STATUS OF COMMUNITY SANITATION IN DHABAULI VDC DHANUSA

Thesis Submitted To:

The Central Department of Rural Development

Tribhuvan University

In partial fulfillment of the requirements for the Degree of the Master of Arts (MA)

In

Rural Development

By

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December 2016

Recommendation Letter

This thesis entitled Status of Community Sanitation in Dhabauli VDC, Dhanusa has been prepared by Rupa Bhandari under my guidance and supervision. I hereby forward this thesis to the evaluation committee for final evaluation and approval.

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Prof. Dr. Mangala Shrestha

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Approval Letter

This thesis entitled Status of Community Sanitation in Dhabauli VDC, Dhanusa by Rupa Bhandari in partial fulfillment of the requirements for the Master's Degree (MA) in Rural Development has been approved by the evaluation committee.

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Declaration

I hereby declare that the thesis entitled Status of Community Sanitation in Dhabauli VDC, Dhanusa, submitted to the Central Department of Rural Development, Tribhuvan University, is entirely my original work prepared under the guidance and supervision of my supervisor. I have made due acknowledgements to all ideas and information borrowed from different sources in the course of preparing this thesis. The results of this thesis have not been presented or submitted anywhere else for the award of any degree or for any other purpose. I assure that no part of the content of this thesis has been published in any form before.

Rupa Bhandari

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Acknowledgements

It gives me immense pleasure to express my strong gratitude to Prof. Dr. Mangala Shrestha, Professor, Tribhuvan University for her regular suggestions, counsel, support and critical reviews regarding the preparation of this thesis and during the days of my research. She helped me gain an invaluable insight into a fascinating phenomenon of global importance. Her wisdom, knowledge and commitment to the highest standards inspired and motivated me throughout the study period.

I would like to express my special thanks to all professors and teachers of Department of Rural Development for their valuable suggestions and support for the experiment. I am very grateful to Prof. Dr. Prem Sharma, of my advisory committee for his reviews and suggestions during research and while preparing this thesis.

I would like to express my special regards to Mr.Dhiraj Raj Gyawalifor his support in overall activities. I also like to thank Prof. Dr. Punya Prasad Regmi for his encourage to complete Rural Development and Mr. Rajendra Khatri for helping to collect data and Ms. Tina Manandhar for her administrative support during thesis preparation.

Rupa Bhandari

Abstract

The study area selected comprises of poor households, mostly farmers from Madhesi communities and have a very low awareness on hygiene and sanitation. The population especially, women and children have a very severe lack of access to education. They are not aware on the importance of sanitation and usage of toilets. They are preferring open farm lands for defecation.The education level is also not that high. Due to the lack of proper sewerage, the environment has gone more polluted thereby raising risks of drinking water contamination and health hazards in impoverished children and women.

The study aimed at identifying the present status of sanitation in the study area and to assess the sanitation scenario in different socio-economic groups and education level. This study tries to explore the status of community sanitation in Dhabauli VDC of Dhanusa district in Terai of Nepal.

A descriptive research design was proposed for the study incorporating primary and secondary data collection from the targeted VDCs and statistical analysis to analyze the data. Sampling method is basis on 100 respondents of cluster were randomly selected from 600 households as 17% of total households of Dhabauli VDC including toilet-users, non-users etc. The demographic and socio-economic status of the respondents showed 57% of the respondents were females, 88% were literate and educated, 51% within 15-20 age group. 79% were Madhesis and 18% were Dalits.

Unsafe sanitation leads to higher rates of infant mortality and infections, contributes to malnutrition and generally a weaker human condition. A lack of sanitation limits economic growth. Without good sanitation, workers are less healthy and therefore less productive, living shorter lives and saving and investing less.

Due to the backward nature of the similar communities across the rural Terai region, this study can be a good indication for other communities within the region and provides valuable insights into a rural context of Nepal where access is not a big issue but still health and sanitation remains a myth.

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Acronyms

CBS	-	Central Bureau of Statistics
VDC	-	Village Development Committees
MoH	-	Ministry of Health
DWSS	-	Department of Water Supply and Sewerage
MoUD	-	Ministry of Urban Development
DWSSD	-	Department of Drinking Water Supply and Sanitation
SDOs	-	Division/Sub-division Offices
MoFALD	-	Ministry of Federal Affairs and Local Development
DoLIDAR	-	Department named Department of Local Infrastructure Development and Agricultural Roads
DTO	-	District Technical Offices
DDC	-	District Development Committee
D-WASH-CC	-	District Water Supply, Sanitation and Hygiene Coordination Committee
ODF	-	Open Defecation Free
M/V-WASH-CC	-	Municipality and VDC level WASH Coordination Committees
R-WASH-CC	-	Regional WASH Coordination Committees
NSHCC	-	National Sanitation and Hygiene Coordination Committee
MDG	-	Millenium Development Goals
NRs	-	Nepalese Rupees
I/NGO	-	International/Non-Governmental Organization
GoN	-	Government of Nepal

CHAPTER 1: INTRODUCTION

1.1 Introduction and Background

Nepal lies between two giant countries India in the south, east and west and China in the North. Nepal stretches about 855 km from the north-west to the south-east and its width varies from around 145 to 241 km. The total land area is 147,181 square kilometers. Nepal consists broadly of five physiographic regions which occur in the following order from south to north: the Terai (14 % of the total land area); the Siwaliks (13 %); the Midhills (30 %); the High Mountains (20 %) and the High Himalayas (23 %). It has a population of 26.66 million (CBS 2011) with an annual growth rate of 1.35 per cent. The population density is 180 per square km and the literacy rate is 65.9 per cent. The male literacy is 75.1 per cent and female 57.4 per cent. The life expectancy rate of males is 68 years and that of females 69 years.

Nepal is a multi-ethnic, multi-cultural, multi- religious and multi-lingual country. More than 126 caste/ethnic groups dwell in the country. Nepali language is the lingua franca with 123 dialects. Administratively, Nepal is divided into five development regions (Eastern, Central, Western, Mid-western and Far-western), 14 zones (Mechi, Koshi, Sagarmatha, Janakpur, Narayani, Bagmati, Lumbini, Dhawalagiri, Gandaki, Rapti, Bheri, Karnali, Seti, Mahakali,), and 75 districts (58 municipalities and 3915 Village Development Committees (VDCs).

The Department of Water Supply and Sewerage (DWSS), under the Ministry of Urban Development (MoUD) is the lead Department of Drinking Water Supply and Sanitation. It is functioning in all 75 districts through its Division/Sub-division Offices (DWSSD/SDOs). Regional Offices in five Development Regions are established for monitoring. The Ministry of Federal Affairs and Local Development (MoFALD) also works on Water and Sanitation in all the 75 districts through its Technical Department named Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) whose district unit is called District Technical Offices (DTO). The District Development Committee (DDC) is the local body at the district level. The District Water Supply, Sanitation and Hygiene Coordination Committee (D-WASH-CC) has been formed with DDC Chairperson as the chair and chief of DWSSD/SDOs as the Member Secretary and other key sector agencies as members. This committee develops the District Level Strategy for Sanitation promotion. All the concerned agencies work collectively.

For open defecation free (ODF) and Total sanitation promotion movement the Municipality and VDC level WASH Coordination Committees (M/V-WASH-CC) have been formed.

Similarly, The Regional WASH Coordination Committees (R-WASH-CC) have been formed in the five Regions. A National Sanitation and Hygiene Coordination Committee (NSHCC) has been formed at the central level to coordinate partners. Above that the National Sanitation and Hygiene Steering Committee (NSHSC) comprising related Ministries has been formed as the directing body.

1.2 Statement of the Problem

Sanitation is generally understood as the access to toilet and cleanliness of household and enclosures, process and system that keeps places clean, especially by removing human waste. The sanitation status also denotes the hygienic condition in the given place and time. Sanitation coverage is expressed in terms of toilets. In 1990, the national sanitation coverage was mere 6% of the population. The coverage reached 62% in 2011 (CBS 2011). The sanitation situation of the country is unevenly distributed across the development and ecological regions as well as rural and urban areas.

The problem that will be deserted in this stipulated research is what is the status and the importance of sanitation in rural community development and their daily life. Nepal is a developing country. However, with a lack of political will as well as stability, the government still hasnot been able to provide adequate services in different sectors like water, electricity, food and agriculture. Similarly, in rural areas, due to conservative and traditional nature of the rural inhabitants sanitation is still not in their priority. This study tries to explore the status of community sanitation in Dhabauli VDC of Dhanusa district in Terai of Nepal.

1.3 Rational/Significance of the Study

Poor sanitation leads to sickness and disease. Unsafe sanitation leads to higher rates of infant mortality and infections, contributes to malnutrition and generally a weaker human condition. Inadequate sanitation may actually be the biggest killer of children as 10,500 children die from diarrhea every year in Nepal before reaching their 5^{th} birthday. We know that more than 80% of diseases are caused because of unsafe sanitation facilities and unhygienic practices. We also know that safe sanitation facilities can prevent diarrhea by 45%.

A lack of sanitation limits economic growth. Without good sanitation, workers are less healthy and therefore less productive, living shorter lives and saving and investing less. Children are also less likely to attend school. Meeting the Millenium Development Goals' (MDG) sanitation target would yield economic benefits. Even conservative estimates predict that adequate investments in sanitation could provide an additional 3% of economic growth.

We can breathe a small sigh of relief that it is finally becoming more widely understood that a lack of sanitation facilities in schools has led to low levels of female enrollment and to high levels of females dropping out of school. We can also be pleased that, as a direct result of the water and sanitation related MDG targets, the government in Nepal has also recognized sanitation in its PRSP targets, 'All the people of Nepal will have sustainable access to safe drinking water and basic sanitation by 2017.'

However, let's not be too complacent. To achieve universal access to sanitation facilities by 2017 would require an annual investment of NRs. 7.5 billion. Fortunately, the current trend of budget investment is around NRs. 9.15 billion. The challenges then, are to ensure the government's continued financial commitment, equitable distribution, i.e. ensuring that the finance is directed to low coverage districts, effective use of the allocated resources and also that sustainability mechanisms are in place.

Each year, since 2011, an average of 4 million people are provided with basic sanitation services. However, it is estimated that only 62% of initiatives taken for sanitation access are sustained. At this rate of drop-off, it will take until 2031 to achieve the national target, even if the financing trend does exceed requirements.

1.4 Objective of the Study

The general objective of the study is to know about the community sanitation situation at Dhabauli VDC of Dhanusa. The specific objectives are following:

a. To identify the present status of sanitation in the study area
b. To present the socio-economic characteristics of respondents
c. To assess the sanitation in the community by level of education

1.5 Assumptions and Limitation of the Study

The present study is research base on the community sanitation and development at Dhabauli VDC in Dhanusa District, Nepal. The main limitations of the case study are as follows:

a. The context of this study may or may not be applicable to other places or community

b. This study will be conducted with limited amount of financial resources and time framework.

c. Simple statistical tools used to analyze the data.

1.6 Organization of the Study

The chapters are organized in the following topics in this report:

a. Chapter 1. Introduction: This Chapter introduces the present context of sanitation in Nepal and objective of the study.
b. Chapter 2. Literature Review: This chapter reviews the existing literature in the sanitation sector.
c. Chapter 3. Research and Methodology. This chapter presents which research methods applied for the analysis the data and the result of the study.
d. Chapter 4. Analysis & Interpretation. This chapter analysis data and show the present condition of the sanitation in study area
e. Chapter 5. Summary of Finding and Conclusion. This chapter is finding of the research and conclusion of the report.
f. Chapter 6: Reference. In Reference section listed the previous resources for preparing this report.

