

CHAPTER - ONE

INTRODUCTION

1.1 Background of the Study:

Water is the largest natural resources of Nepal although only a relatively low percentage of the total population is getting safe and clean water for daily use. Water is used for drinking, bathing, washing and cleaning. Besides it is used for agriculture, industrial, hydropower generation, religious propose and recreation such as swimming, fishing and different forms of eco-tourism. Water is a truly unique commodity. Without it life does not exist. Life can, however, become uncertain even when there is water all around. While excess water in the form of floods and water deficit in the form of drought have struck Nepal time and again, consumption of unsafe water has taken thousands of lives annually. (Mishra: 2012)

Knowledge and practice of clean water for sanitation for bathing, washing hands before eating, washing food and clothes, etc. leads to skin and diarrhoeal diseases caused. Skin diseases are the major poor sanitation related diseases. Children and the poor are most affected by poor water supply, poor quality water and poor sanitation linking to lack of access safe and sanitary provision. 6.6% of the poorest have access to piped source of water at home. Some 26.8% the poorest have access to piped sources of water outside the house. The rest of the poorest 66.6% depend on unsafe sources of drinking water. (Central Bureau of Statistics: 2011)

Drinking Water is the basic minimum need of all human beings and provision of convenient, safe, clean and adequate drinking water is the declared commitment of the government of Nepal. It has been realized that the development of water supply and sanitation sector brings in enhanced socio-economic benefits and public health improvements. Population growth, rapid urbanization and industrialization are imposing rapidly growing demand of water supply and it pressurizes the government for the development of the water resources. The growing imbalance between demand and supply has brought various problems. It has caused the shortage of drinking water pollution and environmental degradation. As a result, high incidences of water related diseases are causing significantly low productivity in our country. Inadequate access to safe water supplies, along with poor environmental sanitation and personal hygienic practices, is the cause of water borne diseases in rural as well as in urban areas of Nepal. (Shrestha: 2007)

Water is a critical component of life on earth, and safe drinking water and sanitation are essential for good public health. So, every civil will have the right of access on pure drinking water and sanitation.

It emphasizes involvement of community and local NGOs in the construction as well as operation and maintenance of the rural water supply and sanitation schemes. Integration of sanitary component to all drinking water projects are mandated by the thirteenth plan. It also emphasizes on use of surface water in hills and groundwater in Terai as sources for supply of drinking water. (Shrestha: 2007)

Sindhuli district is a having enough water source area in Nepal. The Sunkoshi river, Kamala river, Marin river and other small rivers flows all

over the district. 76% of total population have drinking water facility in district and are implementing new water schemes in different VDCs by national and International NGOs coordinating with Drinking Water and Sanitation Division Office, Sindhuli. Same way, sanitation and hygiene program is also implementing in district under D-WASH-CC. Total 27 VDCs of all 50 VDCs in Sindhuli district have been declared as Open Defecation Free (ODF) VDC. District has been working for achieving national target. (Drinking Water Supply and Sanitation Division Office Sindhuli: 2015)

1.2. Statement of the Problems:

Although Nepal is one of the poorest country in the world, it is known as the second richest country in water resources. On the base of natural resources, Nepal has targeted cent percent coverage in basic water and sanitation facilities in country by 2017 meanwhile the Millennium Development Goal (MDG) had targeted to achieve only 53% in basic sanitation facilities and 73% in basic water facilities by 2016. (National Planning Commission: 2013)

Nepal Red Cross had implemented the WASH project in Harshahi VDC according to national water and sanitation plan and policy to achieve the national target conducting various interventions in VDC. After these interventions, The VDC had declared as fifth ODF VDC in Sindhuli constructing latrine all over the households of VDC and provided water facility to all in VDC constructing 12 lifting system water schemes (D-WASH-CC Sindhuli: 2016). Nepal Red Cross claimed Harshahi project was a successful project in achievement of targets and best in WASH sector in Sindhuli district (Nepal Red Cross Society, Sindhuli: 2015).

Studying of national report on water and sanitation, there were many obstacles to implement WASH activities and achieve the progress. Illiterate, caste, religious and other factors prohibited. In this side, the project of Harshahi has leaved many questions to study in the field.

Therefore, the study attempts to seek the answers of following questions.

-) What is the situations of water, sanitation and hygiene facility before implementation of WASH program and then after?
-) Are the people aware in water purification and sanitation management?
-) Have they accepted the techniques of WASH in real life?

1.3. Objectives of the study :

The general objective of this study is to find the practice of community on safe water and sanitation examining their knowledge and concept on it. The study had the following specific objectives:

-) To identify the status of community behavioural in Water, Sanitation and Hygiene (WASH);
-) To analyse the knowledge, attitude and practice related to WASH based on literacy and age group;
-) To suggest programmatic recommendations to sustain the WASH program.

1.4. Rationale/Significance of the study:

Water and Sanitation is the major issue in Nepal at this time. Targeting to achieve cent percent of coverage in basic water and sanitation, Nepal has been implementing many project separately and jointly with I/NGOs developing Sanitation and Hygiene Master Plan in 2011. WASH is included as major priorities in national planning.

Water and sanitation is the sector where researcher has been working for a long time. Researcher has completed many of the intervention related the sector in different areas. This sector is more interested too. Therefore, the study may be a way to success in the field in different way and thoughts.

Moreover, Harshahi project is well-known program of NRCS in WASH sector in Sindhuli. NRCS had been handover the program completing all intervention of the project and office had been follow up and internal visit periodically but external person in specific purpose has not visited the program. It is been external evaluation and document without paying any cost and effort by program-implemented office. Therefore, it may be strategic and supporting document for Nepal Red Cross Society.

In another hand, the study report will be the reference documents for Planners, implementers and sectoral officials to take new planning and implementing of project related to WASH sector.

The result of the study will be a real situation of community under water, sanitation and hygiene behaviour. Therefore, from studying of the study, community will change their behaviour what to be changed up to improved level.

Mentioned as in above causes, the study is important for community, whole water and sanitation sector, Nepal Red Cross, Drinking Water supply and Sanitation Division office, Sindhuli and researcher too.

1.5 Conceptual Framework

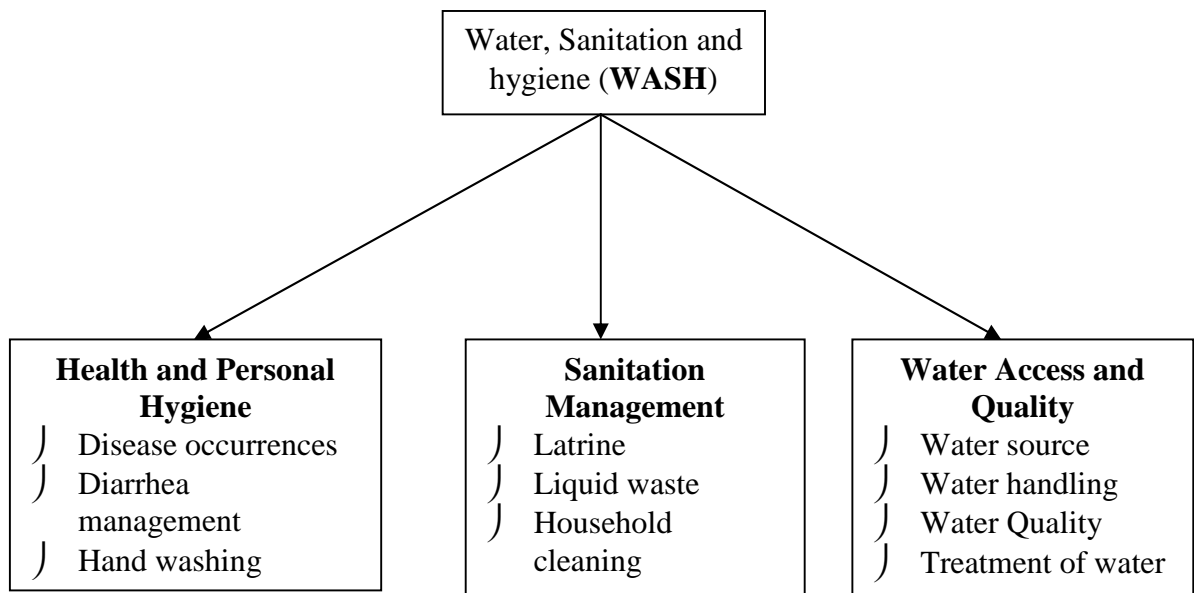
The study was observed basically three areas in water, sanitation and hygiene (WASH) activities in community:

1. Health and Personal Hygiene,
 2. Sanitation arrangement and management,
 3. Drinking Water access and Water Quality.
1. Health and personal hygiene was one of the major areas of the study where about knowledge; attitude and practice (KAP) level was examined and recommendation was presented.
 2. Sanitation arrangement and management was another major area. The study was conducted to find out existing KAP level such as latrine use, households sanitation and liquid waste management.
 3. Water access and water quality was also next important area for the study. The study was tried to seek KAP level of people on this area. Study had included mainly water source, availability of water, distance of water point from households, perceive of people about quality of water, point of use treatment of water.

