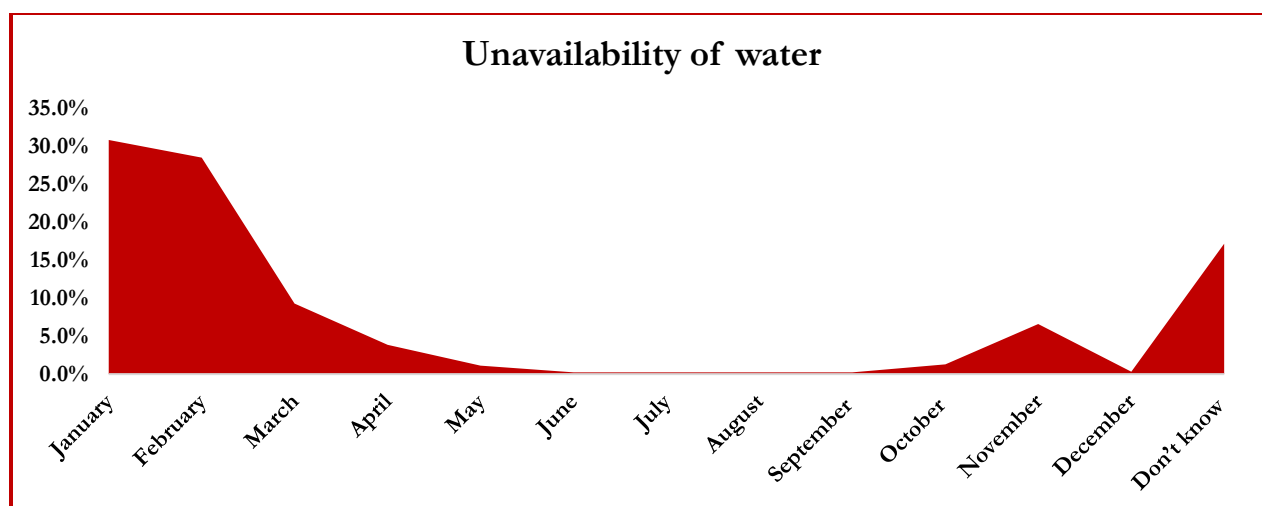Referenced in Table 25, 84.7 per cent of the households reported that water was available all through the year, whole 14.1 per cent reported that there were months where they would face the shortage of water. In this regard, 68.5 per cent of the households whose main source of water was unprotected well reported that water would dry up in the dry season. As for the households with main source as tubewell, 86.9 per cent reported that water was available all throughout the year and 71.4 per cent of households with public tap reported that water was available all throughout the year**. Refer to Annex HW10 and HW11**

Table 25: Availability of water throughout the year

		Main source of drinking water									
		Total		Protected well		Public tap		Tubewell		Unprotected well	
		Count	%	Count	%	Count	%	Count	%	Count	%
Availability of water throughout the year	Yes	2571	84.7%	1	100.0%	70	71.4%	2473	86.9%	27	30.3%
	No	429	14.1%	0	0.0%	27	27.6%	341	12.0%	61	68.5%
	Don't know	34	1.1%	0	0.0%	1	1.0%	32	1.1%	1	1.1%

In total, there were 14.1% households who reported that water was not available all throughout the year. Water was unavailable in the month of January (30.8 per cent), February (28.5 per cent), and March (9.3 per cent). 17.2 per cent could not remember the month where the households would face water shortage. (refer to Figure 42)

Unavailability of water

Moreover, as shown in Figure 43, for 86.5 per cent of the households, water was always sufficient in the past month, while 11.1 per cent reported to have insufficient quantities of water. The highest proportion of households who faced insufficiency in the past month were from Mahottari (39.1 per cent), followed by Dhanusa (16.5 per cent) and Saptari (11 per cent). **Refer to Annex Table HW12**

Access to sufficient quantities of water

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ **Always sufficient**	86.5%	93.1%	92.6%	90.2%	92.3%	60.9%	80.2%	94.4%	76.6%
■ **Not sufficient**	11.1%	6.6%	4.2%	8.2%	6.4%	39.1%	16.5%	5.6%	11.0%
■ **Don't know**	2.4%	0.3%	3.2%	1.6%	1.3%	0.0%	3.3%	0.0%	12.4%
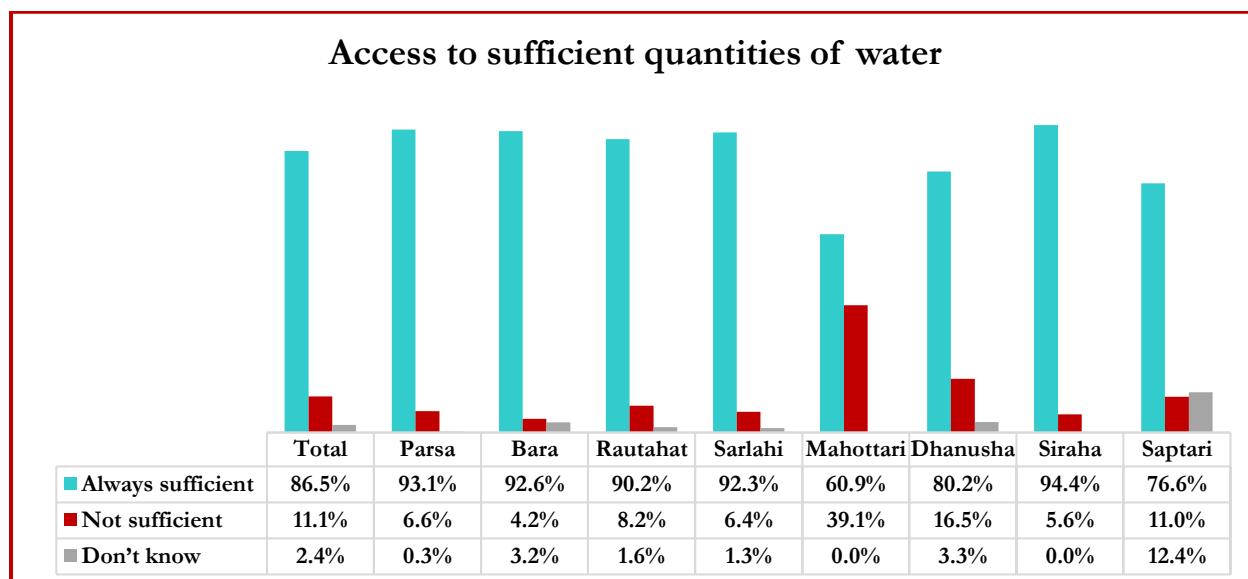
Figure 43: Access to sufficient quantities of water

The main reason attributed for the insufficient supply of water in the past month was that the water source not being available at source (66 per cent). In case of Mahottari, the results were coherence with the overall findings, where the 61.1 per cent reported that water was not available from the source, hence they faced the insufficiency. **Refer to Annex Table HW13**

6.1.3 Drinking water treatment and quality

Households were asked of ways they may be treating water at home to make it safer to drink. Boiling water, adding bleach or chlorine, using a water filter, and using solar disinfection are considered as