CHAPTER 2: LITERATURE REVIEW

The literature review draws on published papers, reports and existing project documentation, and has identified key areas for research. The literature review has been used to develop a detailed research framework and identify key areas for further investigation.

2.1 Review and Concept

Sanitation is generally referred to as the access to toilet and cleanliness of household and enclosures, process and system that keeps places clean, especially by removing human waste. Prevailing hygienic conditions also define the sanitation status of a given area. Approximately 2.9 billion people worldwide lack an adequate water supply and4.2 billion people live without sanitation. Lack of a protected water supply and unsanitary housing conditions are the primary reasons for the prevalence of fecal-related and water-borne diseases which dominate morbidity and mortality in developing countries.(Fitzpatrick et. al, 2004).Over 12% of deaths in children under the age of 14 in Nepal are attributed to cholera or diarrhea, second only to pneumonia for specific cause of death (CBS, 2001).The sanitation status in Nepal varies unevenly across the development and ecological regions as well as rural and urban areas. The current nation-wide movement in sanitation is measured in terms of ODF Municipalities and VDCs. As of March 2013, 748 VDCs and 6 Municipalities have been declared as ODF areas. (SACOSAN-V, 2013).

Table 1 below shows the current status of sanitation in Nepal.

Table1:Status of Sanitation in Nepal

S/No	Indicator Area	Selected Indicators	Value
1	Access/ Practice	% of household using improved sanitation	62
		% of household practicing open defecation	38
2	Health and Education	% of schools with functional toilets separate for boys and girls	65
		% of schools having functional hand washing facilities	
3	Equity	There is gap in improved sanitation coverage by wealth quintile	38(6 -44)
		% of total sanitation budget allocated and utilized for poor and marginalized	

4	Finance	% of total sector budget allocation to sanitation and hygiene	
		% of total sanitation and hygiene budget utilization	About 90%

(Source: Country Paper on Sanitation, SACOSAN-V, 2013)

The Master Plan (SACOSAN-V, 2013) explicitly states that all the concerned government agencies, local bodies, donors, International/Non-Governmental Organizations, and other WASH sector stakeholders should strictly adhere to the guiding principles while planning and implementing hygiene and sanitation programs in all water supply projects, other concerned program packages and projects including approaches and modalities. The guiding principles of the Master Plan are as follows:

- ODF as the bottom line of all sanitation interventions.
- Universal access to sanitation facilities in water supply and sanitation project areas.
- Informed technological choices for household toilets.
- Leadership of the local bodies in sanitation sector activities.
- VDC and Municipality as the minimum basic unit of all sanitation program intervention.
- Locally managed financial support mechanism.
- Mandatory provisions of sanitation facilities in all institutions.
- Mandatory provision of toilets in newly built up buildings.
- Focus on hand washing with soap and other sanitary behavior

The Government of Nepal (GoN) has committed itself to ensure access to safe drinking water and sanitation for all in Nepal by 2017 (MuAN, 2012). Urban toilet coverage has stagnated at around 80% since 2000. The trend analysis shows that if the present trend continues, toilet coverage will be only 80% against the national target of universal coverage in 2017 (Sanitation and Hygiene Master Plan 2011). Liquid waste that is drained through sewers is disposed into rivers without prior treatment (Sanitation and Hygiene Master Plan 2011). Provision of toilet facilities must be made mandatory to all new houses in urban, semi-urban and district areas(Sanitation and Hygiene Master Plan 2011). Bacteriological quality tests of drinking water in 28 towns reported that 80% of the samples tested positive for E.Coli and that 69%of water sources were liable to microbial risks (Water Aid and MuAN, 2012). Urban water demand is increasing rapidly at between 6% and 9% per annum – around three times the national

population growthrate. This place strain on existing urban water supply and sanitation services (Urban Water and Sanitation Policy 2009)

Against this backdrop, Dhabauli VDC in Dhanusaof Janakpur has been considered for the study. Like most rural areas of Nepal, the Dhanusha district in the southern region is severely under-served in terms of water supply and sanitation needs. Water supply wells are few, constructed poorly, and subject to bacterial and chemical contamination. Based on counts of visits to regional health clinics in the Dhanusha district, the three most common illnesses reported during the 2001/02 reporting period were skin diseases. Intestinal worms, and diarrhea related diseases. These conditions, along with the many other water-borne and infectious diseases that plague the nation, are among those that would be most affected by access to clean water and sanitation. Although there is strong evidence of the health benefits from improved water and sanitation in developing countries, there are few specific examples of interventions, and their impact, that can be used as models for local communities(Fitzpatrick et. al, 2004). Another main problem related to waste management in Janakpur is the haphazard disposal of waste due to the lack of a proper landfill site and appropriate management system. Other problems identified by the municipality include poor drainage, lack of recycling/composting, inadequate resources and poor awareness level among the people.

2.2 Research Methodology

The study review regarding related papers, books, published reports from all tiers of governments, NGOs, INGOs, universities etc. will be carried out. In addition to this secondary data on sanitation and hygiene for study will be conducted. A preliminary mapping of the communities within the districts deemed more backwards in terms of health and sanitation will be done to identify the areas of focus during field works. Literature review will not be restricted to papers and reports about Nepal exclusively. Global and regional analyses will be done that may contain relevant information from which target site specific facts can be extracted.

The study will explore the problem in a positive view, using descriptive research strategy because it aims to know more about the components that are more likely to be responsible for the rural livelihood development and its responsibility for improvement of rural health, environment and energy conservation and its correlationship with social living. This research will enable the study to look at the problem in both descriptive and exploratory manner. It will also look into the

problem by exploring the views of different set of respondents, as well as by exploring different literatures related with the study. A wide-ranging review and analysis of the available literature and ongoing studies covering sanitation and hygienic identified at rural poor people level; and other material relevant to Nepalese socio-economic, policy and others will form the basis of study.

2.3 Summary of Review

Despite policy provisions, the sanitation sector activities in the past remained fragmented, dependency for external hardware supports were proliferated, policy compliance especially for budget allocation remained poor, software aspects of sanitation got little attention and the sector lacked inclusive institutional arrangements to reach the unreached and cater the services in a demand responsive manner. In order to resolve these challenges, the Government of Nepal enforced the ***Sanitation and Hygiene Master Plan, 2011***to maintain uniformity and standards in program approaches. The Master Plan aims to unifying stakeholders' through formation and mobilization of WASH Coordination Committees in the Central, Regional, District, Municipality and VDC levels, fulfill resource gaps in the sector through cost sharing, resource pulling/pooling arrangements and co-funding arrangements at local levels and ultimately achieve universal coverage by 2020.

2.4 Gaps in Existing Literature

Only 12% of urban households are connected to sewer systems or to open drains (Sanitation and Hygiene Master Plan 2011). Only 19.7% of urban households treat their drinking water using an appropriate method such as boiling, chlorination, filtration and solar disinfecting (The MICS survey 2010). The key finding of our research was the fact that there lies a big gap between the local citizen and Government, i.e. municipality. Although municipal services are for its citizens, there is considerable lack of understanding and spirit of mutual cooperation between them. Effective community participation requires capacity to be built in some specified and solid means for carrying participation forward. Also this helps in understanding the real issues and reflecting them in its programme (Support Nepal, 2004). This research will demonstrate the impact that clean water and basic sanitation can have on the health of a community.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Research Design

A descriptive research design was applied for the study. The social characteristics in the study queries the qualitative aspects of sanitation and hygiene, which are of paramount importance to the rural livelihood as well as bear a crucial relevance to social life. The methodology has been incorporated primary and secondary data collection from the targeted VDCs and will use statistical analysis to analyze the data. Due to time limitation assigned for the thesis, a cross-sectional study has been proposed for the research.

3.2 Nature and Sources of Data

Both primary and secondary information were collected, collated and analyzed for the research.

3.2.1 Primary Data

Primary data are the first hand data collected for the first time for a particular purpose of investigation. In the due course of my investigation/research, primary data were collected as observation, focus group discussion, interview, and questionnaire as per the convenience to aid to my study from the area under consideration.

3.2.2 Secondary Data

The secondary data are those which have been already been collected for any other purpose or investigation. Since, this research is mounted on the base of description and analysis, secondary data is of a crucial relevance, playing the role of corner-stone for this research. Various internal and external sources used for acquiring the secondary data consisted of:

- Ministry of Urban Development
- Department of Water Supply and Sewerage
- Central Bureau of Statistics
- Ministry of Health
- Google search engine
- Bulletins/reports, etc.

3.3 Sampling Design, Sample Size and Sampling Procedure

The sample size was selected on the basis of cluster sampling method. Under this method, the sample selected was 17% of the 600 households of Dhabauli VDC including toilet-users, non-users etc. Altogether a sample size of 100 household was taken for the study as a sample.

The sampling was based on simple random sampling method. A list of household was drawn from the VDC office. From the list 100 randomly selected household were considered for the study based on random numbers generated in MS Excel. The questionnaires i.e. both open-ended and close-ended were designed, in order to acquire reliable information by making the respondent comfortable to provide the information. The sample design including sample size is given below in **Table 2**:

Table 2 : Sampling Design, Sample Size and Sampling Frame

S. NO	Stakeholders	No. of household	Type of Tools/ Techniques
1	Toilet users	30	Questionnaire/Interview/FGD
2	Toilet non users	30	Questionnaire/Interview/FGD
3	Students	30	Questionnaire/Interview/FGD
4	Others	12	Questionnaire/Interview/FGD

3.4 Methods of Data Collection

Due to the descriptive nature of this dissertation, the data collection was carried out in following manner:

- **Field Study**: Field visits to Dhabauli was conducted and the sample households were identified and verified:
- **Field Survey**: This included face-to-face interviews with respondents with structured questionnaires.
- **Focus Group Discussion**: This included a more open ended discussion with the representatives of the households on the status and need of sanitation in the VDC.

3.5 Reliability and Validity of the Tools

Data is a piece of fact. The major motive to collect data is to generate and generalize the information at various purposes. The major objective is to access easy and effective decision making, reliable and valid conclusion. The primary data collected via observation, questionnaire, interview and focus group discussion are often more authentic and bias-freeto greatly analyze the research problem. The procedure of data collection begins from the classification of the stakeholders. Since the field survey was designed in a structured way, the validity of the tools under use can be considered reliable for the purpose of the study.

3.6 Data Processing

The following procedure was implemented for data processing which was primarily done using SPSS v 20.

a. **Data Editing:**Collected raw data were examined to detect error, anomalies and omissions. This was done in order to clean the data and make it ready for further analysis.
b. **Data Coding:** In order to make the research more systematic and scientific, assigning of numerals or symbols to answer was done.Coding helps to locate the answer whenever necessary.A scientific coding system was developed using alphabets and numbers denoting the communities of survey.
c. **Data Classification:** The result of research study is at large volume in the form of raw data. So in order to simplify it was classified into homogeneous groups, so a meaningful relationship can be profoundly studied.
d. **Tabulation:** After the necessary classification of data the next step was to arrange the data in respective tables/ charts/ diagrams, etc. The tabulation is essential in order to systematize and logical arrangement of data for further manipulation. Tabulation was done:
    - To conserve space, reduce descriptive statement into visual/pictorial form.
    - It facilitates the summation of items and detection of errors and omissions.
    - Provides a basis of benchmark for statistical computation.
    - Aids in simple comparison.