The whole activities of study areas of WASH program was organized to satisfy the relation between the dependent and independent variables for examine the knowledge, attitude and practice level of Harshahi people in practically.

Figure 1:

Water and Sanitation intervention included in the study:



1.6. Limitation of the study:

The hypothesis that was organized to study the knowledge, attitude and practice on safe water and sanitation program in Harshahi VDC of Sindhuli district were as follows:

-) The study is conducted only for the partial fulfilment of the master's degree in sociology and it has no wider application.
-) The findings are related to and based on only the community of Harshahi VDC. It may or may not be applicable to other places or communities.
-) The study is conducted with limited amount of financial resources and time framework.
-) There is relation between knowledge, attitude and practice to age and literacy of community people.

Unit - TWO

Review of literature

Review of the study is an essential part of a social research. It provides a concept of analysis with a theoretical and methodological knowledge to researchers to meet the goals of the research. It is a guideline of the research to identifying a problems finding the direction of study by using historical background of related case.

This chapter deals the theoretical approach of the research form the theoretical perspective. There are several published and unpublished articles and literatures are available related to water and sanitation. This chapter includes those literature only that are relevant this research.

2.1 Water and Sanitation Situation in Nepal :

Water supply and sanitation promotion in Nepal had been started from starting the year of 1980 after announced the International decade of water supply and sanitation by United Nation. After that Nepal Govt., departments of ministry, INGOs and NGOs have been actively conducting interventions under water and sanitation. In adopting the Millennium Development Goals (MDGs) countries pledged to reduce to zero level the proportion of people without access to safe drinking water and basic sanitation and to ensure the national goal of drinking water and sanitation for all by 2017. (Steering Committee for national Sanitation Action, Nepal: 2011) Country had announced for all to project the intervention making respective master plan, act and procedure to meeting the national target into targeted time.

To improve sanitation status and supply of safe drinking water maintaining the quality, projects have been implementing in both urban and rural area. Many INGOs and NGOs have been operating especially WASH activity.

At the end of three years interim plan, coverage of population with access to basic level of water supply service is 85.8% and coverage of population with access to medium to upper level of water supply service is 11.06%. (National Planning Commission: 2014)

A report stated the proportion of population using improved drinking water sources reached to 88% in 2012. The recent Nepal Minimum Indicator Cluster Survey (NMICS) shows that 93% of householders are using improved sources of drinking water in 2014, a step closer to achieving universal coverage. In contrast, the drinking water supply for nearly one in ten people in the country comes from unprotected dug wells, springs, rivers, dam reservoirs, lakes, or ponds. (UNISEF Nepal country office: 2014)

Water pollution and contamination remain among the most serious of public health problems in Nepal. According to the NMICS 2014, 71% of the household water supply is tainted with E.coli. Only 14 percent of households using drinking water from an unimproved supply source treat the water before consuming it. Many of Nepal's water supply schemes are in a poor state of functionality. In 2012, only 25% of schemes were deemed to be functioning properly. More than 70% of the water supply schemes in the country are in need of repair, rehabilitation or reconstruction. (Central Bureau of Statistics: 2014)

Despite the ongoing challenges in the part of sanitation, the proportion of people who practiced open defecation dropped by 46% during the same period - the fastest open defecation reduction rate in South Asia. NMICS 2014 reported even better sanitation coverage for 2014, estimating that 60 per cent of Nepali householders use non-shared improved sanitation facilities. However the coverage of population with access to basic level of sanitation service reached to 62% (National Planning Commission: 2014).

2.2 Research Studies, Surveys and Articles on Water and Sanitation :

The titled review of the articles deals those articles published by different authors in international scenario, national law and review of dissertation written by different authors.

Water and sanitation is interrelated part each other. So, different authors and articles defined jointly and also separately on water and sanitation

Every citizen shall have the right to access to clean water and sanitation.
(Panta: 2072)

The Water is a one of three elements of sanitation; it is a powerful part making safe environment. (Steering Committee for National Sanitation Action, Nepal: 2011)

Safe drinking water and adequate sanitation are the basic right of every citizen and are vital for improving health and alleviating poverty.
(Wellington: 2005)

In the literature on water supply and sanitation, the terms “safe,” “adequate,” and “improved” are used to describe water supply and sanitation coverage. Coverage is defined as the percentage of the population with access to safe (improved) water supplies and adequate (improved) sanitation facilities. The Global Water Supply and Sanitation Assessment 2000 Report by WHO/UNICEF differentiates between the term “improved” and the terms “safe” and “adequate” because of the lack of information on the safety and adequacy of water supplies and sanitation facilities. As a result, it was assumed in their study that certain types of technologies are safer or more adequate than others, and the term “improved” was used to describe the different types of water supply and sanitation technologies that are considered as coverage. (Andrea: 2002)

The World Health Organization and other major global public health organizations define safe water access as reasonable access through an improved or an unimproved source. This is also true for sanitation. An improved source of safe water consists of one of the following: a piped household connection, public standpipe, borehole, protected dug well or spring, and/or rainwater collection. An unimproved source is considered any of the following: vendors, tanker trucks, surface water, bottled water (due to the inability to confirm source and quality), and unprotected dug wells and/or springs. Reasonable access to an improved source is defined as the availability of at least 20 liters a person a day from a source within one kilometer (0.6 miles) of the dwelling. (UNICEF Nepal Country Office: 2011)

Access to safe water is a fundamental human need and, therefore, a basic human right. Contaminated water jeopardizes both the physical and social health of all people. It is an affront to human dignity. (Annan: 2010)

Access to safe drinking water supply and sanitation services is fundamental to improving public health and meeting national poverty reduction objectives. As is now widely recognized, lack of access to these essential basic services contributes substantially to the high burden of disease that needlessly foreshortens and impairs the lives of far too many of Nepal's citizens. (Ministry of Urban Development: 2014)

Access to safe drinking water, adequate sanitation and basic hygiene is both a basic need and a human right. Without such access, vulnerable communities risk typhoid and dysentery epidemics, and high prevalence rates for skin disorders and parasitic infestations. These have a direct negative impact on health and nutrition and therefore impact infant and child mortality rates. Poor sanitation exposes communities to the risk of polio while malnutrition is aggravated by diarrhoea. According to the recent Multiple Indicator Cluster Survey (NMICS, 2014) 37 per cent of children in Nepal under the age of five are either moderately or severely malnourished. (UNICEF Nepal Country Office: 2014)

Many people, both in rural and urban areas, are affected by water borne and water related diseases due to use of unsafe water and poor hygiene practices and inadequate sanitation facilities. People have to face several problems and lose opportunity to income sources. Particularly rural women are deprived of finding the income sources including due to hardship of availability of water as they spend several hours a day to

fetch water from far away sources.(Ministry of Urban Development: 2014)

Sanitation is an access to, and use of, excreta and waste water facilities, and services that ensure privacy and dignity, ensuring a clean and healthy living environment to all. (The millennium Task Force: 2008)

Improved sanitation facilities was defined as including connection to a sewer or septic tank system, pour-flash latrine, simple (or double) pit or ventilated, improved pit latrine again allowing for acceptable local technologies. The excreta disposal system was considered adequate if it was private, or shared (but not public) and if it hygienically separated human excreta form human contact. (World Health Organization: 2000)

Improved sanitation facilities are considered those that separate human waste from daily activities and contain, or dispose of, waste in a manner that keeps bacteria permanently separate from daily activities. These include: flush or pour-flush toilets/latrines connected to a piped sewer system (most plumbing systems in fully industrialized nations fall in this category), a septic tank, a pit latrine, a ventilated improved pit (VIP) latrine, a pit latrine with slab, or a composting toilet. Unimproved facilities include a pit latrine without a slab or platform (this allows fluids to seep into the ground water or toward a nearby river or stream), hanging latrine, bucket latrine, or open defecation which includes fields, forests, bushes, bodies of water or other open spaces. (Water Aid: 2012)

Sanitation is an issue for every household and community that plays a direct role in public health to the hygienic conditions of that community. Therefore, sanitation is considered as a serious issue in a small

community to global level. Sanitation as the provision of facilities and services for the safe disposal of the human excreta. Hygiene access to sanitation is believed to provide significant positive impacts on health both in households and across communities while maintaining hygienic conditions. (WHO/UNISEF: 2010)

Water and sanitation is defined as the provision and maintenance of hygiene conditions through services such as garbage collection and waste water disposal. (Central Bureau of Statistics: 2006)

A Society's health depends on the access to proper and hygiene sanitation. Half of the population still do not have access to proper sanitation in Nepal; therefore government and non-government organizations are facilitating sanitation access to all the population. Sanitation is an issue for every household and community that plays a direct role in public health to the hygienic condition of that community. Therefore, sanitation is considered as a serious issue in small community to global level. (Rupakheti: 2013)

Low sanitation coverage in country has been the major cause for higher morbidity in Nepal. Water and sanitation related disease are still remain at the top ten causes of morbidity and diarrhoeal diseases is the second largest reason among infant mortality (Rai: 2011).