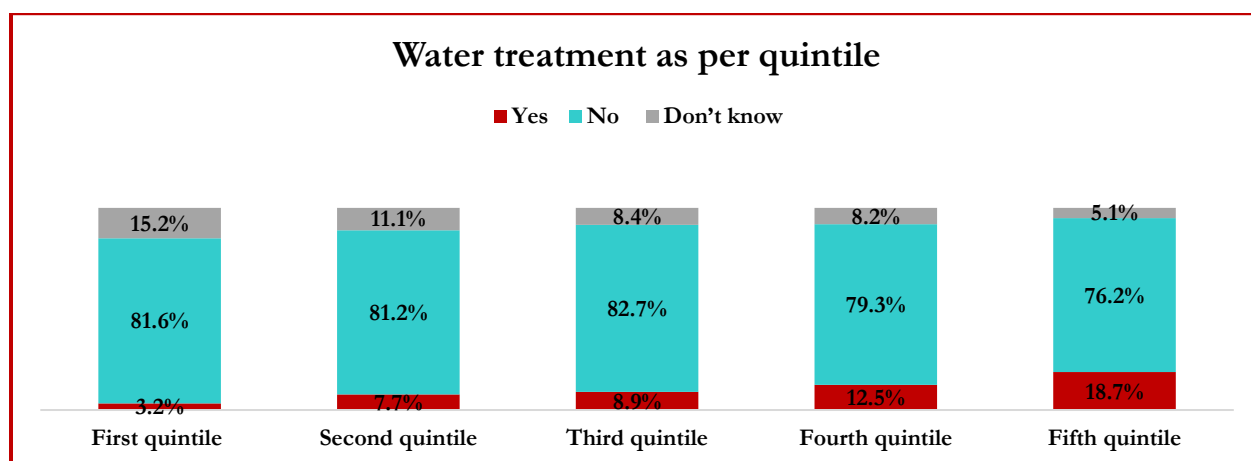proper treatment of drinking water. Survey revealed that 80 per cent of the households did not do anything to the water to make it safe, while 10.7 per cent reported that take appropriate measures to treat water as shown in Figure 44. Assessing the trend of water treatment measures, HHs from Saptari (39.3 per cent) and Sarlahi (36.7 per cent) were higher in reporting they practice measures to make their water safe for drinking. **Refer to Annex Table HW14**
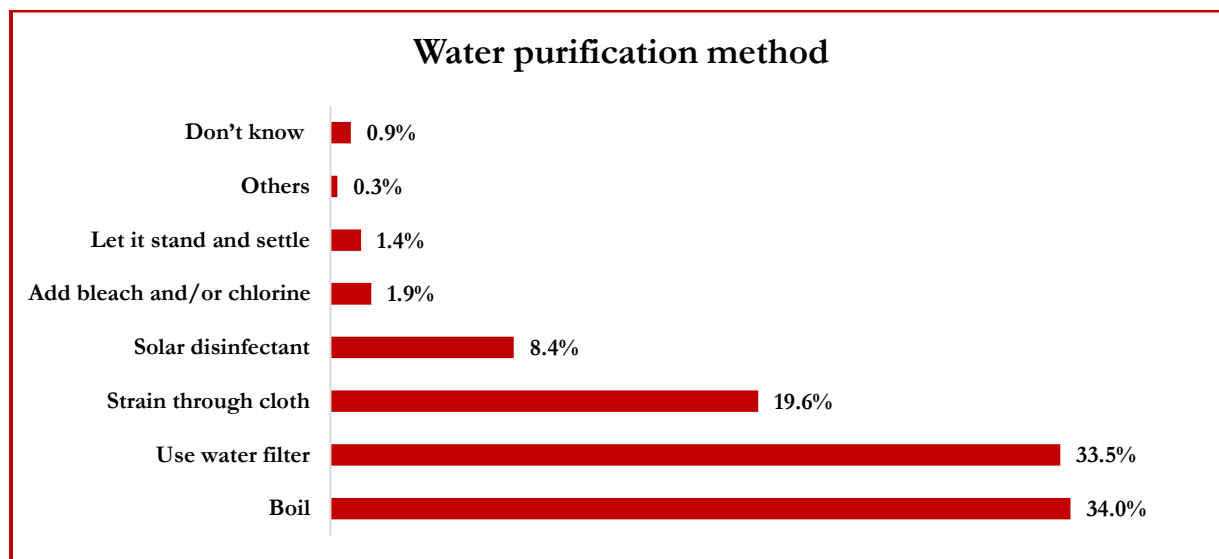

Household water treatment

■ Yes   ■ No   ■ Don't know

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Don't know	9.3%	11.0%	12.0%	9.0%	3.0%	0.0%	10.5%	0.0%	21.4%
No	80.0%	86.8%	78.2%	84.4%	60.3%	90.0%	85.7%	99.2%	39.3%
Yes	10.7%	2.3%	9.8%	6.6%	36.7%	10.0%	3.8%	0.8%	39.3%
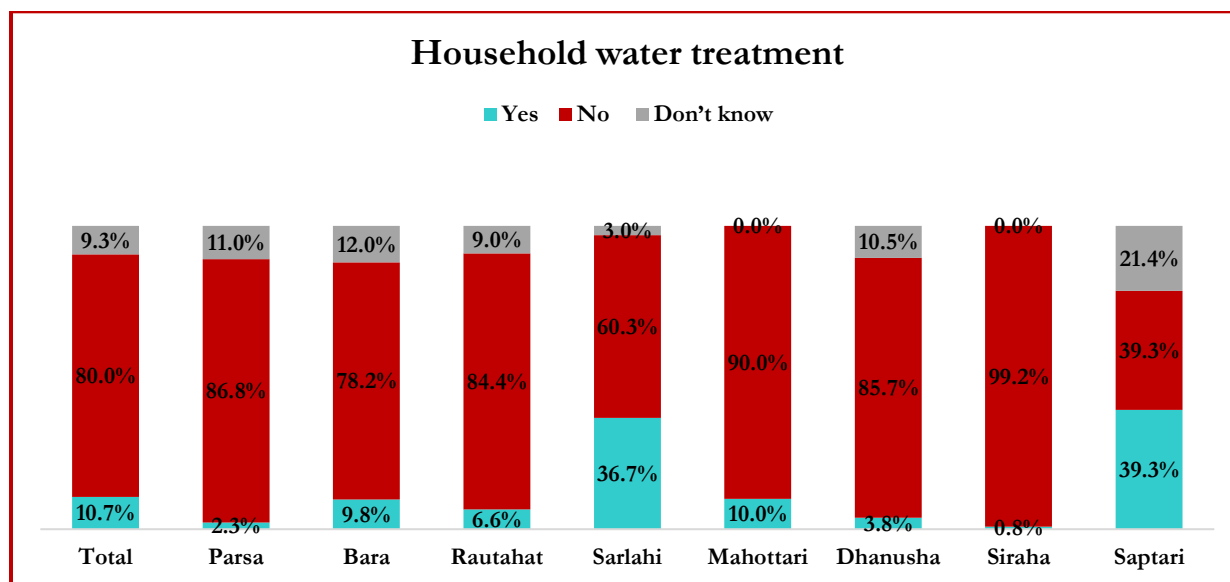
Figure 44: Water treatment provisions

The data was disaggregated as per the wealth quintile in Figure 45 to assess the practice of treating water, to which results demonstrated that 18.7 per cent of the households in fifth quintile treated their water at household level, while the percentage decreased from fourth (12.5 per cent) to third (8.9 per cent) to second (7.7 per cent) to first quintile (3.2 per cent). **Refer to Annex Table HW14a**