3.7 Method of Analysis

3.7.1 Analysis of the Data and Interpretations of the Results

The analysis and interpretation of data for the study followed the steps given below:

- Development of coding system: A scientific coding system was developed using alphabets and numbers denoting VDCs and wards of survey.
- Selection of software: SPSS software was used for the data entry purpose. The software was programmed as per the need/requirement of the data.
- Data masking and data entry: All the variables used in the questionnaires were fully labeled along with the corresponding value codes and entered in the SPSS database.
- Data cleaning and reporting: In the final step, data was checked for all the inconsistencies. Data quality steps included checking the questionnaire for internal consistency (in accordance with a scrutiny note), filter errors, appropriate coding for non-response or missing values, values that fall out of range, and other logical checks.

Analysis is the means to estimate the value/s of unknown parameters of the population from the sample statistics and hypothesis testing in order to reach the conclusion. And therefore my research analysis is divided into two categories viz. descriptive and inferential analysis.

- ***Descriptive Analysis:*** It incorporates the study of distribution of one variable. This study provides us the information about the various impacts of health and quality of life of local communities and their span in socio-economic prospective of rural households.
- ***Inferential Analysis:*** Basically SPSS was opted, to analyze the data and on the other aspect this inferential analysis simultaneously analyzes more than two variables. The interdependence between the variables, their correlation, and variance analysis are employed to draw the inference.

CHAPTER 4: ANALYSIS & INTERPRETATION

4.1 Introduction to the Study Area

The sample was collected from Dhabauli VDC which is located in the Central Development Region of Nepal. Janakpur is the headquaters of Dhanusha district. Dhabauli is the border VDC of Bihar and Nepal. Most of the communities are a considerable population of disadvantaged groups. The main occupation of the Dhabauli people are fishing and farming. Younger people have migrated for the work in Bihar and Arab countries.

The sample size was selected as 17% households out of 600 household of Dhabauli VDC including toilet users, non-users, giving a total of 100 households as the sample size for the study.

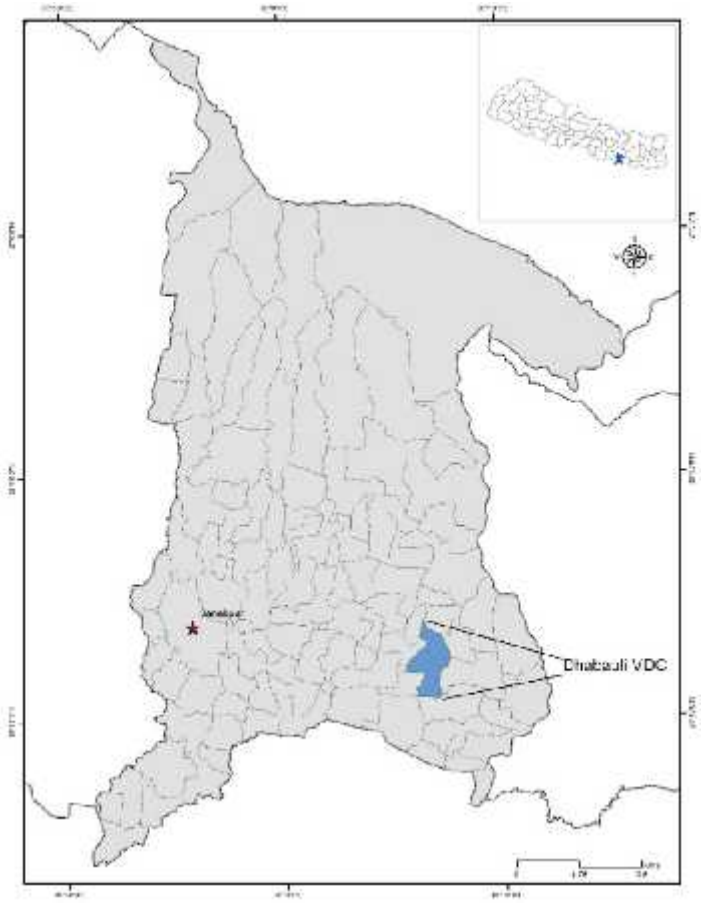

Figure 4.1:Study Location

(Source: Department of Survey, 1996))

4.2 Demographic and Socio-economic Characteristics of the Sample Population

The demographic characteristics of the respondents have significant variations. Out of the 100 respondents, 48 are from the Dhabauli village, whereas, 16 are from Taratole, 22 from Nemuwatole, and 7 each from Gatauli and Maharatole. The characteristics of sample population has been summarized in the following categories, as shown in **Figures 4.2,4.3, 4.4 and 4.5:**

Gender: The male respondents covered 43% of the interviewed population whereas 57% covered the female respondents.

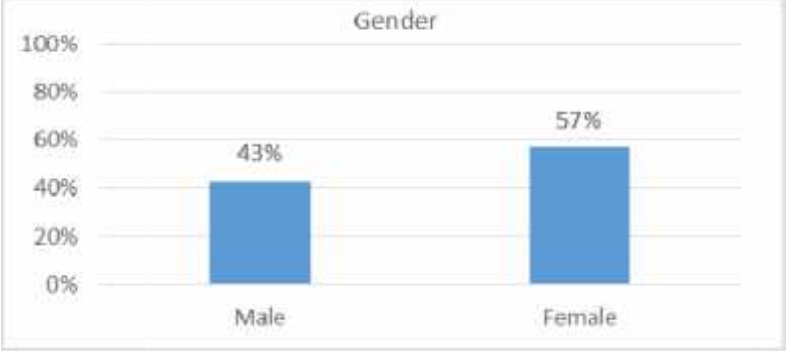

Figure 4.2: Gender Distribution of the Sampled Population

(Source: Field Survey, 2016)

Age-Group: Out of 100%, 51% of the respondents were within 15-20 years age group followed by 21% under 21-25%, 20% under 25-30 years and 8% above 30 years.

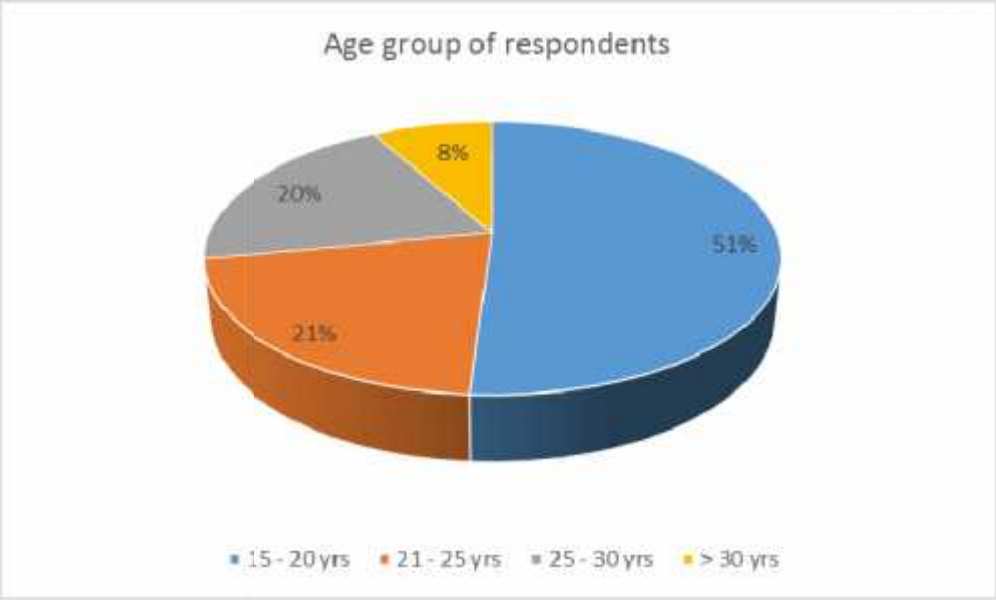

Figure 4.3: Age Distribution of the Sampled Population

(*Source: Field Survey, 2016)*

Education Level: The respondents with an education level of high school (9-10) represented 44% of the population followed by 27% in the secondary level (6-8), 8% had primary level education (1-5), 7% in the higher secondary level (11-12) and 2% were literate. The rest 12% were illiterate.

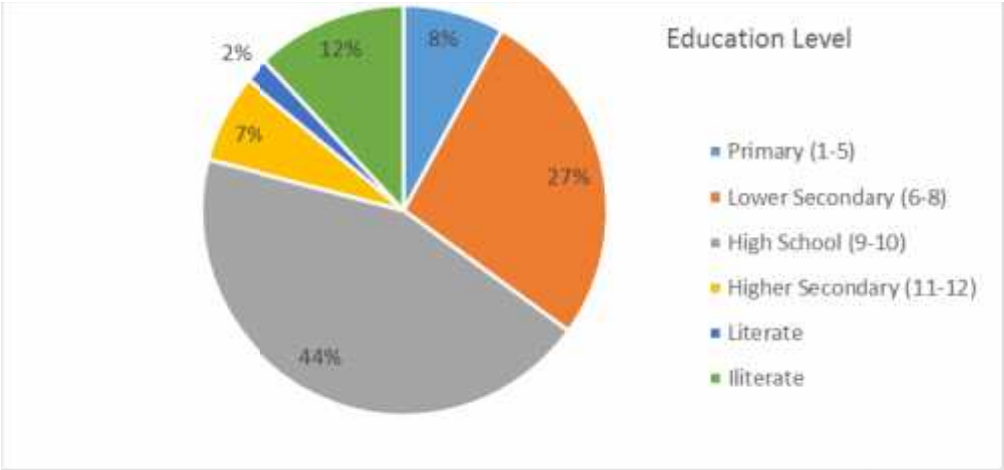

Figure 4.4: Education Levelof the Sampled Population

(Source: Field Survey, 2016)

Caste and Ethnicity: Madhesis covered 79% of the respondents were whereas 18% comprised of the people from the Dalit community, 2% from the marginal castes and the least (1%) from the Brahmin-Chhetri ethnicity.

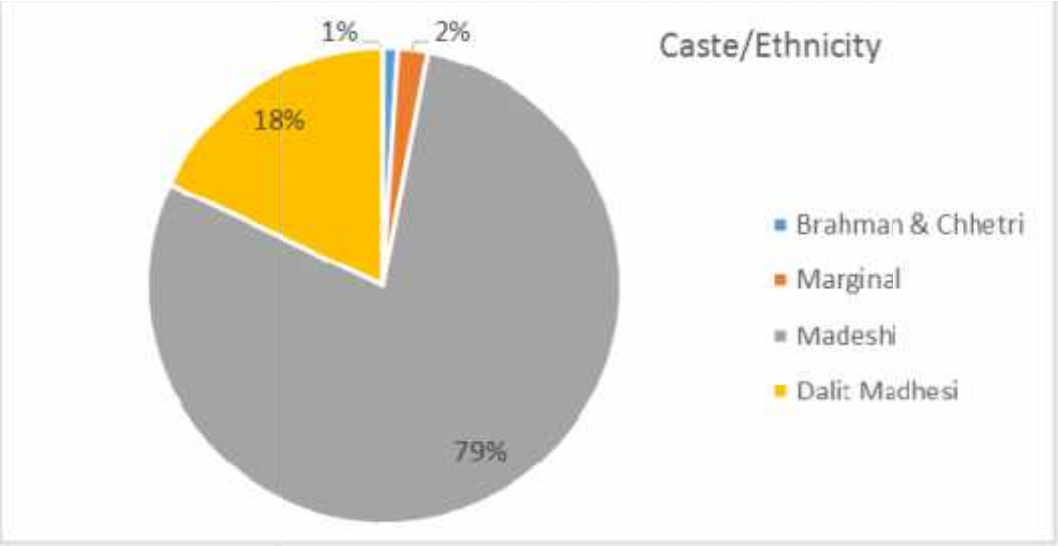

Figure 4.5: Caste Distribution of the Sampled Population

(Source: Field Survey, 2016)

4.3 Results on Different Themes:

All the collected data were validated and updated before the start of data analysis. As per requirements, some intervening variables were developed for cross-tabulations. The cross-tabulations were done to examine the relationship between two variables. While doing cross tabulations independent and dependent variables were identified and percentage values and observed values (frequency) calculated for each category of the independent variable.