Most of the diseases that accounts of 80%, are somehow associated to the water and sanitation related causes which is major reason for almost 13,000 child deaths each year from diarrhoeal disease such as dysentery, jaundice, typhoid, and cholera. (Department of Water Supply and Sewerage: 2008)

Although outbreaks of diarrhoea are annual occurrence in Nepal, the 2009 outbreaks were particularly severe, and affected more than 70,000 people in 27 of the country's 75 districts. Two-thirds of the deaths reported occurred in the Mid and Far-West Development Regions, where almost 400 people died. In May 2014, Biratnagar in Morang district witnessed a Hepatitis E outbreak while an outbreak of acute watery diarrhoea occurred in Rautahat district in June. Possible reasons for the deterioration of water quality are (i) the dumping of domestic waste and untreated industrial waste water into rivers and other water sources; (ii) the increase in the use of agricultural chemicals; and (iii) the non-existence of sewage networks in non-urban areas. In addition, leaky, rusty water supply pipelines and the presence of sewage pipes right next to drinking water pipes cause the quality of drinking water to deteriorate. (UNICEF Nepal Country Office: 2014)

The economic costs of ill health, medical treatment, lost time and opportunities caused by lack of access to these basic services accounts for an estimated cost in South Asia of around \$34 billion. The economic returns on water and sanitation investments in South Asia are around 3.5 for water supply, 6.9 for sanitation and 6.6 for fully integrated projects. The Millennium Declaration adopted by the member states of the United Nations are committed to the Millennium Development Goals (MDGs). Target 10 under Goal 7 of the MDG clearly states "to halve by 2016 the population without sustainable access to safe drinking water and basic sanitation". MDG has provided a solid footing for the Government to set higher targets for the service provisions and expedite achievement adopting a number of new policies and strategies. It is encouraging to note that Nepal has already exceeded in 2013 the 2016

MDG targets which were set respectively at of 73 % and 53 % for basic water supply and sanitation facilities. While the Government of Nepal remains fully committed to provide basic level water supply and sanitation services to all by 2017 acknowledging it as a fundamental human need and a basic human right, it has also envisaged a need to improve the basic level of water supply and sanitation services to medium and higher levels to all by 2027. (Ministry of Urban Development: 2014)

Access to safe water and sanitation plays a vital role in the overall socio-economic development of any community or country. Therefore, this sector should be given high priority for development in a sustainable and socially acceptable manner with the use of appropriate technologies.

Today, government plans have also given importance to attainment of targets for water supply and sanitation in the Millennium Development Goals (MDGs). With the help of the donor community, the government formulates policy, implements projects and monitors overall progress. (National Minimum Indicator Project and Department of Water Supply and Sewerage: 2011)

We, drinking water and sanitation users' committees, Federation of Drinking Water and Sanitation Users' Committees, stakeholder agencies of the Government of Nepal (GoN), and national and international development partner organizations, taking a collective vow to meet the National Target for Drinking Water and Sanitation 2017, promulgate the Kathmandu Declaration at the National Summit on Drinking Water, Sanitation and Hygiene and pledge to implement it. (Federation of drinking water and sanitation user Nepal: 2014)

2.3 Water and Sanitation Problem in Developing Countries:

Water and sanitation is highly recommended sector to develop rapidly in community in a country. In the developing country like Nepal, rate of population growth is high and growth rate, literacy rate, health care, participation in income and development is poor. Oppositely, the deforestation and waste of solid and liquid is high. It shows the demand of water supply service is increasing day by day but resources of water is being polluted. It means increasing population keeps decreasing resources of water. Pollution is not a single cause route of decreasing of resources of water. Deforestation, climate change and housing are another reasons.

Open defecation is the most dangerous negative cause in WASH in developing countries. It makes outbreak in community. Nepal also faced many outbreak of diarrhoeal diseases in the western and the eastern part in different time. A statistical data shows that more than 12,000 children under five years are killed by diarrhoeal diseases annually and an under five years' child is caught frequently four times in a year. Similarly, 90% of people in developing country may be caught by Coliform in any time and 72% of people may be caught by water borne diseases. (Steering Committee for National Sanitation action Nepal: 2011)

Washing hand with soap is also basic health care. It have to do frequently in risky condition—after using the latrine, before cooking food, taking meal and feeding to child etc. Because of illiterate the practice of hand washing is poor in developing country and after that

health problems is increasing every day. (World Health Organization: 2008)

Weak implementation of act, policy and procedure, limitation of budget, Division of limited resources in unlimited project, weak management and lack of renovate and maintenance of repairable DWS are causes to unsafe water and poor sanitation. And, health problems, child death, decreasing of productivity, burden in health services and increasing investment in health are causes of unsafe water and poor sanitation condition. (National Planning Commission: 2014)

CHAPTER - THREE

RESEARCH METHODOLOGY

3.1. Rationale for the selection of research area:

This research study was conducted in Harshahi VDC of Sindhuli, which is located eastern part of district and adjoining to Dhanusha district. It lies in inner tarai. It is called Kamalakhaj in local community and is rural area like other VDCs of Nepal. The sample VDC is heterogeneous population having caste of Danuwar, Tamang, Chetri, Brahmin, and Dalit. Thus, the result of study can further equally use other part of Nepal.

The research area is ODF area with every household have toilets. In statement of Danuwar community, opened defecate is better than using everyone in a toilet. Moreover, there is low ratio of literacy. Therefore, the study is for analysing the status of ODF in contents of using latrine properly and find out the KAP of Danuwar community.

Another side there had been implementing the water and sanitation program since 2012 organizing by Nepal Red Cross for four years. Therefore, me, it was accessible to collect detail households data of the community.

3.2 Research Design:

Research design refers to the plan and strategy that helps to get the answers to the above research objectives. It provides the methods and procedure for acquiring the needed information.

The study is related to find out the status of knowledge attitude and practice on water and sanitation. Though people have enough knowledge about water and sanitation, practice on it is poor in action in rural area. So, the study tries to find out that how people in rural area had got WASH in real life. For this purpose, descriptive and analytical research design have been followed.

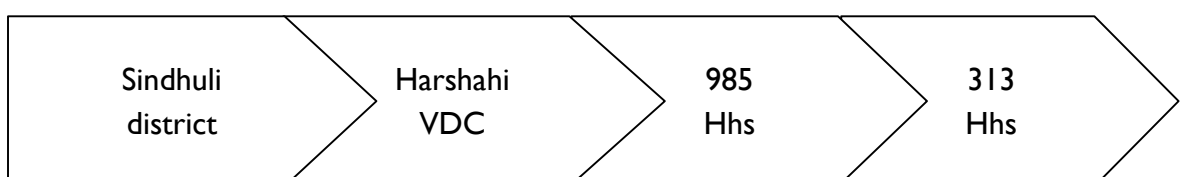
3.3 The Universe and Sample:

This research study is focused on KAP in the water, sanitation and hygiene program in Harshahi, Sindhuli, so, its universe of the sample is all wards and all individuals of Harshahi VDC.

The type of sample for this research study is random provability sampling; that is the samples where each items or element in the universe has equal chance of being selected.

There are nine wards in a VDC. Firstly, samples were selected of individual households using random number table. All wards households was included in sample selection process. The sample size of this research is 313 households from universe households of 985. Because of the heterogeneity of the universe as well as of the sample wards, the sample of individual households includes mainly caste, age, gender, and literacy.

To achieve the objectives of the study, 313 individual households from total Hhs of VDC is selected for sampling.



3.4 Nature of Sources of Data:

The study is based on both primary as well as secondary data. In this study, primary data was collected directly from source of real field observation, questionnaire survey, focal group discussion and secondary data was taken from VDC office of Harshahi, Nepal Red Cross project documents and Water and Sanitation Division Office, published and unpublished books, articles and online sources.

The study analysis was made of primary data and for comparative analysis, secondary data was also used. The required data was primarily collected by private interview in household level using structured questionnaire. However, some secondary data was used to synthesize that was to compare previously finding, recommendation and findings of the study.

3.5 Data collection techniques and tools:

3.5.1 Household survey:

The household survey was used technique of data collection related to demographic characteristics such as age, sex, family structure, geography and caste. Through this technique, researcher had collected the numeric data of using of drinking water, toilet, washing hand with soap and some hygiene practices. The technique was also used to find out the accuracy of secondary data.

3.5.2 Interview:

Interview is a frequently use technique in sociological research. In this technique, a list of some questionnaire was developed to collect the qualitative and quantitative information from the field. In the study, I

took personal interview with an individual person of the family in community where were generally head of the family. Similarly, key informant interview was also carried out in the field during course of study. Interview was done to gain information about the KAP on water and sanitation.