Water treatment as per quintile

■ Yes   ■ No   ■ Don't know

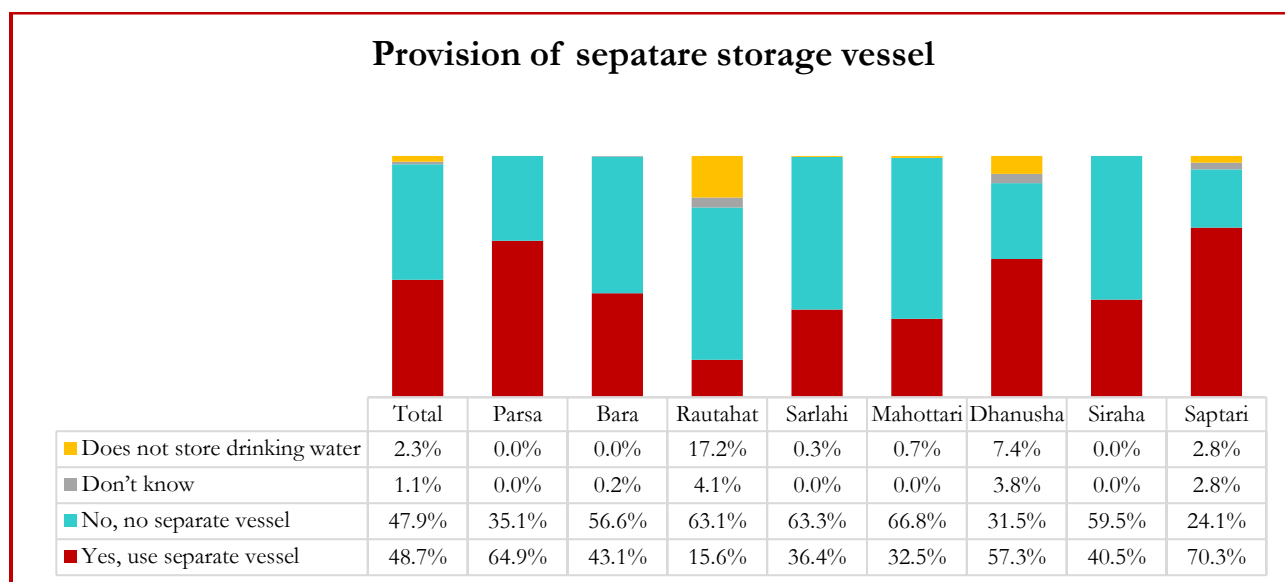|	First quintile	Second quintile	Third quintile	Fourth quintile	Fifth quintile
Don't know	15.2%	11.1%	8.4%	8.2%	5.1%
No	81.6%	81.2%	82.7%	79.3%	76.2%
Yes	3.2%	7.7%	8.9%	12.5%	18.7%

Figure 45: Water treatment disaggregated by wealth quintile

Among the households who purified their water before drinking 34 per cent boiled their water, while 33.5 per cent used water filter, 19.6 per cent strained through cloth and 8.4 per cent used solar disinfectant, shown in Figure 46. **Refer to Annex Table HW15**

Water purification method

Method	Percentage
Don't know	0.9%
Others	0.3%
Let it stand and settle	1.4%
Add bleach and/or chlorine	1.9%
Solar disinfectant	8.4%
Strain through cloth	19.6%
Use water filter	33.5%
Boil	34.0%

Figure 46: Water purification methods

Moreover, the respondent households were asked if they had a separate vessel for storing drinking water, to which 48.7 per cent reported that they had a separate vessel, while 47.9 per cent used the same vessel used for cooking and cleaning as illustrated in Figure 47. The highest percentage of households who had a separate storing vessel was from Saptari (70.3 per cent), followed by Parse (64.8 per cent), and Dhanusha (57.3 per cent). **Refer to Annex Table HW16**

Provision of sepatare storage vessel

	Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
Does not store drinking water	2.3%	0.0%	0.0%	17.2%	0.3%	0.7%	7.4%	0.0%	2.8%
Don't know	1.1%	0.0%	0.2%	4.1%	0.0%	0.0%	3.8%	0.0%	2.8%
No, no separate vessel	47.9%	35.1%	56.6%	63.1%	63.3%	66.8%	31.5%	59.5%	24.1%
Yes, use separate vessel	48.7%	64.9%	43.1%	15.6%	36.4%	32.5%	57.3%	40.5%	70.3%

Figure 47: Provision of separate vessel for storing

6.1.4 Management Arrangement- Tariff

As referenced in Figure 48, 91 per cent of the households did not have to pay tariff for the drinking water. The highest proportion of households from Dhanusa (37 per cent) were paying tariff, followed by Sarlahi (27.9 per cent) and Siraha (15.9 per cent).
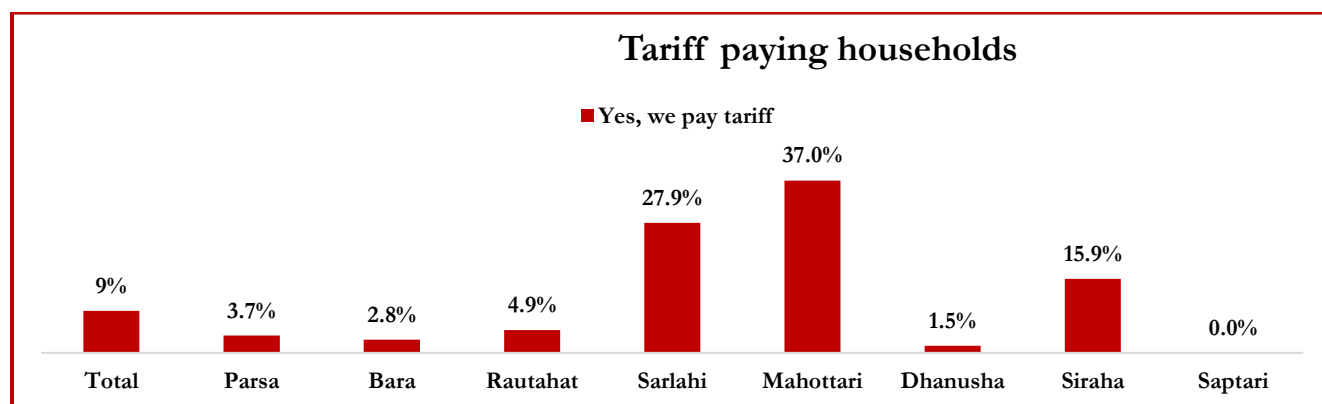
Tariff paying households

■ Yes, we pay tariff

Total	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
9%	3.7%	2.8%	4.9%	27.9%	37.0%	1.5%	15.9%	0.0%

Figure 48: Tariff disaggregated by district

Out of the ones who had to pay tariff (9 per cent), a majority of the households (91.2 per cent) reported that they always paid their tariff. However, there were 7.7 per cent who paid only sometimes and 0.4 per cent who never paid. The major reasons cited for non-regular pay of tariff was not satisfied with the service (60 per cent) and could not afford to pay (32 per cent). Lastly, the ones who were required to pay tariff were asked if the fee was affordable to which 90.8 per cent reported it to affordable. **Refer to Annex Table HW18, HW19 and HW20**

Chapter 7:
Result on Water Quality Testing

Chapter 7: Results on Water Testing

Snapshot of key findings of water testing

The data below demonstrates the population disaggregated as per sex, household head, wealth quintile and disability status where the result from water test shows contamination.