Multiple response data where the respondents can choose or provide more than one response, for such multiple response analysis was opted. The multiple responses were organized in multiple dichotomy (i.e. 1=yes and 2= no). The multiple responses were defined for all questions where multiple responses are expected.

Descriptive and inferential statistical analysis were employed as and when needed, keeping in mind the objectives of the study. Charts, graphs and diagrams were presented as per the requirements of the analyses.

After the entry of the Data and cleaning, the information was processed within SPSS to derive the status of sanitation in Dhabauli VDC. The information was derived under specific components of sanitation requirements to converge towards getting a clear picture of sanitation condition in the study area. The results are shown below:

a. **Defecation**: The respondents were asked about different aspects related to defecation including the access to toilets and about sanitary education. Figure 4.6 below shows the percentage of respondents using different places for defecation.

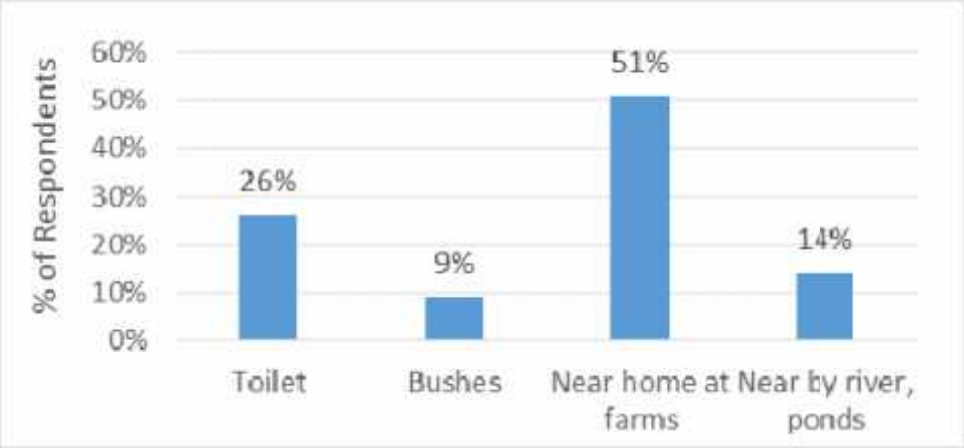

Figure 4.6: Percentage of Respondents using Different Places for Defecation.

(Source: Field Survey, 2016)

The figure represents that most of the respondents (>50%) use farmlands as the place to defecate. Only 26% of the people use toilets for defecation. Likewise, Figure 4.7 shows that 74% of the respondents do not know why toilet should be used for defecation. Only 20% responded that using toilets for defecation keeps the environment clean. Those who know about the toilets, have learnt about the toilet usage from their family members. Only 17% have learnt from the schools and teachers refer Figure 4.7.

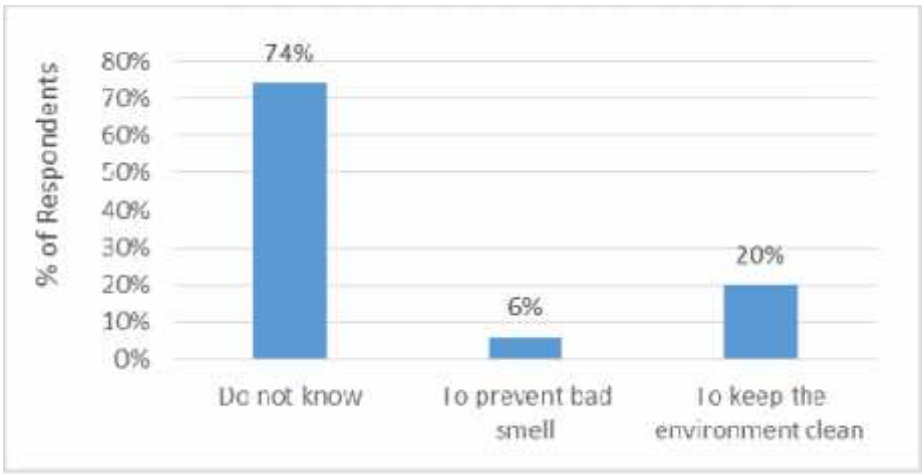

Figure 4.7: Percentage of Respondents Knowing the Purpose of Toilet

(Source: Field Survey, 2016)

b. **Hand-washing**: Questions were asked to the respondents about when they preferred washing hands and what they used for the purpose. Before and after eating food 60% responses came for washing hands only, whereas a mere 26% reported washing hands after defecation. The results are shown in figure 4.8 below.

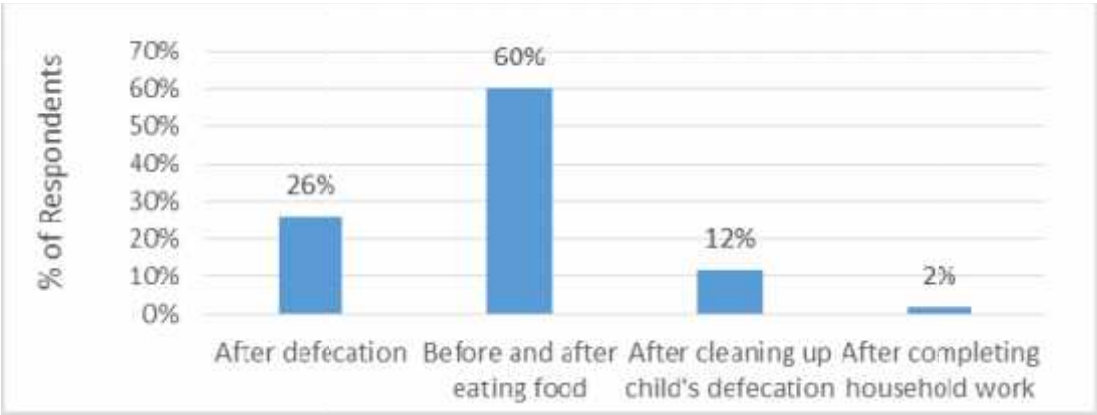

Figure 4.8: Percentage of Respondents Who Wash Hands

(Source: Field Survey, 2016)

The results show that 71% have learnt to wash hands from their family and 17% from the school. Refer Figure 4.9.

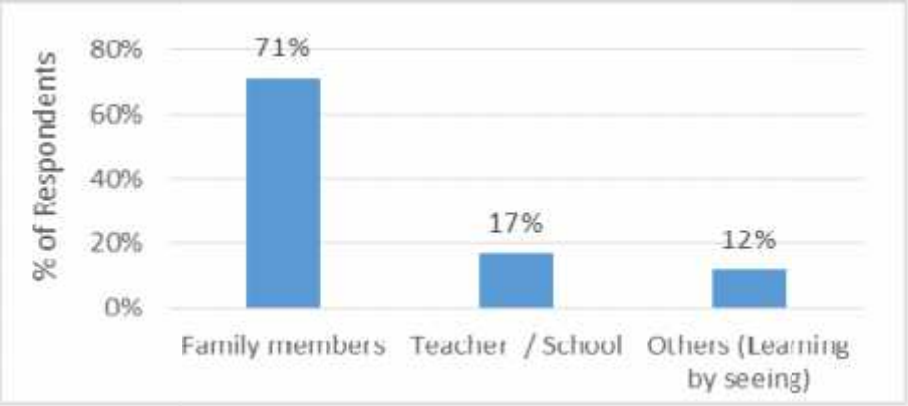

Figure 4.9: Percentage of Respondents Who Learned to Wash Hands

(Source: Field Survey, 2016)

Likewise, the results show 47% of the respondents use soap and water for washing whereas 29% use ash and water, followed by 16% using only water and 8% using sand and water refer Figure 4.10.

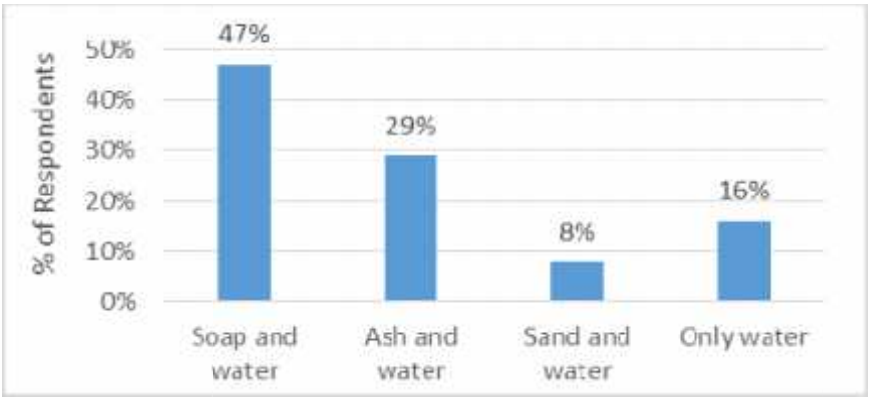

Figure 4.10: Percentage of Respondents Who Wash Hands Using Different Methods

(Source: Field Survey, 2016)

c. **Drinking water**: Here respondents were asked about the sources, quality and health hazards associated with the drinking water they use. All of the respondents used water from shallow tube-wells for the drinking purpose. Refer Figure 4.11.

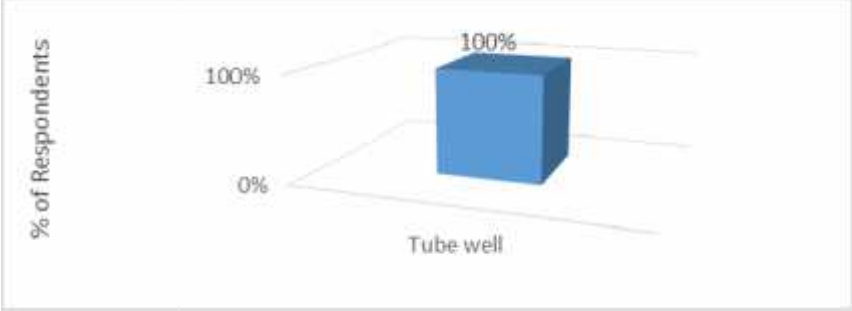

Figure 4.11: Percentage of Respondents with Different Sources of Drinking Water

(Source: Field Survey, 2016)

Majority of them almost 90% have never faced the shortage of drinking water in their daily lives, 9% reported they had sometimes. According to the responses, 98% of the respondents reported that the quality of their drinking water is good enough. Refer 4.12 below.