3.4.3 Observation:

Observation method also applies to collect such information, which is not possible by structured questionnaires. The observation method is useful to crosscheck the information collected by other tools such as interview, group discussion and household survey etc.

Taking the techniques, I have especially observed the condition of drinking water supply system, use of toilet, practice of hand washing and cleanness of house surroundings. For proper drinking water supply system, I observed the protection of source, pipeline distribution, sanitation of tap stand and cleanness of water vessels. Similarly, to the practice of hand washing, I had crosschecked the hand-washing platform, availability of soap and water with bucket. In addition, to find out cleanness of house surroundings, I observed cleanness of kitchen, house, flies in house, and cleanness of toilet and disposal of wastewater.

3.4.4 Focused group discussion:

Group discussion is focused to understand on pre and post status of water and sanitation in community. During the study period, I had discuss with two types of community geographically different each other. One community where water supply has been implemented and another community where the water supply scheme due to be

implemented. In the discussion, I had arranged to participate the different group of community i.e. different age group, different caste group, different literacy group etc.

3.6 Data presentation and Analysis:

A huge mass of data had been generated during the study period. To handle it conveniently the collected raw data were processed in a computer in the beginning by means of sorting, group, Responders distribution and tabulation presented in the forms of table. Both qualitative and quantitative data had been analysed with appropriate statistical tools accordingly. In case of quantitative data; average, mean and percentage had been used. On the other hand, descriptive method of analysis had been applied for qualitative data.

CHAPTER - FOUR

PROFILE OF THE STUDY:

Harshahi VDC is a well-known VDC in Sindhuli district. It is located in East from Sindhuli headquarters. The total number of household was 985 and total population was 4693 including male 2170 and female 2523. Two – fifth (42%) of the household in Harshahi VDC were occupied by Danuwar. Adivasi/Janajaties dominant (68%), which was followed by Brahmin/Chhetri (16%) and Dalit (13.5%). high majority (89%) of families in Harshahi VDC followed Hinduism. (Nepal Red Cross Society: 2012)

In part of water and Sanitation, there is lifting system water distribution scheme which has been model scheme in Sindhuli constructed by Nepal Red Cross. Total 985 household of VDC have water access by 12 lifting systems and the VDC is fifth ODF VDC of Sindhuli constructed and used of latrine in total household. (D-WASH-CC, Sindhuli: 2015)

The sanitary units of harshahi VDC has been well maintained. Total 482 waste bin, 388 utensil drier, 219 garbage pit and 97 improved cooking stoves has installed in community. (Nepal Red Cross Sindhuli: 2015)

For the study purpose, various information had been collected under following broad headings; such as health and personal hygiene, drinking water access and quality and sanitation management. Researcher conducted the study in 313 respondent households as sampling to find out the KAP of WASH program. Respondents were selected based on literacy, age group, caste and marital status. The respondents had been asked each question with before and after situation of intervention of WASH program.

The study showed the status of respondents' knowledge, attitude and practice on water, sanitation and hygiene (WASH) as following;

4.1. Health and Personal Hygiene:

Under health and personal Hygiene, there had been studied on illness of family, practice of treatment of disease, Knowledge about cause of disease, Diarrhoea management and Hand-washing practice.

4.1.1 Illness in Family:

Lack of sanitation and low access of safe drinking water is the main cause of diarrhoeal disease. Therefore, the study has been examined the occurrence of illness of family member. The result found as following.

Table: 1
Illness in Family:

| Caught any diseases during last one year? | Before | | After | |
|---|------------|-------------|------------|-------------|
| | Responders | % | Responders | % |
| Yes | 232 | 74% | 33 | 11% |
| No | 81 | 26% | 280 | 89% |
| Total | 313 | 100% | 313 | 100% |

Source: Field Study 2016

Before the intervention of WASH program, during whole year, at least a member of 232 (74%) of the HHs in the VDC was caught by at least one disease and remaining 26% of the HHs was not caught by disease.

However, after the intervention of WASH program, among the respondents, 11% were reported to have had disease at some time and 89% were reported no during this period.

The table shows the occurrence of disease decreased after the interventions of WASH program.

4.1.2 Practice of treatment of disease:

Respondents were asked where they got their facility about what to do for treatment of disease. Their responses are shown in Table 2. In focus groups, many people felt that villagers would be more convinced if advice came from health institutions. In the case of snakebites, most of people are sensitive to treat it recently to primary snakebites care centre.

Table 2:
Practice of treatment of disease:

| Place for treatment | Before | | After | |
|---------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Health institution | 72 | 23 | 166 | 53 |
| Health worker | 19 | 6 | 16 | 5 |
| Traditional Healer | 116 | 37 | 22 | 7 |
| Domestic treatment | 78 | 25 | 101 | 32 |
| No treatment | 28 | 9 | 8 | 3 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

Before the intervention of WASH program, only 23% of the HHs had to go to health institution and 6% of the HHs went to health worker. Because of the access of personal vehicles and short distance to health office, community had to go direct to health institution. Left 37% of HHs had to go to traditional healer, 25% to domestic treatment without first aid and medicine knowledge and remaining 9% had no treatment.

After the intervention of WASH program, taking the facility from health institution found increased. The 53% of respondents had practice of treatment of disease in health institution. Similarly, 32% respondents had practice of treatment in domestic with enough knowledge. The percentage of health worker found decreasing because of having first aid knowledge and going to health institution. Going to traditional healer and to treatment HHs have been decreasing. It showed the positive impact of the intervention.

4.1.3 Knowledge about cause of disease:

The respondents households were asked about what they thought caused the most recent episode of disease, in an open-ended question in the household questionnaire. Their answers have been grouped together and are shown in Table 3. These answers from individual households are enriched by the views expressed in focus groups about the causes of disease.

Table 3:
Knowledge about cause of disease:

| Cause of disease | Before | | After | |
|--------------------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Illiterate | 34 | 11 | 17 | 5 |
| Ignorance | 44 | 14 | 46 | 15 |
| Lack personal hygiene | 22 | 7 | 49 | 16 |
| Contaminated water and food | 28 | 9 | 117 | 36 |
| lack of waste management | 31 | 10 | 37 | 12 |
| Waste in house and public area | 19 | 6 | 21 | 7 |
| Climate change | 0 | 0 | 5 | 2 |
| No idea | 135 | 43 | 21 | 7 |
| Total | 313 | 100 | 313 | 100 |

Source: Field study 2016

Before the intervention of WASH program, total 43% respondents had no idea about cause of disease. community had not knowledge about disease and 14% of respondents thought ignorance. Similarly, 11% respondents had to think because of illiterate, 9% had of contaminated water and food, 7% had lack of personal hygiene and 6% had waste in house and public area.

Now a higher proportion of respondents (36%) attributed disease to households attend to contaminated water and food and left 7% of respondents have no idea about cause of disease yet.

The status shows the knowledge of cause of disease has been increasing but it is not sufficient percentage. It should be some changes in activities.

4.1.4 Diarrhoea Management:

Diarrhoeal management is the most important part of sanitation behaviour. People have enough knowledge about WASH who have knowledge about it. To know the diarrhoeal management knowledge of respondents, they were asked about idea of transmission, prevent and treatment of diarrhoea. Response of the participants as following;

**Table 4:
Diarrhoea Management:**

| Transmission of Diarrhoea | Before | | After | |
|---------------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Yes | 116 | 37 | 217 | 69 |
| No | 197 | 63 | 96 | 31 |
| Total | 313 | 100 | 313 | 100 |
| Prevent of diarrhoea | Responders | % | Responders | % |
| Yes | 91 | 29 | 223 | 71 |
| No | 222 | 71 | 90 | 29 |
| Total | 313 | 100 | 313 | 100 |
| Treatment of diarrhoea | Responders | % | Responders | % |
| Yes | 106 | 34 | 221 | 71 |
| No | 207 | 66 | 92 | 29 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

After the intervention of WASH program, most of the respondents (69%) were said that they have idea of transmission of diarrhoea. However, 31% of respondents have not any knowledge about the transmission of diarrhoea. Similarly, 71 % of respondents have knowledge about prevent and treatment of diarrhoea and left 29% of HHs have no idea of prevent and treatment of diarrhoea.

Before the intervention of WASH program, 37% of participants only had knowledge about transmission of diarrhoea. Similarly, 29% of participants had knowledge about prevent of diarrhoea and 34% had knowledge about treatment.

The status shows the percentage of having a knowledge of transmission, prevent and treatment of diarrhoea has been increased after the intervention of WASH program.

4.1.5 Hand Washing Practice:

Hand washing with soap is the main prevention to be caught of waterborne diseases. However, there were many differences in community practice. Community washed their hand with only water if they felt need to wash. A report showed that if we washed our hand with soap in risky condition, the possibility to be illness would be decreased by 45%. (WHO: 2008) Therefore, hand washing with soap is a main component in WASH intervention. So, the study had also examined on hand washing practice of participants under the structured questionnaire.