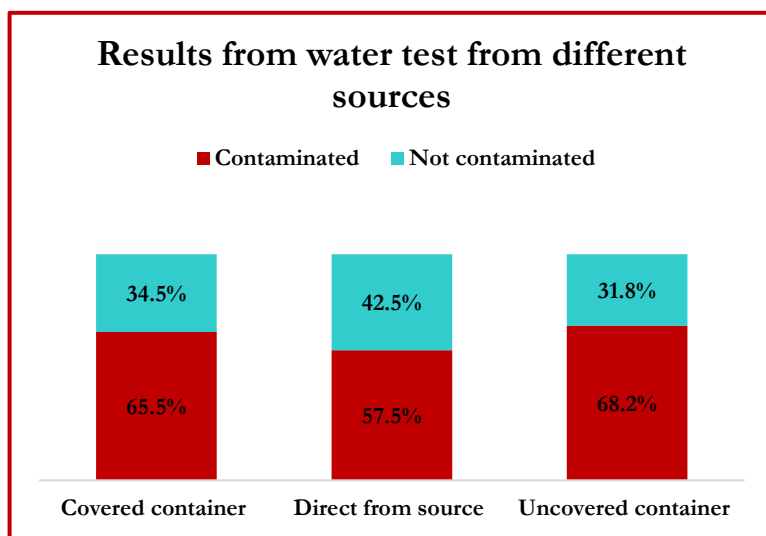| Contaminated water	Disaggregation category	Value for this indicator	Numerator	Denominator
Total	-	60%	4713	7917
Sex	Female	60%	2341	3884
	Male	59%	2372	4033
Head of Household	Female headed	56%	169	300
	Male headed	61%	431	711
Wealth Quintile	Q1 (lowest)	56%	763	1358
	Q2	54%	545	1008
	Q3	63%	973	1547
	Q4	62%	1402	2246
	Q5 (highest)	59%	1030	1758
Disability Status	No disability	60%	3719	6224
	Disability	59%	994	1693
Ethnicity	Brahmin	63%	328	520
	Dalit	57%	1801	3185
	Janajati	63%	1852	2951
	Others	58%	732	1261

Systematically every third households was selected for water quality testing. The objective of this activity within the baseline study was to obtain information in regards to communities with poor water quality. On this note, out of all the household, only 33.3 per cent of the total sampled household were selected for water quality testing. Hence, a total of 1011 households were tested for their water quality.

Out of the collected water samples in PA Vail bottles, 78.8 per cent of the collected samples were directly from source. In the communities visited, there is a practice of drinking water directly from the source, without storing it in a vessel. 14.6 per cent of water sample was collected from covered containers and 6.5 per cent from uncovered container. Hardly 0.7 per cent of the household were found to be actually done some form of treatment to their water. The treatment conducted by the household found to be practicing it, where boiling, filtering and straining through cloth. (refer to Table 26)

Table 26: Collection of the sample for water treatment		
	Count	%
Covered container	148	14.6%
Direct from source	797	78.8%
Uncovered container	66	6.5%

94.3 per cent of the water collected were from tubewell. 3 per cent and 2.7 per cent had sources of public stand, respectively as shown in Figure 49. The result of the water quality testing coliform showed varied result across the districts.
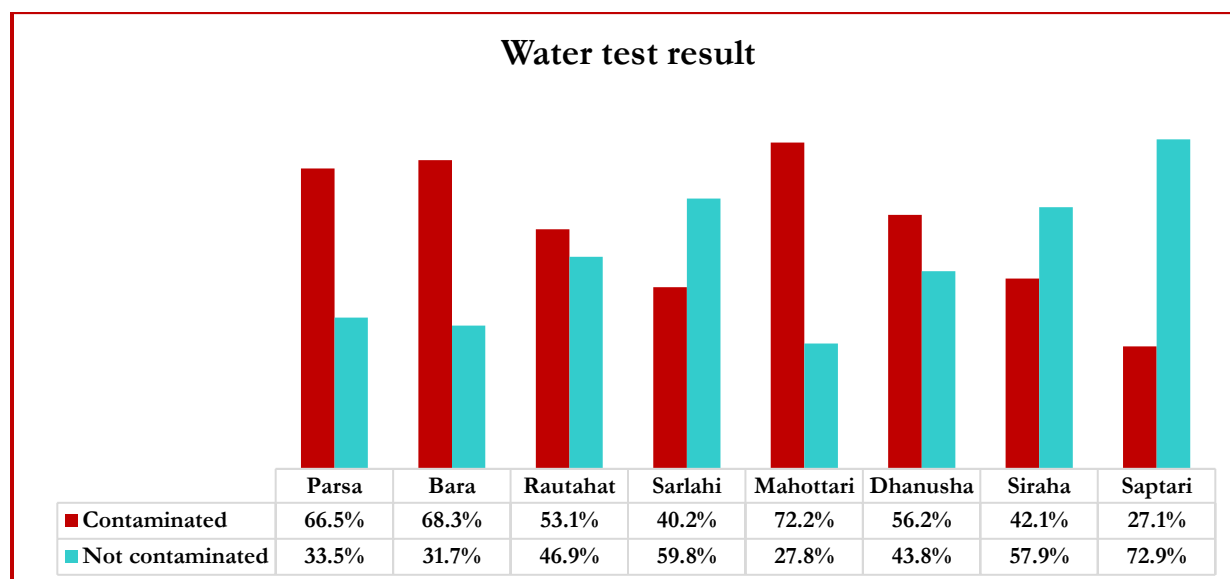

Results from water test from different sources

■ Contaminated ■ Not contaminated

Covered container: 34.5% Not contaminated, 65.5% Contaminated
Direct from source: 42.5% Not contaminated, 57.5% Contaminated
Uncovered container: 31.8% Not contaminated, 68.2% Contaminated

Figure 49: Results from water testing from

Overall 59.3 per cent of the tested household showed presence of coliform on their tested water, whereas 40.7 per cent were clear of it. Results showed that contamination in water was found in water collected from covered or uncovered containers as well as directly from source. The proportion of contaminated water was 68.2 per cent in uncovered container, 65.5 per cent in covered container and 57.5 per cent in direct source of water.

Results further showed that the highest presence of coliform among the districts was seen in Mahottari with 72.2 per cent. Bara had 68.3 per cent, Parsa with 66.5 per cent and Dhanusha with

56.2 per cent. The lowest presence of coliform was seen in Saptari, where only 27.1 per cent of coliform presence was observed as shown in Figure 50.

Water test result

	Parsa	Bara	Rautahat	Sarlahi	Mahottari	Dhanusha	Siraha	Saptari
■ Contaminated	66.5%	68.3%	53.1%	40.2%	72.2%	56.2%	42.1%	27.1%
■ Not contaminated	33.5%	31.7%	46.9%	59.8%	27.8%	43.8%	57.9%	72.9%

Figure 50: Result of water testing across 8 districts

In assessing the contamination of water used by households of different wealth quintile, the result was consistent as demonstrated in Table 27.

Table 27: Water quality test disaggregated by wealth quintile

	Quintile									
	First		Second		Third		Fourth		Fifth	
	Count	%	Count	%	Count	%	Count	%	Count	%
Contaminated	105	58%	75	56%	107	60.7%	182	62.1%	131	57.7%
Not contaminated	76	42%	59	44%	69	39.3%	111	37.9%	96	42.3%

Only 7 of the households had their water treated and positively, the treated water did not show any contamination.

Chapter 8: Conclusion

Positively, 47 communities out of 100 were ODF certified. Upon observation, evidence was observed in 13 of the ODF declared communities, indicating that despite being ODF certified, these communities practiced open defecation. There were 11 communities that had not been certified ODF, however no evidence of open defecation was observed. 45.2 per cent of the times in the communities that have not been ODF certified, no actions were taken in the community to construct toilets, while in the communities that were ODF certified 33.8 per cent of the times, no actions were taken. In the communities that were non-ODF, the major actions taken were monitoring ODF progress (25.8 per cent) at the household level.