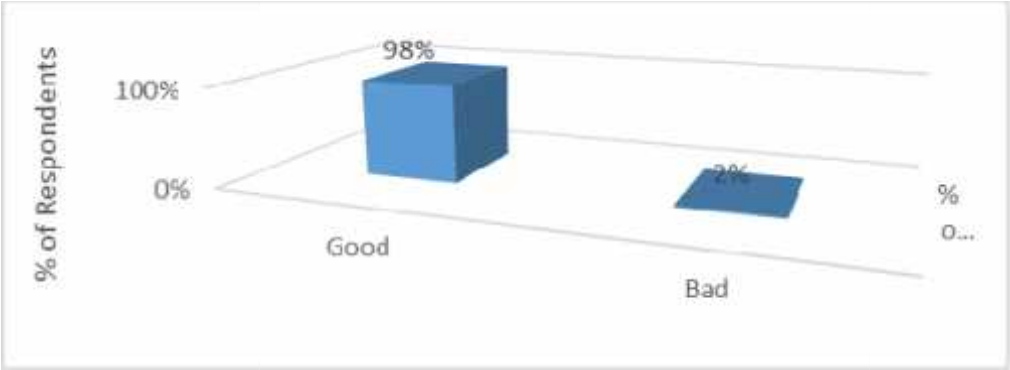

Figure 4.12: Percentage of Respondents on Quality of Drinking Water

(Source: Field Survey, 2016)

There have been no major indications of diarrhea in the area in the past few months as most of the respondents (>95%) reported that the water was safe and no diarrheal incidences were observed. The results are given in Figure 4.13.

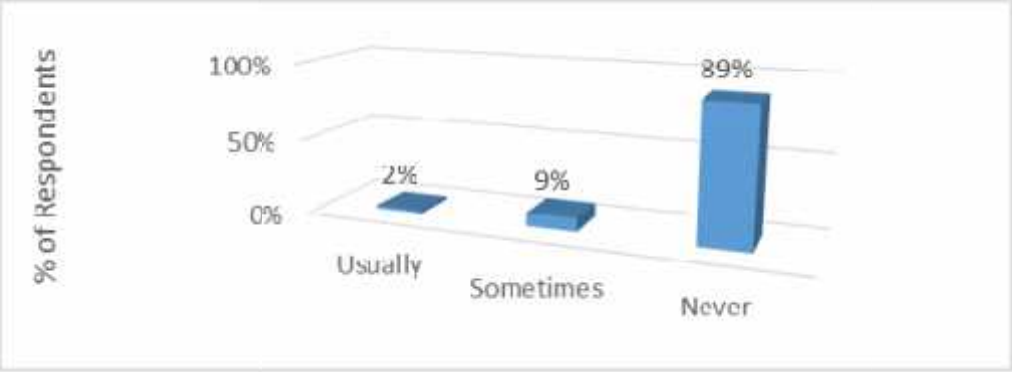

Figure 4.13: Percentage of Respondents Getting Diarrhea

(Source: Field Survey, 2016)

d. **Garbage management and sewerage disposal:** In this section, the respondents were asked about the garbage management system they use, the use of garbage as compost as well as the existence of a sewerage system for their households. The responses show that 91% had a garbage collection area near their house whereas 9% disposed alongside rivers. Refer Figure 4.14.

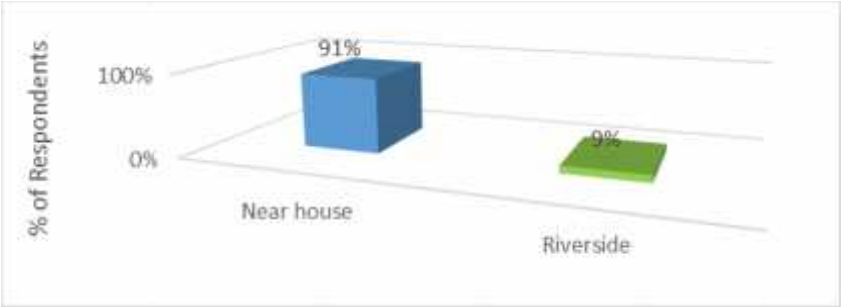

Figure 4.14: Percentage of Respondents on the Location for Garbage Disposal

(Source: Field Survey, 2016)

Out of the sampled population, 85% used the garbage for compost and almost 92% of it was used in farmlands and the rest in kitchen gardens. Refer Figures 4.15 and 4.16.

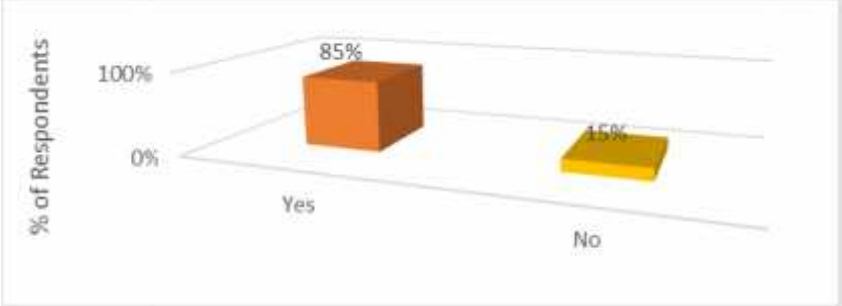

Figure 4.15: Percentage of Respondents Using Garbage for Compost

(Source: Field Survey, 2016)

Figure 4.16: Percentage of Respondents on Purpose of Compost Application

(Source: Field Survey, 2016)

According to 98% of the respondents, the area does not have a proper sewerage system and the environment is highly affected by the pollution. The results are shown below in Figure 4.17:

Figure 4.17: Percentage of Respondents on the Availability of a Sewerage System

(Source: Field Survey, 2016)

e. **Hygiene:** Lastly the respondents were asked how often they took bath. According to, 91% responses were limited to once a week Figure 4.18.

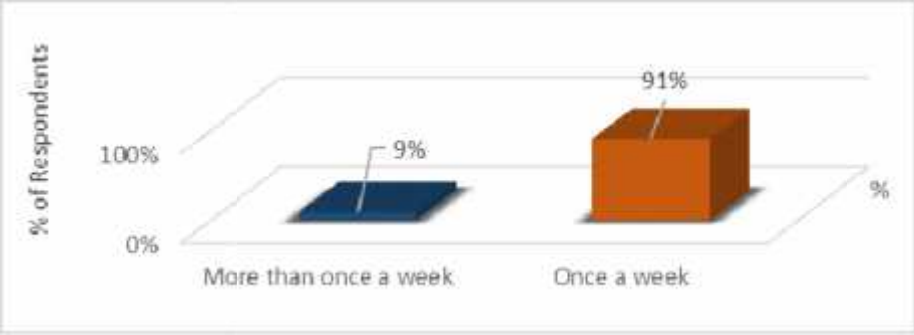

Figure 4.18: Percentage of Respondents on Frequency of Taking Bath

(Source: Field Survey, 2016)

Likewise, the information collected were cross-tabulated with different socio-demographic aspects such as gender, education, age-group and ethnicity. The results are discussed hereunder:

4.4 Status of Hygiene and Sanitation by Gender

The various aspects are discussed as follows:

a. **Defecation**: Out of the total response, 54% of the female respondents reported that they used farm lands for defecation whereas 47% men used the farm for the purpose. Likewise, 18% female used riverside whereas just 14% used toilet for defecation. The responses show 42% of male respondents used toilets. Refer Figure 4.19.

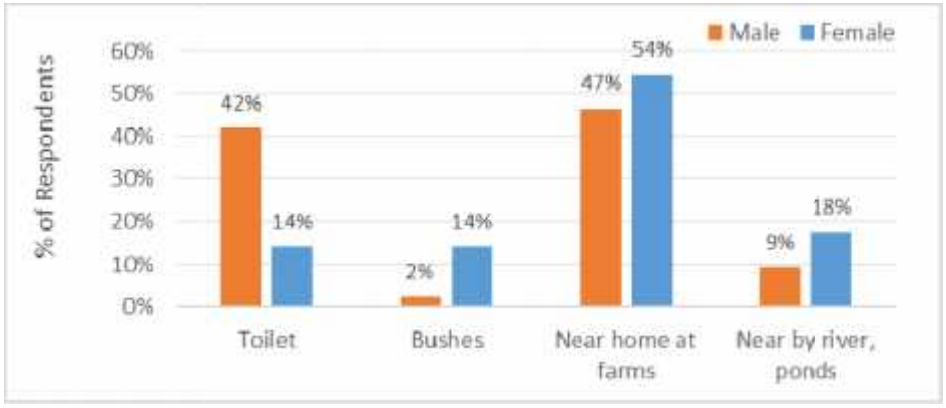

Figure 4.19: Gender-Wise Response on Different Places for Defecation

(Source: Field Survey, 2016)

The percentage of people who learned to use toilets from school differed with 65% of male learning about using the toilets from school in contrast to 29% of females. The rest 57% females learned about toilets from family members. The results are shown below Figure 4.20:

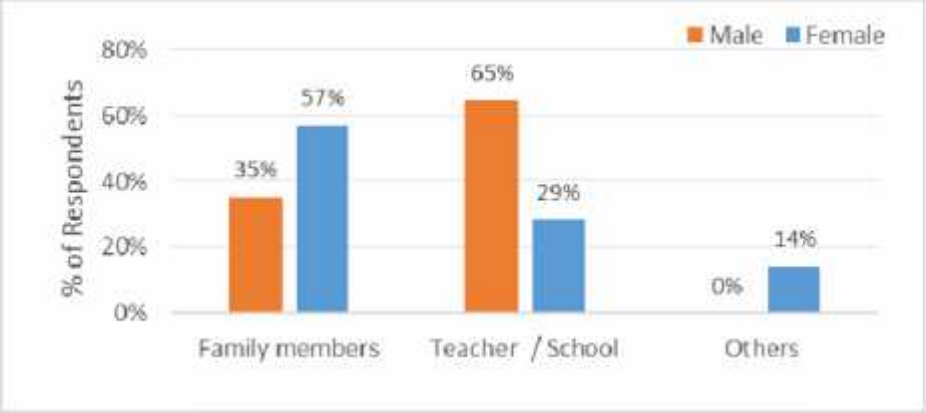

Figure 4.20: Gender-Wise Response on the Platform from which they Learnedto Use Toilets

(Source: Field Survey, 2016)

b. **Hand-washing**: The responses on when the respondents preferred to wash hands were almost similar for males and females with majority of both males and females (>90%) opted for washing hands only before and after eating foods shown in Figures4.21.