Table 5:
Hand washing practice and means of hand washing:

| Hand Washing Practice | Before | | After | |
|------------------------------|-------------------|------------|-------------------|------------|
| | Responders | % | Responders | % |
| After defecation | 72 | 23 | 296 | 95 |
| Before Cooking | 53 | 17 | 120 | 38 |
| Before meal | 200 | 64 | 302 | 96 |
| After meal | 285 | 91 | 313 | 100 |
| Wash child anal | 34 | 11 | 233 | 74 |
| After touch waste | 169 | 54 | 174 | 56 |
| Means of hand washing | Responders | % | Responders | % |
| With only water | 250 | 80 | 109 | 35 |
| Ash water | 13 | 4 | 47 | 15 |
| Soap water | 50 | 16 | 157 | 50 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

Before of intervention of WASH program, 91% of respondents had responded that they wash their hands after meal and 64% had washed their hands before meal following 23% had washed after defecation. Similarly, 54% had washed after touch waste, 17% had washed before cooking and 11% had washed after child anal. Among them, 80% had responded that they washed their hands with water only and following 16% of them used soap and water to wash their hands and 4% used ash and water.

After the interventions of WASH program, among 313 respondents, 100% of respondents responded that they wash their hands after meal following 96% have responded about before the meal. Washing hands after defecation is 95%. Similarly, 74% of respondents responded that they wash their hands after washing child anal and 56% responded for after touch waste. However, only about 50% of them used soap and water to wash their hands. About 35% of respondents responded that they wash their hands with water only.

It shows the impact of the intervention is increasing but not at satisfactory condition yet.

4.2. Drinking Water Access and Quality:

Under the drinking water access and quality, the study had been collected the information of source of drinking water, daily water consumption, perception of water quality and practice of water purification.

4.2.1 Source of Drinking Water:

Water is a basis of life. Therefore, it should be available everywhere. Drinking water sources were not sufficient all over in Nepal even if Nepal is second richest country in the world. The study has been examined the source of drinking water before and after the intervention of WASH program in Harshahi.

Table 6:
Source of Drinking Water:

| Source of Water | Before | | After | |
|------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Tap Water | 0 | 0 | 276 | 88 |
| Unprotected Well | 307 | 98 | 37 | 12 |
| Streams/rivers | 6 | 2 | 0 | 0 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

Before the intervention of WASH program, the major points of the drinking water in the project area were dugwell source (98%) followed by streams/water (2%). There was not any spring water sources and tap stands.

After the intervention of WASH program, the most common water source is tap water (88%) distributing by lifting system taking water from a protected dug well to RVT. Total 12 water schemes has been distributing drinking water to community. Unprotected well (12%) is also alternative sources of water. Because of community ignorance, two community uses unprotected dug well. As Nepal Red Cross had completed the project finishing all construction of drinking water schemes.

4.2.2 Daily Water Consumption:

Drinking water is used not only for the drinking purposes but also for cooking, washing and bathing purposes. Mostly, women carry water for cooking and drinking purposes in the villages. Washing of clothes and utensils and bathing are usually done in the water sources so that carrying minimum water would be sufficient.

Table 7:
Daily Water Consumption:

| Water Consumption | Before | | After | |
|-------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Up to 25 lit/day | 13 | 4 | 16 | 5 |
| Up to 45 lit/day | 28 | 9 | 23 | 7 |
| Up to 80 lit/day | 69 | 22 | 143 | 46 |
| Above 80 lit/day | 203 | 65 | 131 | 42 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

Before intervention of WASH program, about 65% of the HHs had consumed more than 80 liters of water per day and about 22% consumed 45-80 liters per day. About 9% of respondents had consumed 26-45 liters and following 4% consumed only up to 25 liters.

After the intervention of program, about 46% of the HHs consumes up to 80 litre and 42% of households use more than 80 litres of water per day. Similarly, 7% of households consumes 26-45 litres and 5% consumes up to 25 liters per day.

The above table shows that the percentage of water consumption up to 80 litres seems increased and above 80 litres seems decreased. The

water management committee manages to consume of safe drinking water in two times in a day. Therefore, the percentage of water consumption has slightly changed.

4.2.3 Perception on Water Quality:

Maintain of water quality and use of safe water is important. Perception of community on water quality is different according to knowledge about it. Normally, water is considered good if it has no colour and no odour. So the respondents were asked about the perception of water quality.

Table 8:
Perception on Water Quality:

| Water quality | Before | | After | |
|---------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Good | 144 | 46 | 291 | 93 |
| Bad | 169 | 54 | 22 | 7 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

About 93% of the respondents responded that the quality of water they drink is good and 7% said the quality was bad.

Before the intervention of WASH program, 46% of respondents said that the quality of water they drank was good and 54% of them said the quality of water was bad.

It shows the perception of water quality after the intervention of WASH program is increasing to have good quality of water.

4.2.4 Practice of Water Purification:

In rural parts of the country, it is uncommon to purify water before drinking. All of the people drink water directly without boiling, chemical treatments and filtration.

Table 9:

Practice of Water Purification:

| Practice of water purification | Before | | After | |
|--------------------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Yes | 56 | 18 | 293 | 94 |
| No | 257 | 82 | 20 | 6 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

However, the case in Harshahi after intervention of WASH program, 94% of respondents drink water with purification before using it after intervention of WASH program and 6% of them drink without purify yet;

Before intervention of WASH program, only 18% of respondents drank water with purification before using it for drinking and left 82% of the Respondents drank water directly without purification.

The data shows the concept of water purification before the drinking is positively increasing. In open question, most of the responders who purify the water use filtration for water purification.

4.3. Sanitation Management:

Sanitation Management is also a part of three of WASH. Latrine construction, benefit of latrine, waste management, cleanness of house and sanitary components are included in sanitation management.

4.3.1 Latrine Coverage:

Latrine construction is a basic sanitation facility for a human. Sanitation starts from construction of latrine. Without latrine with a household left open defecation and it kept the population in risk of water borne disease. So, whole Nepal is now facing to have a latrine in a household with a sanitation and hygiene master plan. Harshahi is an ODF VDC in Sindhui. There had a latrine in every households. The study had crosschecked the reference document by real field observation.

Table 10:
Latrine Coverage:

| Latrine facility | Before | | After | |
|------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Yes | 44 | 14 | 313 | 100 |
| No | 269 | 86 | 0 | 0 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

Before intervention of WASH program, 86% of the respondents did not had latrine in their home. These 86% of the population had been openly defecating in the river banks, forest and other open places and only 14% of respondents have latrine but they had also not used the latrine properly.

Now, cent percent of the households have a latrine in their premises and all the constructed latrines were water sealed as the minimum standard by Nepal Government.

After observation of latrine in households, total number of respondents are not using it properly and many of them seem to be extra awareness activity.

4.3.2 Benefit from Latrine:

Having knowledge of benefit from latrine shows the concept of proper using of latrine. To know the knowledge of benefit of latrine respondents had been asked taking some conditions as below;

Table 11:
Benefit from Latrine:

| Benefit from Latrine | Before | | After | |
|---------------------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| To Children, old and sick | 16 | 5 | 69 | 22 |
| Home surrounding clean | 34 | 11 | 82 | 26 |
| Privacy | 22 | 7 | 46 | 15 |
| safe from disease | 28 | 9 | 103 | 33 |
| Social Prestige | 3 | 1 | 9 | 3 |
| Self esteem | 0 | 0 | 3 | 1 |
| No idea | 210 | 67 | 1 | 0 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

Most of respondents (33%) said that latrine saves lives from disease and following 26% said about home surroundings clean. Similarly, 22% said benefit to children, old and sick and 15% said for privacy.

Before the intervention of WASH program, Most of respondents (67%) had no idea about the benefit of latrine. Only 11% of them knew about home surroundings clean and following 9% said safe from disease.

It shows the knowledge of benefit about latrine has been increased because the conditions that is mentioned in above are equally important in every time.

4.3.3 Disposal of liquid waste:

Disposed of waste liquid is also an indicator of sanitation part. If a community has disposed of liquid in safe place, it shows they had had enough knowledge about sanitation. Therefore, the study had been asked and observed place of disposal of waste liquid.

Table 12:
Liquid Waste Disposal:

| Disposal Place | Before | | After | |
|-----------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Pit | 25 | 8 | 51 | 16 |
| Kitchen garden | 88 | 28 | 197 | 63 |
| Road side drain | 26 | 8 | 34 | 11 |
| Everywhere | 174 | 56 | 31 | 10 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

There are no facilities of public sewer; hence, 63% of the households throw their liquid waste in kitchen garden and grow different types of vegetable. About 16% of the households throw their liquid wastes in their pit. Similarly, 11% of households throw roadside drain and rest of them throw everywhere.

Before intervention of WASH program, about 56% of the HHs had practice to throw their liquid wastes everywhere and 28% had practice

to throw in kitchen garden. Left 16% of those had practice to throw in pit and roadside drain equally.