Findings from household survey revealed that Rautahat and Siraha had achieved 100 per cent ODF certification. Saptari and Mahottari were also in the higher side of ODF status, however, results showed that ODF status was poor in Bara and Dhanusa. Results from transect walk further corroborates the assertion, where in case of Bara, 81.3 per cent of the time and in Dhanusa, 78.6 per cent of the time open defecation was observed. Correspondingly, in Bara and Dhanusa, about half the proportion of the households did not use toilets. Contrarily, even though Rautahat had received 100 percent ODF certification as asserted by the community key informant, 59 per cent of the households have claimed that they do not use toilet.

Interview with the community key informant revealed that affordability being the major reason for not constructing the toilet. This was followed by the cultural norms that were hindering the practice of using toilet. The result was not varied in the communities where ODF was practiced. Even in such communities affordability and culture played a major role in household not constructing toilets. People in the community have not prioritized toilets as it incurs cost. This is reinforced by the ingrained cultural practice of defecating in open.

In regards to the soil type posing problem in construction of toilets, it was revealed that majority of the communities had soil type as mud. There were only 13 communities that reported to have difficulty in construction in relation to the soil, out of which 8 were non-ODF communities and 5 were ODF communities. It can be concluded that soil type did not pose any challenge in the construction.

Household survey highlights that 42 per cent did not use toilets at all. Among the ones who reported to use toilet, upon observation it was seen that approximately all the households had improved toilets. There was a very small percentage of households with the members not using it. Survey showed that only 5 per cent of the households who reported to use toilet claimed that not everyone used toilet. This proportion demonstrates that gender and disability was not a major concern among member of the households.

Furthermore, assessing the practice of using toilet, it is seen that 60.6 percent of the Dalit households did not use toilet, while the data is less than one third in case of other ethnicities. The households that fall under the first quintile have reported to use toilet the least. Only 18.4 per cent of the household that falls under the first quintile use toilet. It should also be noted that most of the Dalits (53.6 per cent) falls in first and second quintile. Moreover, data shows that the practice of using toilets is consistent among both the genders. There is no variation in the use of toilets as per the disability status.

In regards to the handwashing practice among the households, majority of the households (92 per cent) had access to water. Positively there were about 50 percent of the household with soap or other cleansing agent. 63.7 per cent of the households had water access and access to soap or cleansing agent. In terms of ethnicity, the practice of handwashing washing with proper access to water and soap or cleansing agent was seen least among Dalit households. The practice of handwashing was consistent among both genders and also among people with disability.

In terms of access to drinking water, tubewell was the main source of drinking water in 93.8 per cent of the households. Attributable to this, majority of the households did not face any interruption in water supply, as the supply of water in tubewell is year round available. There is a practice of drinking water directly from the source, which leads to consumption of untreated water. Survey further captures that more than three fourth of the households did not treat their water for consumption.

The results from water quality testing carried in over one third households demonstrated that 60 per cent of the water samples were contaminated. The highest rate of contamination was found in Mahottari (72.2 per cent), followed by Bara (68.3 per cent) and Parsa (66.5 per cent). The whole population of province two irrespective of religion, ethnicity or wealth quintile are consuming contaminated water. There was a negligible proportion of households who had treated water (0.7 per cent) and positively the water testing results showed no contamination.

8.1 Implications

In regards to access to toilet, a high number of households were observed to have improved toilet. Despite this, the fact that about half of the households lacked the provision of toilets, shows the lack of awareness or requirement for a stricter provision by the local government in order to standardize the need and use of toilets across Province 2 in both ODF and non-ODF certified areas is imperative. In addition to this, both ODF and non-ODF communities needs stricter policy and regulation in place, so that the communities internalize the necessity of toilets and are sensitized about its usage. This will result in further improvement of the non-ODF communities by more household having provisions to toilets, and at the same time stop slippage and further ill practices of open defecation among ODF certified communities.

More than half of the population of the sampled households were consuming contaminated water. This directs us to the fact that households should be encouraged to treat water and drink to avoid any kind of health implication. The innuendo that consumption of water directly from sources or merely putting a lid over drinking water would be of quality, is a fallacy in itself. The lack of households who practice any type of water treatment is evident enough for the high ratio of contaminated water samples from the communities. Proper reinforcement and awareness, with a rigorous monitoring mechanism in place through established community or WASH committees to further sensitize as well capacitate the community in potential ways of water treatment is required. In addition to this, linkage to the committee members with WASH department within the new government structure is vital in order to be inculcated and supported for water safety measures.

Overall, communities are aware on the need of handwashing, its importance, and the consequences it brings about to various health concerns. Due to this fact, handwashing knowledge was adequate, the available facility for it was adequate, however its practice needs to be closely observed for the long run.

8.1.1 Specific implications

- The findings from the ODF status reveal that despite achieving the ODF status, a reinforcement and continuous monitoring is important to achieve sustainable results as there were communities that practiced open defecation despite being externally certified as ODF.

- Initiatives in the areas like Dhanusa and Bara is imperative to achieve full ODF status and in communities like Rautahat measures on sustainability of ODF is important through reinforcement.

- Many communities reported that they had not constructed toilets because of the affordability concerns. The rationale was supported by ingrained cultural norms that hindered using toilet for defecating. Hence, support in terms of construction, added with a behavioral change in terms of changing the social culture deems important.

- The concern highlighted was on households not having toilet rather than the ones using unimproved toilets. Focus should be placed targeting the households where people are not using toilets rather than focusing on improvising unimproved toilets.

- Sensitization on handwashing is deemed important among Dalit households as the practice of proper handwashing was observed least among them.

ANNEXES

Annex 1 - Sampling Size Calculations and comparisons

Sampling Size Calculations

To calculate the households sample size following sample size calculation formula was applied:

$$n=(z^2)(r)(1-r)(f)(k)/(p)(N)(e^2)$$

With the following parameters

z=1.96

r=0.63 (According to NDHS, 63% of the population have access to improved toilet facility)

f=2 (design effect)

k=1.1 reflecting less than 10% non-response

p=0.68 (based on an estimated 68% of people ages 18+ in Nepal)

N=average of 3 adults per household

e=0.10*r = 0.063

n=3.8416*0.63*0.37*2*1.1/0.68*3*0.003969=243.

Here n=243

To assure the statistical significance per district, the sample size was multiplied by 8 (8 districts)

Overall sample size= 1946

It was decided that a sample size of 3000 would be selected for the study. A design effect of 2 was selected given that the characteristics of ODF vs Non-ODF is heterogeneous in the Terai region. To determine r, the indicator "access to improved toilet facility" was considered, which is at 63% according to NDHS, 2016. According to the SDGs, Nepal performs the poorest in access to improved sanitation compared to access to drinking water and hand washing facilities. Therefore the adoption of "access to improved toilet facility" as the sample size calculation captures the worst performing indicator, and validates that using this number will provide a large enough sample size to measure all the indicators for the study.

Alternative method of calculating the sample size

The rationality of the selected sample size can further be assured, by calculating it using other sampling measure, which does not consider design effect.

$$n = (z)^2 \, p \, (1-p) \, / \, d^2$$

Where z= 2.575

p=1/2 or 0.50

d=0.025 reflecting 2.5% margin of error

Overall sample size (n)=2651*3*

Sampling Size Comparisons with other surveys
When comparing sample sizes of other recent national and project level studies, the target number of 3000 is reliable. In the recent ODF study (covering 7 districts), the total sample size was 2100, while the MICS survey (a nationwide study covering all 75 districts) had a sample size of 13,000 and the NDHS 2016 (a nation-wide study covering all 75 districts) had sample size of 11,490.