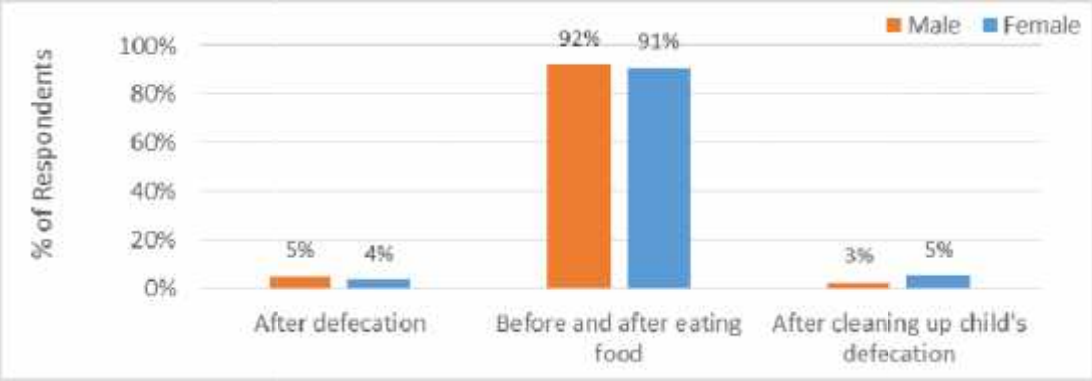

Figure 4.21: Gender-Wise Response on When they Usually Wash Hands

(Source: Field Survey, 2016)

As per Figure 4.22 more males use soap and water whereas the females use a wide range of washing materials, likewise both male and female are equally result 30% to use ash and water,13% of female use sand and 19% use only water to wash hand as shown in Figures4.22,

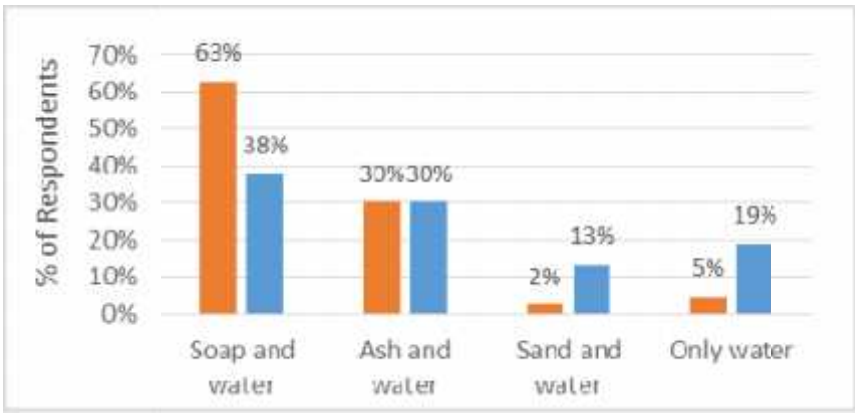

Figure 4.22: Gender-Wise Response on What they Usually Use to Wash Hands

(Source: Field Survey, 2016)

c. **Hygiene**: Majority of both males and females (>88%) prefer to take bath once a week, only 12% male take a bath more than once a week as shown below in the figure 4.23.

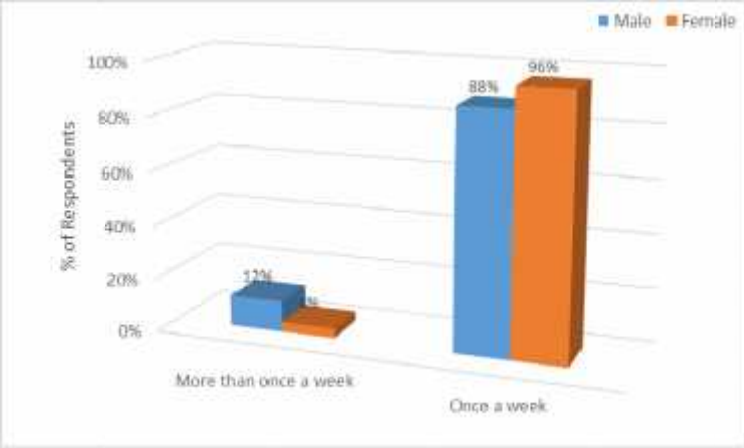

Figure 4.23: Gender-Wise Response on How Many Times they Usually Take Bath

(Source: Field Survey, 2016)

4.5 Status of Hygiene and Sanitation by Level of Education:

a. **Defecation**: Despite the education level, high school and higher level respondents were found to opt for toilets. Most of the respondents from all education background use farm lands or bushes for defecation. Refer Figure 4.24.

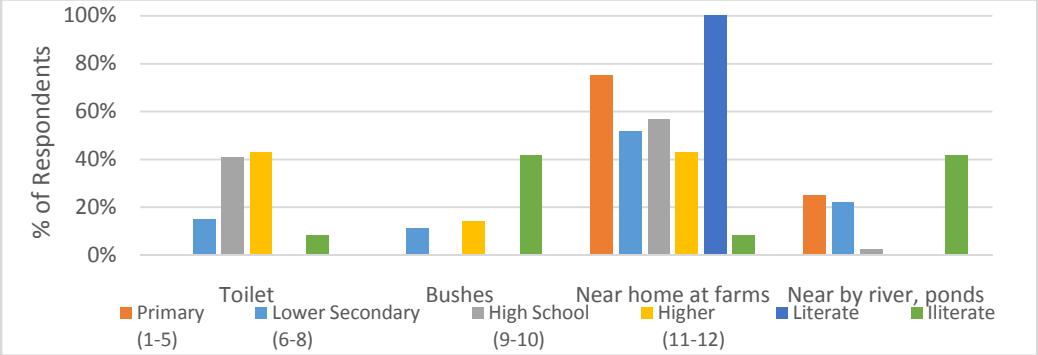

Figure 4.24: Responses from the Respondents on Different Places for Defecation, by Level of Education

(Source: Field Survey, 2016)

More than 50% of the respondents do not know why to use a toilet. Most of female have version that to use a small room for defection is not easy and hard to breath. Those who know, most of them have learned from either school or their family. The results are shown below in Figure4.25.

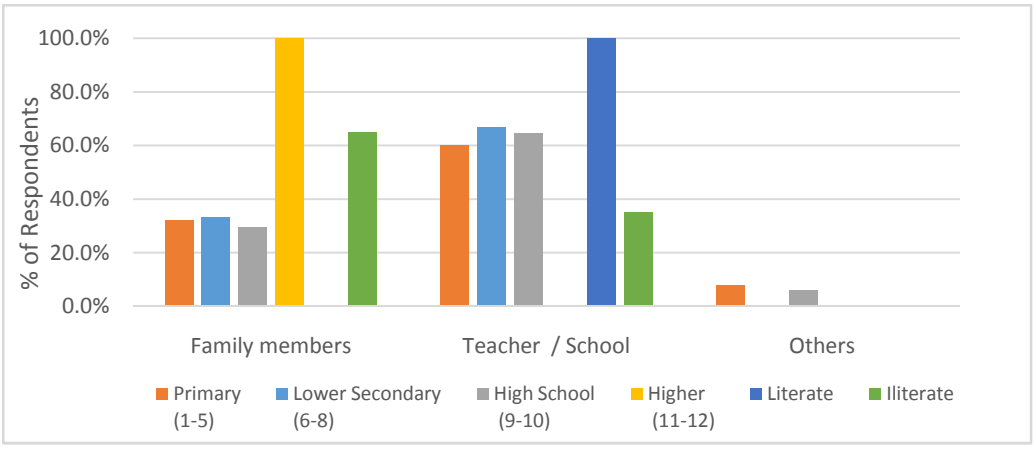

Figure 4.25: Responses from Respondents on the Platform from Which they Learned to Use Toilets, by Level of Education

(Source: Field Survey, 2016)

b. **Hand-washing**: The responses on when the respondents preferred to wash hands were almost homogenous for all education level, with majority of them (>80%) opted for washing hands only before and after eating foods,Refer Figure 4.26.

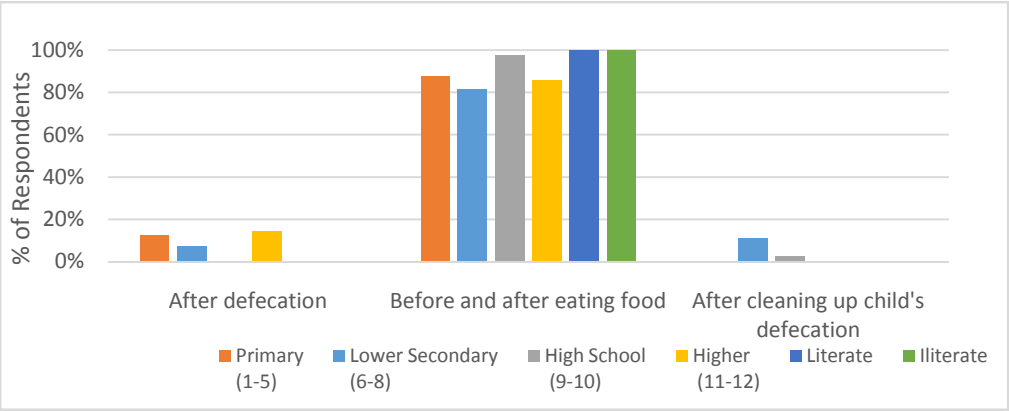

Figure 4.26: Responses from Respondents on When they Usually Wash Hands, by Level of Education

(Source: Field Survey, 2016)

Most of the educated ones prefer soap and water whereas the literate ones preferred ash and water. Rest went for water only. The results are shown below in Figure 4.27.

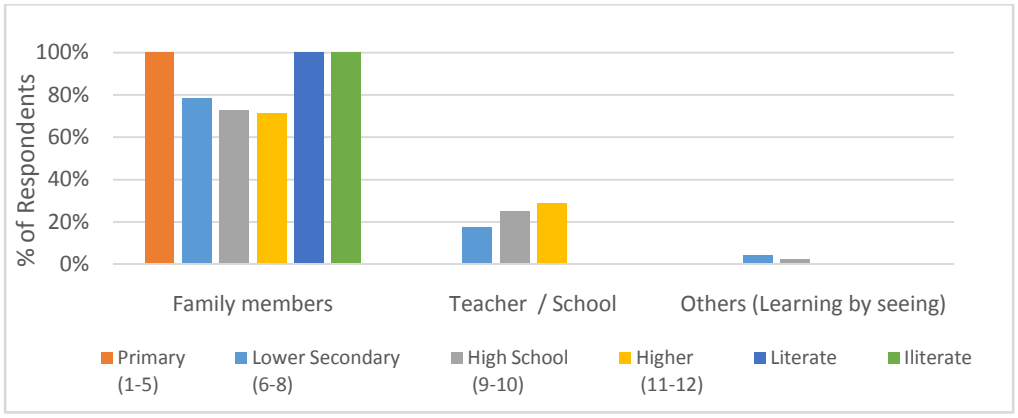

Figure 4.27: Responses from Respondents on What they Usually Use to Wash Hands, by Level of Education

(Source: Field Survey, 2016)

c. **Hygiene**: Majority of the respondents (>80%) prefer to take bath once a week as shown below in the figure 4.28.

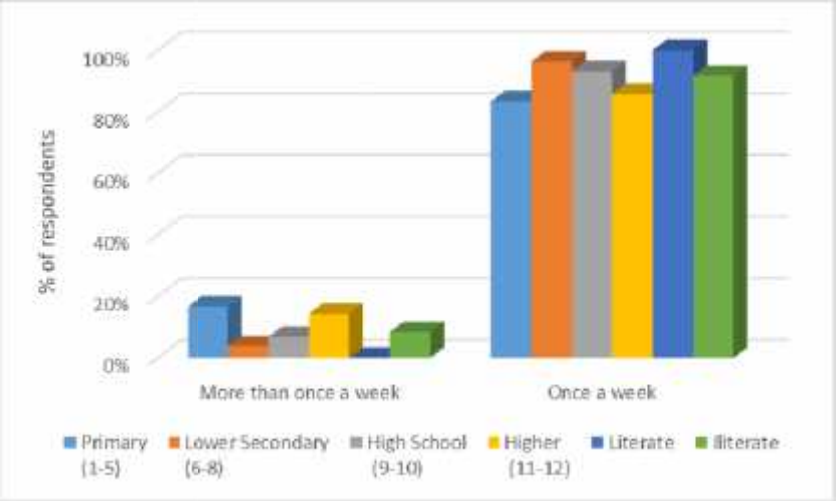

Figure 4.28: Responses from Respondents on How Many Times they Usually Take Bath, by Education Level

(Source: Field Survey, 2016)

4.6 Status of Hygiene and Sanitation by Age Group:

a. **Defecation**: Most of the respondents (>50%) under 15-20, 21-25 and >30 age groups use farm lands for defecation. The results show that 25% of the 26-30 aged respondents use the farm lands. Because it is easy and do not need to clean it for another use. The toilet using population were limited to 27%, 28.6%, 25.0% and 12.5% for the age groups 15-20, 21-25, 26-30 and >30 respectively, Figure 4.29.