It shows the practice of liquid waste disposal is not sufficient yet. For improvement from this condition, it should be implemented extra orientation classes about proper sanitation.

4.3.4 Flies in house:

Housefly is the most dangerous means of water borne diseases. It has to be reduced in house means the sanitation condition has been improved. Therefore, the study had been observed flies in respondents' house.

Table 13:
Flies in house

| Flies in house | Before | | After | |
|----------------|------------|------------|------------|------------|
| | Responders | % | Responders | % |
| Yes | 291 | 93 | 97 | 31 |
| No | 22 | 7 | 216 | 69 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

The study found that 31% of respondent's households were seen flies in their house and left 69% observed and found clean surroundings.

Before intervention of WASH program, 93% of respondents were seen flies in their houses and left 7% households were clean surroundings.

The study shows the sanitation awareness in community has increased after the intervention of WASH program.

4.3.5 Clean of House Surrounding:

Cleanness of house is also an indicator of knowledge on sanitation. It means who have enough knowledge of sanitation, they clean their house surrounding every day and they have used waste bin to dispose waste produced from house. The study had been observed the cleanness of house surrounding to find the knowledge and status of sanitation.

Table 14:

Clean of House Surrounding:

| Clean of house surrounding | Before | | After | |
|-----------------------------------|-------------------|------------|-------------------|------------|
| | Responders | % | Responders | % |
| Yes | 112 | 36 | 231 | 74 |
| No | 201 | 64 | 82 | 26 |
| Total | 313 | 100 | 313 | 100 |

Source: Field Study 2016

The study observed and found that 74% of respondents had cleaned of house surrounding and left 26% have house surroundings to be cleaned.

Before intervention of WASH program, only 36% of respondents had cleaned house surrounding and left 64% of respondents had house surroundings to be cleaned.

There is not any program that had been cent percent successful. There would have to be left many areas for achieving the targets. As other program, the WASH program has not achieved the targets. Moreover, on the based on resources and other WASH program implemented in district, it is successful program in Sindhuli.

Chapter - Five

EFFECT OF VARRIABLES ON WATER AND SANITATION

The relation between independent variables and KAP on WASH has been examined. This is in order to find out the possible strategic ways to increase KAP level by changing the levels of associated variables. For this reason, the analysis concerns mainly those things that are relatively amenable to change: such as literacy, presence of latrines, type of water source, treatment of drinking water, knowledge about disease. The analysis has been done taking by consideration of independent variable such as; age and Literacy.

Knowledge, Attitude and Practice on WASH:

To find out the KAP level on water and sanitation program in Harshahi, the questions about these were therefore deliberately included in the questionnaire. The variables examined are: type of water source; perceived water quality; treatment of drinking water; hand washing practices; presence and use of latrines; and literacy of respondents.

5.1. Knowledge on WASH:

5.1.1. Knowledge about cause of disease:

It was asked to respondents about presence and absence of knowledge about disease when they go to defecate open area or not defecate in latrines.

Table 15:

Knowledge about cause of disease by age:

| Knowledge about disease | Age | | | |
|-------------------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 114 (36%) | 89 (28%) | 35 (11%) | 9 (3%) |
| No | 21 (7%) | 30 (10%) | 9 (3%) | 6 (2%) |

Source: Field Study 2016

Most of 16-29 age group respondents answered that they had knowledge about adverse effect to health defecating open area. There also seems the relation that when age groups increase the knowledge found decrease in case of Harshahi.

Similarly, the same question was analyzed by literacy group.

Table 16:

Knowledge about cause of disease by literacy:

| Knowledge about disease | Literacy | |
|-------------------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 139 (44%) | 108 (35%) |
| No | 39 (12%) | 27 (9%) |

Source: Field Study 2016

We can see that generally the correlation between literacy and knowledge about disease after defecation is directly proportional. Higher literacy is higher the knowledge.

5.1.2. Knowledge about transmission of Diarrhoea:

Knowledge about transmission of diarrhoea had been analyzed based on age group of community. Illness of disease depends on community awareness and received knowledge of what about disease causes.

Table 17:

Knowledge about transmission of Diarrhoea by age:

| Diarrhoea Transmission | Age | | | |
|-------------------------------|------------------|------------------|------------------|-------------------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 102 (33%) | 76 (24%) | 32 (10%) | 7 (2%) |
| No | 33 (11%) | 43 (14%) | 12 (4%) | 8 (2%) |

Source: Field Study 2016

33% of 16-29 yrs age group, 24% of 30-44 yrs age group, 10% of 45-60 yrs and 2% of >60 yrs age group have positive knowledge on transmission of diarrhoea. It shows that knowledge on transmission of diarrhoea decreasing pattern when age bar is increasing.

Similarly, the same question was analyzed by literacy group.

Table 18:

Knowledge about transmission of Diarrhoea by literacy:

| Diarrhoea transmission | Literacy | |
|-------------------------------|-----------------|-------------------|
| | Literate | Illiterate |
| Yes | 142(45%) | 75(24%) |
| No | 36(12%) | 60(19%) |

Source: Field Study 2016

45% literate and 24% illiterate have knowledge about transmission of diarrhoea. This means that literacy and knowledge about transmission of diarrhoea have positive correlation. Higher the literacy is higher the knowledge on transmission of diarrhea.

5.1.3. Knowledge about prevent of diarrhoea :

When the analysis based on knowledge about prevent of diarrhoea in different age groups, the result found that knowledge is decreasing when age groups is increasing.

Table 19:

Knowledge about prevent of diarrhoea by age:

| Prevent of diarrhea | Age | | | |
|---------------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 98 (31%) | 89 (28%) | 29 (9%) | 7 (2%) |
| No | 37 (12%) | 30 (10%) | 15 (5%) | 8 (3%) |

Source: Field Study 2016

This data shows that knowledge about prevent of diarrhoea is decreasing trend when age groups is increasing. This is directly correlation to age groups;

Similarly, the same question was analyzed by literacy group.

Table 20:

Knowledge about prevent of diarrhoea by literacy:

| Prevent of diarrhea | Literacy | |
|---------------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 154 (49%) | 69 (22%) |
| No | 24 (8%) | 66 (21%) |

Source: Field Study 2016

49% of literate and 22% of illiterate have clear knowledge about prevent of diarrhoea. The illiterate have lesser knowledge than literate one. Therefore, literacy has direct relation to knowledge about prevent of diarrhoea;

5.1.4. Knowledge about treatment of diarrhoea :

When we try to find out the relation between age and knowledge about treatment of diarrhoea, it shows that increasing the age bars decrease the knowledge about treatment of diarrhoea.

Table 21:

Knowledge about treatment of diarrhoea by age:

| Treatment of diarrhea | Age | | | |
|-----------------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 103 (33%) | 80(26%) | 30 (10%) | 8 (3%) |
| No | 32 (10%) | 39 (12%) | 14 (4%) | 7 (2%) |

Source: Field Study 2016

The study has analyzed 16-29 yrs age group have greater than 30-44 yrs age group and following 45-60 yrs and >60 yrs age group on knowledge about treatment of diarrhoea. It shows the low age group has high knowledge about disease.

Similarly, the same question was analyzed by literacy group.

Table 22:

Knowledge about treatment of diarrhoea by literacy:

| Treatment of diarrhea | Literacy | |
|-----------------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 147 (47%) | 74 (24%) |
| No | 31 (10%) | 61 (19%) |

Source: Field Study 2016

Knowledge about treatment of diarrhoea was seen higher in literate respondents against illiterate respondents. 47% literate and 24%

illiterate have knowledge about it which is clearly less percentage in illiterate respondents.

5.2. Attitude on WASH:

5.2.1. Flies in house:

Observation was conducted during collection of households data of respondents' related. Contrary, as knowledge and practice level is greater in lower age groups, but behavior part of them was found opposite.

Table 23:
Flies in house (observation) by age:

| Flies in house | Age | | | |
|----------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 42 (13%) | 33 (11%) | 15 (5%) | 7 (2%) |
| No | 93 (30%) | 86 (27%) | 29 (9%) | 8 (3%) |

Source: Field Study 2016

The result shows that households flies seen decreasing in increasing age bars. That means higher age bars have higher the positive behavior or attitude.

Similarly, the same question was analysis by literacy group.

Table 24:
Flies in house (observation) by literacy:

| Flies in house | Literacy | |
|----------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 34 (11%) | 63 (20%) |
| No | 144 (46%) | 72 (23%) |

Source: Field Study 2016

By observation of respondents households, relate to it with literacy of respondents-we can make conclusion that literate have less flies in their households than illiterate .This is to say that attitude level of literate is more positive than illiterate on households' sanitation. However, flies in house also cause of animal shed in or near the households

5.2.2. Clean of house surroundings:

Cleanness of respondents' households was observed during the data collection time. Then coding of data was done and analysed as following;

Table 25:

Cleanness of house surroundings (observation) by age:

| Cleanness of house surroundings | Age | | | |
|---------------------------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 109 (35%) | 85(27%) | 28 (9%) | 9 (3%) |
| No | 26 (8%) | 34 (11%) | 16 (5%) | 6 (2%) |

Source: Field Study 2016

The results show that cleanness is higher in lower age groups than higher age groups. This means that attitude on households cleanness is positive in lower age group.