	Study Name	Sample Size	Remarks
1	ODF (7 districts)	2100 households	70 cluster ranging from 20-40 households. Design effect = 1.8
2	MICS Survey (2014)	13,000 households	15 sub-regions, 520 enumeration areas, 25 households from each. Design effect=1.5.
3	NDHS 2016	11,490 households	383 wards, with 30 households from each

Comparing recent national level studies and their sampling techniques, along with applying different sampling size calculators, the survey team collected a sample of 3000. This target is already higher than the required sample size and ensures statistical significance to measure all indicators.

Of the 42 municipalities, based on the population figures and applying PPS, 20 municipalities had been selected. Based on PPS, a total of 18 municipalities were selected (2 municipalities were selected two times), making it 20 when considering the number of times the municipality have been selected one time.

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3 This sample size is calculated using Raosoft suggested by UNICEF, using http://www.raosoft.com/samplesize.html with 99% confidence level and 2.5% margin of error.

Annex II – Full set of indicators for ASWA II – Impact / Outcome / Output indicators

Impact indicators

Impact Indicator	Definitions, Measurement and Means of Verification
Indicator 1: Reduction in prevalence of diarrhoea in rural areas, disaggregated by wealth quintile, sex, and age (whole population; children under 5)	*Definition: This is the reduction in annual number of cases of diarrhoeas (episodes) per child under five years of age*
	Measurement: Sample survey
	Disaggregation: Household wealth quintile, sex, age
	Means of verification: Qualifying national surveys (MICS, DHS) or community outcome surveys
	Frequency of measurement: Baseline, midline, endline – depends on timing of qualifying national surveys
Indicator 2: Reduction in prevalence of stunting in children under 2, in rural areas, disaggregated by wealth quintile and sex	*Definition: Stunting measures children age 5 years and under whose height for age is two or more standard deviations below the median height for age of a reference population. It is also measures severe and potentially irreversible impacts on the physical, mental, and emotional development prevalence of stunting in children*
	Measurement: Sample survey
	Disaggregation: Household wealth quintile, sex, age
	Means of verification: Qualifying national surveys (MICS, DHS) or community outcome surveys
	Frequency of measurement: Baseline, midline, endline – depends on timing of qualifying national surveys
Indicator 3: Time saved by women and girls gaining access to safe basic water achieved through DFID support, disaggregated by wealth	*Definition: Time saved by women and girls benefiting from more proximate water supplies and household sanitation, and how this time is used*
	Measurement: Qualitative assessment
	Means of verification: Participatory impact assessment. Focus group discussions with women and girls in a number of randomly selected communities; employ ordinal scoring to responses to enable aggregation of data.
	Disaggregation: Wealth, age, other locally relevant characteristics?
	Frequency of measurement: Baseline, midline, endline
Indicator 4: Women in local water and sanitation management organisations and/or user committees participate in decision	*Definition: This refers to the extent to which women are involved and participate in community level decision making related to design, implementation, monitoring of WASH services*

Impact Indicator	Definitions, Measurement and Means of Verification
making about the provision and management of WASH services in their communities, disaggregated by wealth	**Measurement:** *Qualitative assessment*
	Disaggregation: Wealth, age, other locally relevant characteristics
	Means of verification: Participatory impact assessment. Focus group discussion with women in management committees; employ ordinal scoring to responses to enable aggregation of data
	Frequency of measurement: Baseline, midline, endline

Outcome indicators

Outcome Indicator	Definitions, Measurement and Means of Verification
Indicator 1: Proportion of externally verified ODF communities attributed to DFID support that maintain their ODF status for at least one year **NB: Conditional Performance Incentive Indicator*4*	***Definition:*** *This refers to communities that meet national criteria for ODF, one year or more after first being verified as ODF. Minimum sustained ODF criteria:* • *ODF verification date more than one year earlier* • *Excreta-free open spaces, drains & water bodies* • *100% use of basic or shared latrines (as per national criteria)* • *Presence of soap and water near or in the sanitation facility*
	Measurement*: Community outcome survey, with **100% of households surveyed in the ODF communities selected for survey**. A minimum of 100 communities (5% where possible) should be randomly sampled for each sustainability check (from lists of qualifying ODF communities), with at least 50 communities sampled in the baseline outcome survey. Water quality tests and anthropometric data (from children under 5) will be collected in at least 5 households in each ODF community selected for survey.*
	Disaggregation: Community location (district) and size (no of households).
	Means of verification: Sustainability check

Outcome Indicator	Definitions, Measurement and Means of Verification
	Frequency of measurement: Biennial (2018 baseline, 2020, 2022). Baseline survey will be undertaken on any externally verified ODF communities (from previous projects completed at least one year ago) in the project districts. Where no verified ODF communities exist, the baseline will be conducted in randomly selected project communities.
Indicator 2: Proportion of people in intervention communities that use household toilets, disaggregated by sex, disability and wealth ranking	**Definition**: People using basic toilets as defined by the JMP. This does not include shared or communal facilities.
	Measurement: Household outcome sample survey (multi-stage cluster randomized). Standard MICS indicator questions, with additional question on intra-household use and on safe management practices.
	Disaggregation: Sex, disability, and household wealth. Wealth module required in household outcome survey to enable disaggregation by wealth quintile. Higher sampling rates (or separate surveys) may be required where disability rates are low.
	Means of verification Household outcome survey
	Frequency of measurement: Baseline, midline, endline
Indicator 3: Proportion of people in intervention communities that practice handwashing with soap or an alternative hand washing agent such as ash, and water, disaggregated by sex, disability, and wealth	**Definition:** Practice is assumed to be commensurate with the presence of an appropriate hand-washing facility at the time of survey. Appropriate hand-washing facilities are defined as having a specific place for hand washing where water and soap or other cleansing agent are present.
	Measurement: Standard MICS indicator question
	Disaggregation: Sex, disability, and household wealth Wealth module required in household outcome survey to enable disaggregation by wealth quintile. Higher sampling rates (or separate surveys) may be required where disability rates are low.
	Means of verification: Household outcome survey
	Frequency of measurement Baseline, midline, endline
Indicator 4: Proportion of people using basic, safe water supplies, disaggregated by, sex, disability and wealth ranking	**Definition:** A basic, safe drinking water supply is: (i) Basic water supply (JMP definition, protected water supply, within a 30 minute return trip); (ii) Safe (free of faecal and priority chemical contamination, such as nitrate, arsenic, or fluoride)
	Measurement: Standard MICS indicator question
	Disaggregation: Sex, disability, household wealth Wealth module required in household outcome survey to enable disaggregation by wealth quintile. Higher sampling rates (or separate surveys) may be required where disability rates are low.
	Means of verification: Household outcome survey
	Frequency of measurement: Baseline, midline, endline
Indicator 5: Proportion of externally verified water safe communities	**Definition:** Qualifying communities meet the following criteria: (i) all households in the community use a basic, safe water supply; (ii) are implementing a water safety plan to control faecal contamination risks from the water source to the point of use; (iii) the water supply has a low contamination risk, as measured by sanitary surveillance score and (iv) the community is ODF.