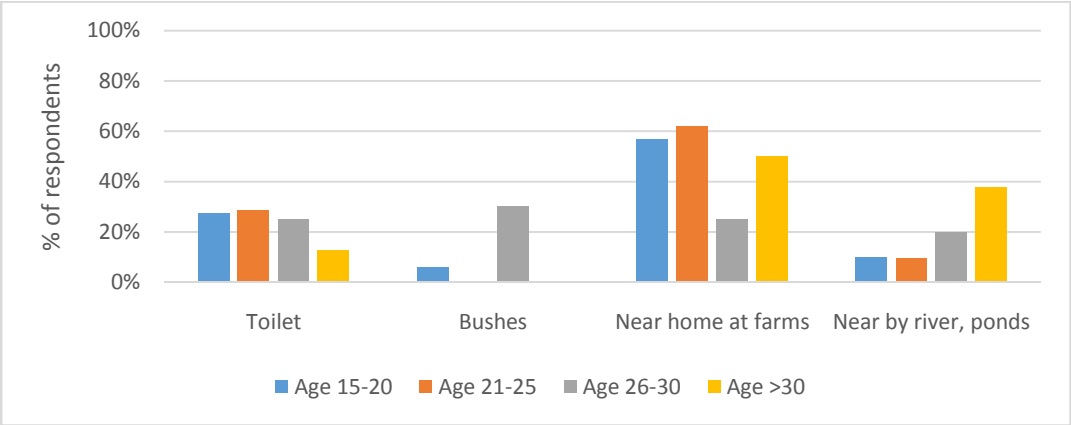

Figure 4.29: Responses from Different Age Groups on Different Places for Defecation

(Source: Field Survey, 2016)

Likewise, the result show that more than 70% donot know why to use a toilet.Only 22% of the respondent use toilet to keep the environment clean. Refer Figure 4.30.

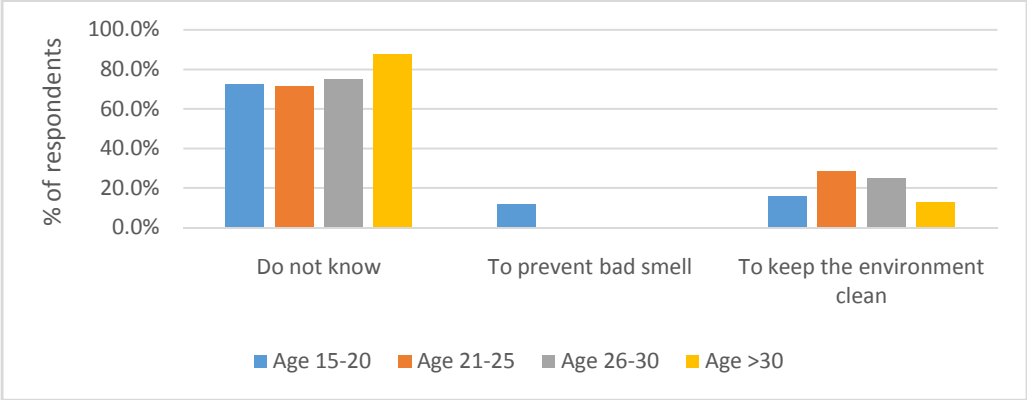

Figure 4.30: Responses from Different Age Groups on the Purpose of Using Toilets

(Source: Field Survey, 2016)

Of those who used toilets, more than 65% of 15-25 aged respondents learned to use toilets from school whereas more than 75% of 26 and above respondents learned from their family. The results are shown below in Figure 4.31:

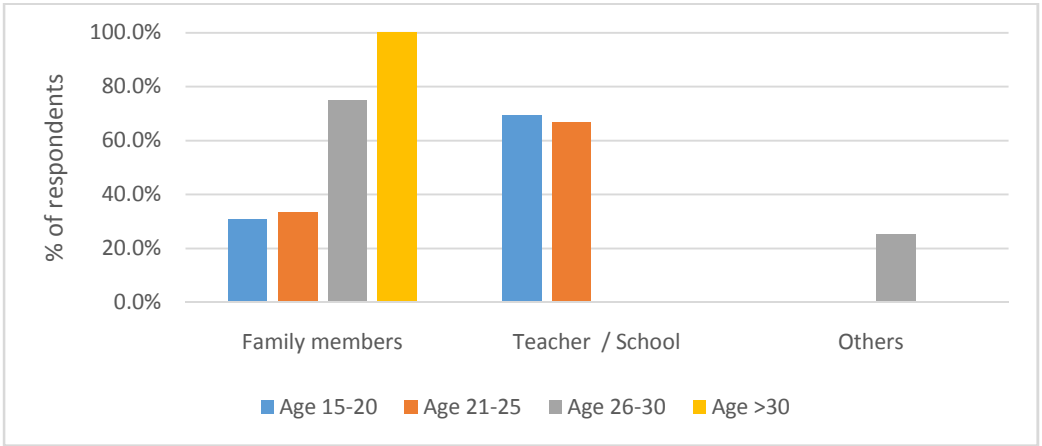

Figure 4.31: Responses from Different Age-Groups on the Platform from Which they Learned to Use Toilets

(Source: Field Survey, 2016)

b. **Hand-washing**: The responses on when the respondents preferred to wash hands were similar for all age-groups, with majority of them (>84%) opted for washing hands only before and after eating foods. The results are shown in Figures 4.32.

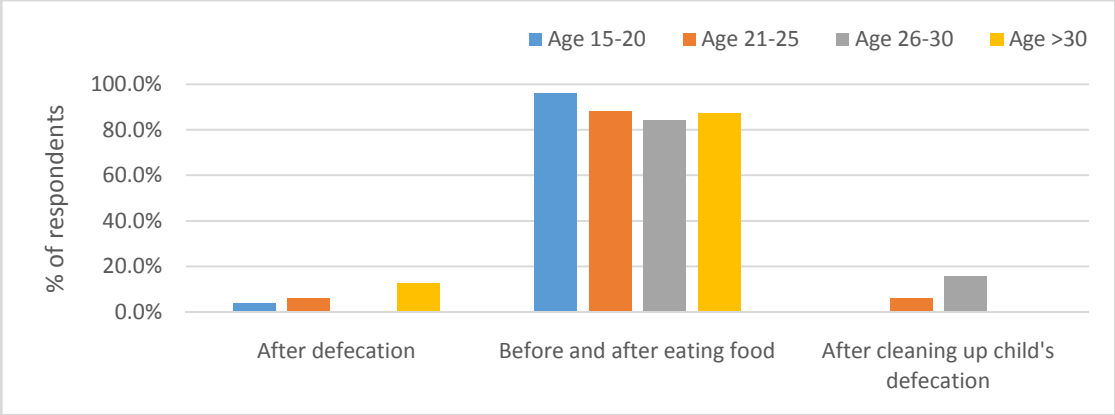

Figure 4.32: Responses from Different Age Groups on When they Usually Wash Hands

(Source: Field Survey, 2016)

The responses age group 15-25 respondents prefer soap and water whereas ash and water comes as second preference and 30 above age group use only water. The results are shown in Figures 4.33 below.

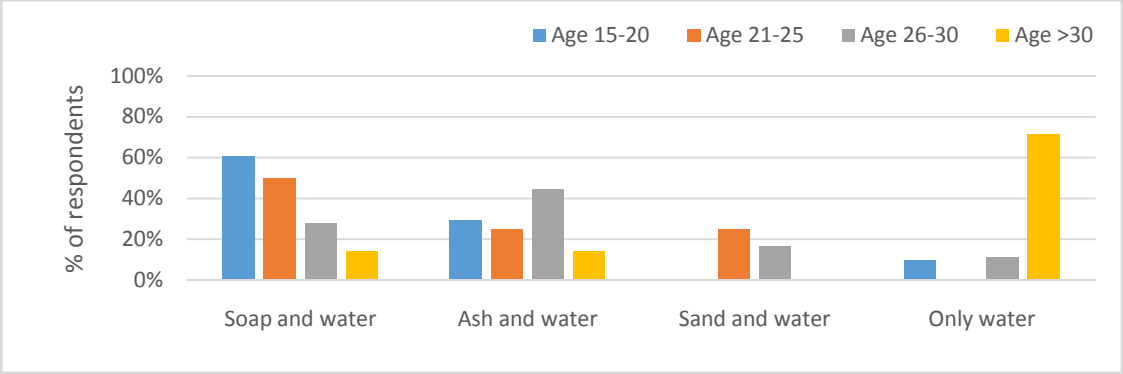

Figure 4.33: Responses from Different Age Groups on What they Usually Use to Wash Hands

(Source: Field Survey, 2016)

c. **Hygiene**: As per the Figure 4.34 the majority of the all respondents (>85%) prefer to take bath once a week only where only 15% of the respondent in age above 30 are take bath twice a week.

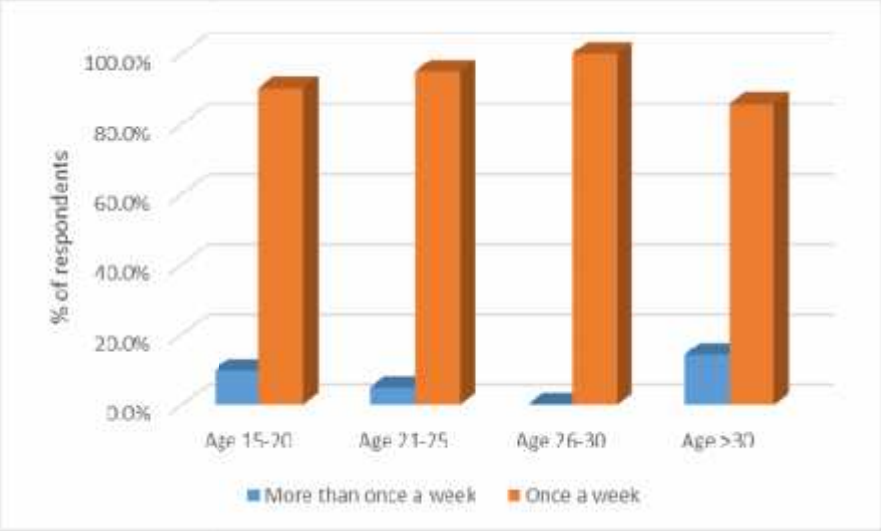

Figure 4.34: Responses from Different Age Groups on How Many Times they Usually Take Bath

(Source: Field Survey, 2016)

CHAPTER 5: FINDINGS ANDCONCLUSION

5.1 Summary of Findings

Poor sanitation leads to sickness and disease. Unsafe sanitation leads to higher rates of infant mortality and infections, contributes to malnutrition and generally a weaker human condition. A lack of sanitation limits economic growth. Without good sanitation, workers are less healthy and therefore less productive, living shorter lives and saving and investing less. Meeting the Millenium Development Goals' (MDG) sanitation target would yield economic benefits. Even conservative estimates predict that adequate investments in sanitation could provide an additional 3% of economic growth.

The general objective of the study was to inquire about the community sanitation situation at Dhabauli VDC of Dhanusa. The study aimed at identifying the present status of sanitation in the study area and to assess the sanitation scenario in different socio-economic groups and education level. Few recommendations for policy makers were also incurred based on the findings of the study on sanitation. A descriptive research design was proposed for the study incorporating primary and secondary data collection from the targeted VDCs and statistical analysis to analyze the data. Basis of cluster sampling method 100 respondents were selected from 600 households as 17% of households of Dhabauli VDC including toilet-users, non-users etc.