Same way, comparatively respondents' households were observed with literacy of respondents.

Table 26:

Cleanness of house surroundings (observation) by literacy:

| Cleanness of house surroundings | Literacy | |
|---------------------------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 138 (44%) | 93 (30%) |
| No | 40 (13%) | 42 (13%) |

Source: Field Study 2016

The results show that literate have higher positive attitude than illiterate one on cleanness of households surroundings.

5.3. Practice on WASH:

5.3.1. Source of Water:

Source of water who use for drinking is related to be safe and adequate. Community asked more options about source of water means they are conscious in water. The distributing water by lifting system considered the community as good quality for drinking. Which is analysed by age group as following;

Table 27:

Water source by age:

| Safe water source | Age | | | |
|-------------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 119 (38%) | 108 (34%) | 37 (12%) | 12 (4%) |
| No | 16 (5%) | 11 (4%) | 7 (2%) | 3 (1%) |

Source: Field Study 2016

It seems that 16-29 years of respondents are more conscious about health and it may be right to have a high regard for the quality of their water. People apparently judge water quality mainly based on such things as taste, smell and colour.

The analyses on practice of using safe water source by respondents with their literacy were examined.

Table 28:
Water source by literacy:

| Safe water source | Literacy | |
|-------------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 247 (79%) | 29 (9%) |
| No | 22 (7%) | 15 (5%) |

Source: Field Study 2016

According to results of the study, it seems that literate respondents have higher percentage (79%) of safe water source used than illiterate respondents (9%).

5.3.2 Treatment of Drinking Water:

As mentioned above, most of households do anything to their water before drinking it, whatever its source.

Table 29:
Water treatment by age:

| Water Treatment | Age | | | |
|-----------------|-----------|-----------|-----------|---------|
| | 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
| Yes | 127 (41%) | 112 (36%) | 42 (13%) | 11 (4%) |
| No | 7 (2%) | 7 (2%) | 2 (1%) | 4 (1%) |

Source: Field Study 2016

Among respondents having water treatment before drinking, positive attitude of water treatment is decreasing in increasing age group.

Same way, comparatively respondents' households were observed with literacy of respondents.

Table 30:

Water treatment by literacy:

| Water treatment | Literacy | |
|-----------------|-----------|------------|
| | Literate | Illiterate |
| Yes | 164 (52%) | 129 (41%) |
| No | 14 (5%) | 6 (2%) |

Source: Field Study 2016

The water treatment practice with literacy of respondents, we can easily see that the practice is higher in literate than illiterate. It was crossed checked in households' observation and found strong correlation with this practice.

5.3.3. Hand Washing Practices:

It seems likely that hand washing practices, especially of those who prepare food, are related to age and literacy. However, in practice this is difficult to investigate. A straight question such as 'do you wash your hands before preparing food?' is likely to provoke a positive answer, whatever the actual practice. The question used here about 'when do you wash your hands?' in the event produced so many different and combined answers that it has not proved possible to demonstrate a vivid relation with independent variables.

5.3.4. Latrines:

Harshahi is an ODF VDC in Sindhuli district. Every households of this VDC has a water-sealed latrine to defecate. The study showed the total respondents have latrine to use it in any time they need. The practice of use of latrine seems good and all of the population used it properly. Thus, it is not necessary to examine the relation with variables.

Chapter 6

SUMMARY AND CONCLUSIONS:

6.1. Summary:

The Sociological study of Harshahi VDC of Sindhuli district titled "Knowledge, Attitude and Practice (KAP) on Water and sanitation program" had conducted keeping objectives to suggest programmatic recommendations to sustain the WASH program in future identify the status of water and sanitation and analyzing the KAP of community. To find out the status of community awareness on WASH researcher had observed basically three areas in Water, Sanitation and Hygiene.

The study had reviewed national situation of water and sanitation and it found that the national targets was for access of safe drinking water and basic sanitation for all by 2017. Now the coverage of population with access of basic level of water supply is around 86 percent and access of basic level of sanitation facility is 62 percent. Moreover, weak implementation of act, policy and procedure, limitation of budget, division of limited resources in unlimited project, weak management and lack of renovate and maintenance of repairable DWS are the main causes of obstacles to be achieved the targets and improved the KAP level.

To achieve the targets of the study, researcher had designed a research design to be simplify and well managed the working. Only one third (313) households were selected as sample from different ward, caste, age, gender and literacy group for collecting the data of study and household survey, personal interview, observation and focused group

discussion tools used with structured questionnaire for primary data and secondary data was collected from different books, publications, articles and progress reports.

The KAP study of water and sanitation in Harshahi VDC shows that the intervention of water and sanitation conducted by Nepal Red Cross Society is best as shown on project report and D-WASH-CC told. There has good knowledge and practice in examining variables and attitude is also positive.

The KAP study revealed that promotion of households' latrines appears considerable with cent percent of respondents claiming to always their own latrines for defecation day and night. Although this was a self-reported answer but observation showed the knowledge of the importance of latrine is lower than latrine construction's percentage. Though the knowledge about latrine is lower, it is the satisfied condition and positively increasing.

The population is still suffering from severe diseases relating to poor water and unsanitary practices. There has to raise health standards in villages, beneficiaries require a more comprehensive health education package. Agencies should do in coordination actively in the sector, consider expanding their water use and hygiene promotion activities into other health areas such as the promotion of good food hygiene practices, nutrition and hand washing, particularly amongst the younger generation.

The quality of the water remains the main criteria for the choice of the water source. 93% of respondents who drink distributing water said

good quality to drink and left 7 % said the quality of water was bad. It showed the quality of water is good and they had enough knowledge about the water quality.

The study showed that before consumption of the water, 94% of the responders have practice of water treatment and 6% responders don't do anything still now. This showed in part of water treatment there is best practice.

The practice of treatment of disease has increased to go to health institution and domestic treatment. Having knowledge about cause and prevent of disease, beliefs to health institution, first aid trainings and snake bites' first aid training, community leaved to go to traditional healer.

The study showed the diarrhoeal management knowledge is poor than other knowledge in WASH in Harshahi. Knowledge about prevent and treatment of diarrhoea is slightly higher than knowledge about transmission but all of it is not sufficiency condition in program.

Hand washing practice with soap water is the main part of sanitation and hygiene. Hand washing without soap and no hand washing is same condition to transmit of disease. Study showed the respondents have practice of hand washing but the use of soap is seen encouraging practice (50%). The practice of hand washing with soap water should be increased as per its importance.

6.2 Conclusion:

After completing the study, the program been implemented in Harshahi found a better intervention in community. The knowledge on water and sanitation found better in all community. Similarly, the attitude on WASH is also found equivalently increased to be better. Maximum community has enough knowledge on it and found implementing in practice. But the percentage of practice found less than the percentage of knowledge and attitude. It shows the community behavior has to be changed in real life. Having a good knowledge and attitude but do not practice in behavior is not a good condition and message. It seems the program is low sustainable in future. Therefore, the program should take further more effective ways to be sustained.

6.3 Recommendations:

The result of the study after taking data, observation and analysis of data with different independent variables, It can say that the WASH program of Harshahi was successful program on WASH as claimed by NRCS and D-WASH-CC Sindhuli. I also say it was best WASH program in Sindhuli leaving some part of activity to be corrected. Moreover, to achieve best achievement correcting lacking field, I suggest the following programmatic recommendations have been made for consideration in future WASH interventions:

1. New models in the hygiene education components relating to the promotion of hand washing and good food hygiene practices should be sought.

2. Expand the water quality testing program to focus on the bacteriological testing of household water at the point of consumption. Ensure that a full feedback is given to those households participating in the testing.
3. Great emphasis should be given for conducting water use and hygiene education promoting the point of use, treatment of water as a method of ensuring 'safe' drinking water.
4. Consider conducting hygiene education workshops that focus solely on diarrhoea; causes, treatments & prevention.
5. Focus attention on the importance of safe water storage through the promotion of separate drinking water containers fitted with a cover.
6. Raise awareness of the importance of good hygiene practices through the promotion of participatory sanitary monitoring of both the water points and households by water use committee members.
7. As poor food hygiene practices appear to be a major transmission route for a number of diseases, consider conducting a training that focuses solely on good food hygiene. Ensure the training is well-attended and the participants appropriately motivated.

Consider activities into the sanitation sector in particular, school and community sanitation and hygiene promotion:

1. Assessment and implementation should be addressed the demand for household latrines in the target area.

2. A full assessment should be conducted of the water & sanitation situation in all schools in the VDC
3. All schools in the area should be ensured equipped with a sanitary water supply and an appropriate number of latrines. Ensure that all school latrines are installed with hand washing stations.
4. Consideration should be focused for providing beneficiaries with an extensive latrine program. Ensure such a program does not solely focus on the most vulnerable groups but targets entire communities by providing beneficiaries the opportunity to contribute to the construction costs of the latrine. Mechanisms for including the most vulnerable groups in the program should be developed.