Outcome Indicator	Definitions, Measurement and Means of Verification
attributed to DFID support that maintain water safe status at least 1 year	**Measurement** Community outcome survey, with **100% of households surveyed in the water safe communities selected for survey**. A minimum of 25 communities should be sampled by each country project (from lists of qualifying water safe communities), with at least 15 communities sampled in the baseline survey. Water quality tests and anthropometric data (from children under 5) will be collected in at least 5 households in each water safe community selected for survey.
	Disaggregation: Not applicable
	Means of verification: Sustainability check
	Frequency of measurement: Biennial (2018 baseline, 2020, 2022). Baseline survey will be undertaken on any externally verified water safe communities (from previous projects completed at least one year ago) in the project districts. Where no verified water safe communities exist, the baseline will be conducted in randomly selected project communities.
Indicator 6: Proportion of intervention schools students practicing handwashing with soap and water after visiting the toilet at least one year after intervention	**Definition:** Sustained practice of handwashing with soap after visiting the toilet in schools with WASH facilities that meet at least basic WASH standards defined by JMP including (i) basic drinking water; (ii) single-sex basic sanitation facilities that meet national standards; and (iii) basic hand-washing facilities, plus facilities for disabled users, plus facilities that enable menstrual hygiene management (MHM). Qualifying schools must also have received a full hygiene promotion programme at least one year earlier.
	Measurement: School outcome survey. At least 20% of intervention schools should be randomly sampled by each country project (from lists of qualifying schools with basic WASH facilities), with at least 10 schools sampled in the baseline survey.
	Disaggregation: By location (district)
	Means of verification: Sustainability check
	Frequency of measurement: Biennial (2018 baseline, 2020, 2022). Baseline survey will be undertaken in schools with improved WASH facilities and hygiene promotion provided by previous projects (at least one year ago).

Output indicators

Output	*Indicator*	**Definitions, Measurement and Means of Verification**
Output 1: *Access to basic sanitation for people in targeted rural districts*	*Indicator 1.1:* *Proportion of communities triggered with DFID support that are externally verified ODF within one year of triggering*	*Definition:* *Communities verified to meet national ODF criteria. 'Triggered' is defined as communities that underwent community mobilization to end OD. Minimum ODF criteria:* • *Excreta-free open spaces, drains & water bodies* • *100% use of basic or shared latrines (as per national criteria)* • *Presence of soap and water near or in the sanitation facility*
		Measurement: Annual calculation undertaken in March each year. Sum all externally verified ODF communities triggered within the last 12 months; divide by total number of communities triggered in the last 12 months.
		Disaggregation: *By district and by population of community*

Output	Indicator	Definitions, Measurement and Means of Verification
		Means of verification: *External verification reports for ODF villages; project-monitoring system for list of triggered villages, date of triggering, and ODF status.*
		Frequency of measurement: *Annually*
	Indicator 1.2: *Cumulative number of externally verified ODF communities achieved by DFID support*	**Definition:** *Verified ODF based on national criteria. External verification based on national protocols. Community definition based on national criteria.*
		Measurement: *Sum of externally verified ODF communities in project area where process of becoming ODF has been supported by DFID ASWA II*
		Disaggregation: *Location (district) and size of community*
		Means of verification: *External ODF verification reports*

Output	Indicator	Definitions, Measurement and Means of Verification
		Frequency of measurement: *Annually*
	Indicator 1.3: *Cumulative number of people who gain sustained access to basic sanitation, disaggregated by sex achieved by DFID support*	**Definition:** This is the sum of people who gain access to basic sanitation based on the JMP definition of 'basic' due to DFID-funded sanitation promotion under AWSA II. May be a completely new toilet (i.e. first time access) or an upgrade from JMP 'unimproved' toilet. NB: The indicator must be regularly updated over the course of the project to measure sustained access, with 'drop-outs' being excluded from the count.
		Measurement: Count the number of people living in households who have a qualifying sanitation facility in both ODF and non-ODF communities
		Disaggregation: *Sex of user*
		Means of verification: *Project monitoring system*
		Frequency of measurement: *Annually*
	Indicator 1.4: *Cumulative number of people who gain sustained access to a functioning handwashing facilities,*	**Definition:** *Functioning hand-washing facilities are defined as having a specific place for hand washing at or near a household toilet, where water and soap (or an alternative) is present at the time of assessment.*

Output	Indicator	Definitions, Measurement and Means of Verification
	disaggregated by sex, achieved by DFID support	**Measurement:** *Count the number of people living in households who have access to a functioning hand-washing facility at or near the toilet. People in households without toilets cannot be counted.*
		Disaggregation: *Sex*
		Means of verification: *Project monitoring system*
		Frequency of measurement: *Annually*
	Indicator 1.5: *Cumulative number of externally verified ODF districts (or equivalent local government unit) achieved by DFID support*	**Definition:** *The cumulative number of ODF districts (or equivalent administrative units) that successfully met national external verification criteria, where the service delivery organization was supported by DFID under ASWA II. Districts that lose ODF status cannot be counted.*

Output	*Indicator*	**Definitions, Measurement and Means of Verification**
		Measurement: *Sum of externally verified ODF districts*
		Disaggregation: *Country by country*
		Means of verification: *National ODF verification system*
		Frequency of measurement: *Annually*
Output 2: *Access to safe, locally managed*	***Indicator 2.1*** *Cumulative number of people who gain sustained*	**Definition:** The number of beneficiaries supported by the AWSA II programme that have access to a protected drinking water service, discharging water that is free of microbial and priority chemical contaminants. To count, beneficiaries should spend no more than 30 minutes collecting water, including queuing.

Output	Indicator	Definitions, Measurement and Means of Verification
water supplies for people in targeted rural districts	*access to basic, safe water supplies with a maintenance system in place, results disaggregated by sex, achieved through DFID support*	**Measurement**: During project handover, local user committees should list households, and the number and gender of family members) who regularly use the water supply, and live within a 30 minute collection time. The process may need to be facilitated, using participatory mapping techniques. User lists are in any case needed to establish a payment system for O&M. Water safety should be assessed by testing at handover, with national water quality standards being applied. The presence of a maintenance system must also be measured. All the following are needed: (i) list of users maintained by user committee or equivalent; (ii) water point caretaker identified; (iii) system for communicating breakdown and undertaking repairs established; (iv) system for raising funds for O&M established.
		Disaggregation: *Sex*
		Means of verification *Project monitoring system*
		Frequency of measurement *Annually*
	Indicator 2.2: *Number of externally verified water-safe communities, achieved*	**Definition:** Number of communities that have benefited from basic, safe water supplies (see above) and also implementing a water safety plan to reduce the risk of faecal contamination from source to the point of consumption. To qualify, all community members need to use the basic water supply, and the community has to have verified ODF status.

Output	Indicator	Definitions, Measurement and Means of Verification
	through DFID support	**Measurement:** *Measure over course of project.*
		Disaggregation: *Size of community*
		Means of verification: *Project monitoring system*
		Frequency of measurement: *Annually*
Output 3: *Schools and health care facilities have appropriate, effectively managed WASH facilities, with hygiene also being promoted*	*Indicator 3.1:* *Number of schools gaining improved water and sanitation facilities, with hygiene including menstrual hygiene being promoted*	***Definition:*** *The number of schools benefiting from DFID support under ASWA II that satisfy the following criteria: (i) basic, safe water supply on the premises; (ii) sex-separated toilets for boys and girls as per national standards taking into account student numbers; (iii) hand-washing facilities; (iv) facilities for disabled users, (v) facilities for MHM; (vi) hygiene being promoted*