The demographic and socio-economic status of the respondents showed 57% of the respondents were females, 88% were literate and educated, 51% within 15-20 age group, 79% were Madhesis and 18% were Dalits.

5.2 Brief Findings

The results show that more than 50% of the respondents used open farms for defecation due to lack of knowledge on the usage of toilets. Out of this population, more than 50% female used the farmlands for defecation. Because of the conservative nature of the society they have a tradition that they cannot use the toilet which was used by their in-laws especially husband's elder brothers. Even the literate and educated people are using the open lands. Most of this can be attributed to the lack of awareness on using the toilets.Some people responded that using toilet for defecation causes them difficulties in breathing. Therefore, they like to use open space like river, farmland

etc. Most of the educated ones within age-groups 15-30 learn to use toilet from the school. A very small percentage learn from their family whereas a majority of population do not know about the usage of toilets. Likewise, the respondents unanimously (>90%) responded that they wash hands only before and after eating food. Very few wash hands after defecation. Majority (>60%) males use soap and water however, the females prefer ash and water for washing hands. The percentage diminishes with diminishing education level. The females have lesser access to education so they learn more from the family members.

Likewise, 100% of the source of drinking water comes from the shallow tube-well which is not treated. However, more that 90% reported that they did not have any incidences of diarrhea in the near past. The 98% of household have their own garbage disposal system and 85% of them prepare compost out of it for farm lands. However, there is an acute need for the sewerage system, which has led to sever pollution and smell in the area. Regarding hygiene most of the respondents preferred taking bath once a week onlyreflecting on their negligence on personal hygiene.

5.3 Conclusion

The study area selected comprises of poor households, mostly farmers from Madhesi communities and have a very low awareness on hygiene and sanitation. The population especially, women and children have a very severe lack of access to the education. They are not aware on the importance of sanitation and usage of toilets. They are preferring open farm lands as the education level is also not that high. Due to the lack of proper sewerage, the environment has gone more polluted thereby raising risks of drinking water contamination and health hazards in impoverished children and women, in particular. Lack of awareness on hand-washing and importance of soap-water was clearly evident. The respondents' preference to wash hands only before and after eating food and not after defecation and work raises another important question of awareness level on hygiene. This further risks chances of epidemic in the area. The status-quo of the community was observed to be highly critical and needs immediate actions from the concerned stakeholders.

Due to the backward nature of the similar communities across the rural Terai region, this study can be a good indication for other communities within the region and provides valuable insights into a rural context of Nepal where access is not a big issue but still health and sanitation remains a myth.

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ANNEXES

Annex 1: Questionnaire (Checklist)

स्वास्थ्यरसरसफाईअवस्थाबारेअध्ययन

धवौलागा.वि.स., धनुषा

(प्रश्न□□□□ □□क्ष□)

□□□ □ : उत्तरदाताको सामान्य जानकारी

क.१) उत्तरदाताको नाम: _____					क.२) अन्तरवाता नम्बर : _____		
क.३) लिङ्ग : पुरुष –१ / महिला –२		क.४) उमेर (वष) : _____			क.५) शिक्षा : _____ (कोड लेख्नुहोस्)		
१= प्राथमिक (कक्षा १ -५)	२= निम्न मा.बि.(६-८)	३= मा.बि.(९-१०)			४= उच्च मा.बि.(११-१२)	५= अनौपचारिक शिक्षा	
६= अशिक्षित							
क.६) जात / जतियता : _____ (कोड लेख्नुहोस्)					क.७) धम : _____ (कोड लेख्नुहोस्)		
१= ब्राह्मण वा क्षेत्री	२= दलित	३= जनजाति	४=नेवार	५=मुस्लिम	१=हिन्दु	२=बौद्ध	३= मुस्लिम	४=ईसाइ
६= अन्य (उल्लेख गनुहोस्): _____					५= अन्य (उल्लेख गनुहोस्): _____		
क.८) जिल्ला : _____					क.९) गा.बि.स. : _____		
क.१०) वडा न. : _____					क.११) गाँऊ : _____		
क.१२) अन्तरवाता लिनेको नाम : _____							
क.१३) अन्तरवाता मिति : _____							

□□□ १: स□□स्थ□ □ □□□□□□

१४) तपाई कहाँ दिसा गनु हुन्छ ?					(कोड लेख्नुहोस्)
१=चर्पी	२=झांडि	३=घर नजिक	४=नदि छउ	५= अन्य(उल्लेख गनुहोस्): _____	
१५) तपाई कति पटक चर्पि प्रयोग गनुहुन्छ ?					(कोड लेख्नुहोस्)
१=सधै	२=कहिले कांहि (उल्लेख गनुहोस्):.....				

१६)तपाई दिसा गनको निम्ति किन चर्पी प्रयोग गनु हुन्छ ? (नोट : प्रश्न न.ग.१ को उत्तर यदि १ आएमा मात्र सोध्ने			
१७) तपाईलाई चर्पि प्रयोग गनु पछ भन्ने कसले सिकायो ?			(कोड लेख्नुहोस्)
१=आमा	२=बुवा	३=दिदी र दाजु	४=शिक्षक / बिद्यालय
५=अन्य (उल्लेख गनुहोस्): _____			
ग.५. कहिले कहिले तपाईले हात धुनु हुन्छ ? (बहु उत्तर सम्भव)			
१=दिसा गरे पछि	२=खाना खानु अघि	३=खाना खाए पछि	४=खेल खेले पछि
५=बिद्यालयबाट आए पछि	६= अन्य (उल्लेख गनुहोस्): _____		
१८) हात धुंदा के प्रयोग गनु हुन्छ ?			
१=साबुन र पानी	२=खरानी र पानी	३=बालुवा र पानी	४=पानी मात्र
५=अन्य (उल्लेख गनुहोस्): _____			
1९) तपाईलाई हात धुनु पछ भनेर कसले सिकायो ? (बहु उत्तर सम्भव)			
१=आमा	२=बुवा	३=दाजु र दिदी	४=शिक्षक / बिद्यालय
५= अन्य (उल्लेख गनुहोस्):_____			
२०) तपाईलाईचर्पीकोबारेथाहाछ ? १) छ२) छैन			
२१) तपाईकोघरमाकतिजनालेचर्पीकोप्रयोगगनुहुन्छ ? (प्रन२०कोउत्तरछआएमात्रसोध्ने) ..... जना			
२२) तपाईकोघरमाकन्तोचर्पीकोप्रयोगगनुहुन्छ ? १) खुल्लाखाडल२) ढलभएको३) सेप्टीटक४) खाडलमालाबभएको५) साधारण५) फ्लसप्रविधिको६) अन्य			
२३) तपाईकोघरमा५बषभन्दामाथिकोउमेरकोपरिवारकासदस्यविगत१वा२हमामाझाडापखालाबाटपिडितथिए?			
२४) तपाईकोघरमा५बषभन्दामूनिकोउमेरकोपरिवारकासदस्यविगत१वा२हमामाझाडापखालाबाटपिडितथिए?			
२५) के परिवारका प्रत्येक सदस्यले चर्पि प्रयोग गछन्? गछन्=१गदनन्=२			
२६)यदि गदनन् भने कस्ले गदनन् र कुन अवस्थामा गदनन् ?			

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२७) तपाईकोघरमाउपयोगगनपिउनेपानीकोस्रोतकेहो ?

१) प्राइभेटधारा, २) कुलोवानहर३) टकोवितरण४) सावजनिकधारा५) अन्य .....

२८) तपाईकोघरपरिवारलाईदैनिककतिलिटरपिउनेपानीकोआवश्यकतापदछ। ..... लिटर

२९) तपाईलेप्रयोगगनपिउनेपानीकोस्तरकस्तोछ ? १) रामो२) धरैरामो३) ठिकै४) ठिकछैन

३०) तपाईकोघरमाउपयोगगनअन्यआवश्यकताकोलागिप्रयोगहुनेपानीकोस्रोतकेहो ?

१) प्राइभेटधारा, २) कुलोवानहर३) टकोवितरण४) सावजनिकधारा५) अन्य .....

३१) तपाईकोघरमाखानापकाउनकोलागिप्रयोगहुनेपानीकोस्रोतकेहो ?

१) प्राइभेटधारा, २) कुलोवानहर३) टकोवितरण४) सावजनिकधारा५) पिउनस्याएकोपानीअन्य .....

३२) तपाईकोघरपरिवारलाईदैनिककतिलिटरपानीअन्यप्रयोजनकोलागिआवश्यकतापदछ। ..... लिटर

३३) तपाईकोघरपरिवारलेपानीकोकतिकोसमस्याभोग्नुपरेकोछ ? १) दैनिक२) प्रायजसो३) कहिलेकाहि४) अन्य

३४) तपाईकोघरपरिवारलेपानीकोलागिगतमहिलाकतिपैसाखचगनूभयो ?

१) पिउनेपानीकोलागिरु..... २) अन्यप्रयोजनकोलागिरु.....

३५) तपाईकोघरनजिकैफोहरपानीकोव्यस्थापनगरिएकोछ ?१) छ२) छैन

३६) तपाईकोघरकोफोहरमैलाकोव्यवस्थापनकहाँगनुभएकोछ ?

१) घरनजिकैखाडलमाहाल्ने२) फोहरमैलासंकलनलाईदिने३) अन्य .....

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३७) के तपाईले बाल बिकास कक्षाको बारेमा थाहा छ ?	१= छ	२=छैन
३८) के तपाईले आफ्नो बच्चालाई बाल बिकास कक्षामा (ECD)भना गनु भयो ? (बिद्यालय पुवका कक्षामा जाने बच्चाका आमा बुवालाई मात्र सोध्ने)	१= गरे	२=छैन
३९) के तपाईको बच्चा (केटी) ले माध्यमिक शिक्षा पुरा गर्रिन् ?	१= गर्रिन	२=गरेकि छैनन्
४०) के तपाईको बच्चा (केटा) ले माध्यमिक शिक्षा पुरा गर्रिन् ?	१= ग-यो	२=गरेको छैन
४१) के तपाईले आफ्नो बच्चालाई माध्यमिक शिक्षा पुरा गन प्रोत्साहन गनु हुन्छ ?	१= गछु	२=गदन
४२) तपाईकोबच्चाहरुलेसरसफाईकोबारेमाविद्यालयमापढेकाछन् ?.....	१= छ	२=छैन
४३) सरसफाईकोमहत्वबारेतपाईलाईथाहाछ ?	१= छ	२=छैन
४४) सरसफाईकोमहत्वबारेकहाँबाटथाहापाउनुभयो ? (प्र४३कोउत्तरछआएमामात्रसोध्ने) १) संचारमाध्यम२) विद्यालय३) स्वास्थ्यकर्मि४) अन्य		

धन्यवाद

PHOTOGRAPHS

Photo 1: Dhabauli Health Post, Dhanusa

Photo 2: Hygienic Program held by Local Community, Dhanusa

Photo 3: Heading to Dhabauli by Local Transportation, Dhanusa

Photo 4: Map of Dabauli, Dhanusa

Photo 5: Student of Dabauli, Dhanusa

Photo 6: Way to Dabauli from Janakpur, Dhanusa

Photo 7: Drinking Water at Dhabauli, Dhanusa

Photo 8: House Toilet at Dhabauli, Dhanusa

Photo 9: Sanitation Program in Dhanusa