Output	Indicator	Definitions, Measurement and Means of Verification
		Measurement: *Include support for new construction and rehabilitation or extension; school student numbers also recorded and sex disaggregated.*
		Disaggregation: *Number of boys and girls benefiting*
		Means of verification: *Project monitoring system*
		Frequency of measurement: *Annually, cumulative*
	Indicator 3.2: *Proportion of intervention districts implementing district-wide MHM programmes*	**Definition:** District must be implementing plans to introduce MHM in all primary schools in the district
		Measurement: Proportion of intervention districts with MHM programmes
		Disaggregation: *NA*
		Means of verification *Project monitoring system*
		Frequency of measurement: *Annually*

| Output	Indicator	Definitions, Measurement and Means of Verification
	Indicator 3.3: *Number of health care facilities in intervention districts gaining improved water supply and sanitation facilities, achieved through DFID support*	**Definition:** *Number of health centres where DFID has supported the construction, rehabilitation or extension of WASH facilities. Improved water and sanitation facilities must: (i) conform to national guidelines; (ii) have a safe water supply on the premises; (iii) have separate sanitation facilities for males and females; (iv) have hand-washing facilities with water and soap available; (v) have provision for disabled/infirm/elderly users. Catchment population, disaggregated by sex, also to be recorded.*
		Measurement: *Sum of health facilities that have benefited from improved WASH facilities installed with DFID direct support under ASWA II.*
		Disaggregation: *Location, males and females in catchment population*

Output	Indicator	Definitions, Measurement and Means of Verification
		Means of verification: Project monitoring system
		Frequency of measurement: Annually
Output 4: National systems and capacity for rural WASH strengthened in prioritized areas	**Indicator 4.1:** Number of intervention districts (or equivalent) in which the local authorities use real time, mobile-to-web monitoring systems to collect, analyze and report output level project results, strengthened through DFID support	**Definition:** Project districts (or other relevant government units) that employ mobile-to-web monitoring systems to collect, analyse and report on output monitoring results.
		Measurement: Count the number of districts using mobile-to-web monitoring systems supported by DFID under ASWA II.
		Disaggregation: Not applicable
		Means of verification Government and sector project/programme reports and records
		Frequency of measurement Annually

Output	Indicator	Definitions, Measurement and Means of Verification
	Indicator 4.2: *Countries to define second priority indicator, based on SWA building blocks - - must be related to a SMART objective*	**Definition:** *Conduct (or update) WASH-BAT to identify second priority indicator. Refer to the SWA Building Blocks and UNICEF RAM standard indicators for enabling environment definition and scale of assessment*
		Measurement: *Refer to UNICEF RAM scale of assessment for enabling environment*
		Disaggregation: *Not Applicable*
		Means of verification: *Government and sector project/programme reports and records*
		Frequency of measurement: *Annually*
	Indicator 4.3: *Number of intervention countries*	**Definition**: *VfM core indicators (12) and reporting schedule is set out in Annex D.*

Output	Indicator	Definitions, Measurement and Means of Verification
	reporting the agreed set of VfM indicators, in line with VfM reporting schedule and associated guidance provided by UNICEF HQ	**Measurement:** *Detailed cost tracking through disaggregation of expenditure records, activity tracking and surveys. Cost data combined with output and effectiveness data (from outcome surveys) to generate VfM metrics.*
		Means of verification: *Logframe indicators and data from Vision*
		Frequency of measurement: *Annually, see Annex D as not all indicators reported every year.*

Annex III – Baseline Tools and Surveyor Guideline/Relevant Training Materials

ASWA2 English Final.docx   ASWA Manual Nepali.pdf   ASWA Pics.pdf   ASWA II Schedule Training.docx
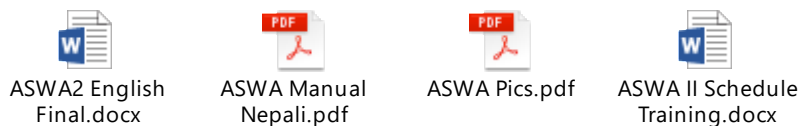
Annex IV – List of Community Sampled for the Survey

S.N.	Districts	Municipality	Ward	Intervention Community
1	**Parsa**	Birgunj Metropolitan*	1	Dom Tole
			2	Bypass Naya Tole
			4	Bhagwti Tole Dalit Basti
			5	Bimtoli Tole
			9	BP Udhan
			16	Pashupati Nagar
			18	Dalit Basti - Maniyari Ram Tole
			23	Sabai Tauwa
			25	Mauje Tole
			29	Musheli
			31	Bhediyahi
		Pokhariya Municipality	4	Sothiriya
			9	Paschim Mahi Dalit Basti
			10	Dalai Tole
2	**Bara**	Jitpursimara Sub-metropolitan	11	Khasiyol Majhi Tole
			11	Aama Darko Majhi Tole
			12	Simati Tole
			12	Pipariya
			13	Pota Tole
			13	Pachuli Tole
			14	Raj Ghatta Chaudhary Tole
			14	Ghagar Jati Tole
			15	Dumarwana Chaudhary tole
			15	Bhawanipur Chaudhary Tole
			16	Badafar Mushahar Tole
			16	Lama Tole
		Kalaiya Sub-metropolitan	2	Aadur Tole
			5	Barewa Tole
			7	Bairiya Tole
			10	Ram Tole
			12	Dhanuk Tole

			16	Majhauliya
			18	Majahuliya
			21	Mushhar Tole
			24	Shreepur
			26	Maheshpur
		Simraugadh Municipality	1	Mansagara Ghat
			2	Amritgunj Dalit Basti
			2	Nayak Tole Dalit Basti
			4	Hariharpur Musahar Basti
			4	Ganganagar Dalit Basti
			5	Uchadi Tole
			6	Sakubasi
			7	Kawalpur
		Adarsh Kotwal Rural Municipality	2	Dalit Tole
			8	Boha Tole
3	Rautahat	Garuda Municipality	1	Pachwari Tole
			4	Purano Basti
			5	Mahmadpur
			9	Shreepur
		Durga Bhagwati Rural Municipality	2	Dalit Basti
			4	Musahar Tole
4	Sarlahi	Lalbandi Municipality	2	Atole Purnawas
			6	Lekhali
			8	Lama Tole
			9	Pokhari Dum Tole
			10	Sukumbasi Tole
			11	Bimba/Katarbot
			16	Dalit Tole
		Malangawa Municipality	3	Muslim Tole
			4	Mahara Tole
			7	Nuniya Basti
			9	Bazar Chetra
			11	Yadav Tole
5	Mahottari	Bardibas Municipality	1	Swami Gachi Tole
			3	Markaha Raja Bas
			5	Teentale Gauri Gaun
			6	Rana Tole
			7	Prem Nagar
			9	Tori Tole
			11	Chanaut

			13	Bhotiya Tole
		Matihani Municipality	1	Shreesiya
			3	Bardaha Tole
			9	Muslim tole Sabik
6	**Danusha**	Janakpur Sub-metropolitan*	2	Jaladpur
			2	Bijayanagar
			3	Chamar Toli
			4	Kataiya Chauri
			4	Jaladpur
			12	Kuwa Tole
			12	Hanuman Nagar
			15	Salesh Tole
		Kshreereshwamath Municipality	1	Ramdaiya
			3	Mangalpuri
			7	Mahara Tole
			9	Ichyapur
		Dhanauji Rural Municipality	3	Dhobiya
			4	Bhariya
7	**Saptari**	Rupani Rural Municipality	1	Raipur Mabi najik Sada Ram Basti
			3	Makari Tole Sabik
			5	Bus Bitti Sabik
		Tilathi Koilada Rural Municipality	3	Sakarpura
			7	Mansapur
			8	Topa
8	**Siraha**	Dhangadimai	2	Bhawanipur
			4	Nimchowk
			7	Mochi Tole
			10	Bhagwan Tole
			13	Mushahari

Annex V – Water Quality Testing Paper Based Matrix for Recording

ASWA WQT
Matrix.docx

Annex VI – Supporting Tables for reference

Supporting Tables
for reference.docx

Annex VII – Project Area Municipality Map

Annex Map of
Municipality of Prov

Annex VII- Data Analysis Template

Data Analysis and
Reporting Template f