REFERENCES

- Z **Andrea C. Telmo** (2002), *A Water Supply and Sanitation Study of The Village of Gounsolo in Mali, West Africa*, Michigan Technological University
- Z **Annan Kofi** (2010), *An Unpublished speech for UN Conference*, United Nation
- Z **Central Bureau of Statistics** (2006), *Human Development Report*, National Planning Commission Secretariat, Government of Nepal
- Z **Central Bureau of Statistics** (2011), *Human Development Report*, National Planning Commission Secretariat, Government of Nepal
- Z **Centre Bureau of Statistics** (2014), *Nepal Multiple Indicator Cluster Survey 2014*, National Planning Commission Secretariat, Government of Nepal,
- Z **Department of Water Supply and Sewerage** (2008), *Water Sanitation and Hygiene Sector Report*, Ministry of Physical Planning and works, Nepal
- Z **District Water, Sanitation and Hygiene Coordination Committee Sindhuli (D-WASH-CC)** (2015), *Quarterly Update of WASH*, Drinking Water Supply and Sanitation Division Office, Sindhuli
- Z **Drinking Water Supply and Sanitation Division Office Sindhuli** (2015), *Sindhuli WASH Update Report*, Division of Water Supply and Sanitation Office Sindhuli, WASH Cluster
- Z **Federation of Drinking Water and Sanitation User Nepal** (2012), *Declaration of National WASH summit 2012*, <http://www.fedwasun.org/files/uploads/>
- Z **Ministry of Urban Development** (2014), *National Urban Water Supply and Sanitation Sector Policy*, Government of Nepal,

opmcm.gov.np/userfiles/npolicy/Urban/Urban_WSSPolicy.pdf

- Z **Mishra, Nabalkishor** (2012), *Policy on Water and Sanitation, Problems and Recommendations*, Fund Board, Kathamandu
- Z **National Minimum Indicator Project and Department of Water Supply and Sewerage** (2011), *Nationwide Coverage and Functionality Status of Water Supply and Sanitation in Nepal*, Ministry of Physical Planning and works, Nepal
- Z **National Planning Commission** (2013), *Nepal Millennium Development Goals Progress Report 2013*, Government of Nepal, www.npc.gov.np/images/download/mdg-report-2013.pdf
- Z **National Planning Commission** (2014) *The Thirteenth Plan (2014-2016)*, Government of Nepal, <http://www.npc.gov.np/images/download/13th-Plan.pdf>
- Z **Nepal Red Cross Society** (2012), *Base line survey of Harshahi VDC in Sindhuli district*, Nepal Red Cross Society, Community Development Department
- Z **Nepal Red Cross Society, Sindhuli** (2013-2015), *Annul Report of SHWM Project Harshahi 2013, 2014, 2015*, Nepal Red Cross Society (NRCS), Sanitation Hygiene and Water Management Project
- Z **Panta Sudarshan** (2072), *Constitution of Nepal with Analytical Note 2072*, S.P. Prakashan, Kathamandu Nepal.
- Z **Rai Amrit** (2011), *Measuring Service Delivery Effectiveness; A case of Rural Sanitation - Nepal/IDEAS GA*. Pokhara, Nepal: Rural Water Supply and Sanitation Project in Western Nepal (RWSSP-WN).
- Z **Rupakheti Sanjiv** (2013), *Evaluation of Rural Sanitation Alternatives in Nepal Using Decision Support System (DSS) Approach*, Uppsala University, Department of Earth Sciences Master Thesis E, in Sustainable Development, 30 credits Printed at

Department of Earth Sciences, Geotryckeriet, Uppsala University, Uppsala

- Z **Shrestha, Namaste Lal** (2007), *Sanitation Situation in Nepal and It's Importance*, An Unpublished Project report, Poverty Alleviation Fund (PAF), Kathmandu
- Z **Steering Committee for National Sanitation Action, Nepal** (2011) *Sanitation and Hygiene Master Plan*, Government of Nepal
- Z **The Millennium Task Force** (2008), *A study report of water and sanitation*, United Nation Nepal country office
- Z **UNISEF Nepal Country Office** (2011), *Improved Water Source*, UNICEF WASH section, Nepal country office
- Z **UNICEF Nepal Country Office** (2014), *A One Wash Report*, UNICEF Nepal Country Office, WASH section
- Z **Water Aid** (2012), *Global Water, Sanitation, and Hygiene*, A study report, United Nation
- Z **Wellington Chrissie** (2005), *An informal update paper on the status of community Led Total Sanitation (CLTS) in Nepal*, <http://www.communityledtotalsanitation.org/resource/informal-update-paper-status-community-led-total-sanitation-clts-nepal>
- Z **WHO/UNISEF** (2010), *Joint Monitoring Programme for Water Supply and Sanitation*, United Nation.
- Z **World Health Organization** (2000), *Water borne disease survey*, World Health Organization
- Z **World Health Organization** (2008), *WHO guidelines on Hand Hygiene in Health Care*, World Health Organization

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**Knowledge, Attitude and Practice (KAP) of Water and Sanitation
Program**

(A sociological study of Harshahi VDC, Sindhuli District)

Household level questionnaire:

Harshahi VDC

Ward#:.....

Tole:.....

1. Name of Respondent:

2. House#:.....

3. Age group of Respondent:

| 16-29 Yrs | 30-44 Yrs | 45-60 Yrs | >60 Yrs |
|-----------|-----------|-----------|---------|
| | | | |

4. Literacy:

| Illiterate | Literate | | |
|------------|----------|------|-------|
| | <SLC | 10+2 | >10+2 |
| | | | |

5. Caught any diseases during the last one year?

| Any disease | Before program | After program |
|-------------|----------------|---------------|
| Yes | | |
| No | | |

6. Where do you go for treatment of disease in first?

| Place for treatment | Before program | After program |
|---------------------|----------------|---------------|
| Health institution | | |
| Health worker | | |
| Traditional Healer | | |
| Domestic Treatment | | |
| No treatment | | |

7. Do you have any knowledge about cause of disease?

| Cause of disease | Before program | After program |
|-----------------------------|----------------|---------------|
| Illiterate | | |
| Ignorance | | |
| Lack personal hygiene | | |
| Contaminated water and food | | |
| Lack of waste management | | |
| No idea | | |

8. Do you have knowledge about transmission of diarrhoeal disease?

| Knowledge about transmission | Before program | After program |
|------------------------------|----------------|---------------|
| Yes | | |
| No | | |

9. Do you have knowledge about prevention of diarrhoea?

| Knowledge about prevent | Before program | After program |
|-------------------------|----------------|---------------|
| Yes | | |
| No | | |

10. Do you have knowledge about treatment of diarrhoea?

| Knowledge about treatment | Before program | After program |
|---------------------------|----------------|---------------|
| Yes | | |
| No | | |

11. Do you have a practice of hand washing? (Can choose one or more)

| Conditions of Hand Washing | Before program | After program |
|----------------------------|----------------|---------------|
| After defecation | | |
| Before cooking | | |
| Before meal | | |
| After meal | | |
| Wash child anal | | |
| After touch waster | | |

12. If yes, what do you use for hand washing?

| Means for Hand Washing | Before program | After program |
|------------------------|----------------|---------------|
| Only Water | | |
| Ash water | | |
| Soap water | | |

13. What is the main source of drinking water?

| Source of water | Before program | After program |
|------------------|----------------|---------------|
| Tap water | | |
| Unprotected Well | | |
| Streams/rivers | | |

14. How many water consume you in a day?

| Water consumption | Before program | After program |
|-------------------|----------------|---------------|
| <25 litres | | |
| <45 litres | | |
| <80 litres | | |
| >80 litres | | |

15. What do you think about water quality what you use daily?

| Water quality | Before program | After program |
|---------------|----------------|---------------|
| Good | | |
| Bad | | |

16. Do you have practice of water treatment before using?

| Water treatment | Before program | After program |
|-----------------|----------------|---------------|
| Yes | | |
| No | | |

17. Do you have latrine facility?

| Latrine facility | Before program | After program |
|------------------|----------------|---------------|
| Yes | | |
| No | | |

18. What is the advantage of latrine?

| benefit of latrine | Before program | After program |
|---------------------------|----------------|---------------|
| To children, old and sick | | |
| Home surroundings clean | | |
| Privacy | | |
| Safe from disease | | |
| Self esteem | | |
| No idea | | |

19. How do you dispose waste liquid?

| Disposal Place | Before program | After program |
|----------------|----------------|---------------|
| Pit | | |
| Kitchen Garden | | |
| Road side | | |
| Everywhere | | |

20. Is there cleanness of house surrounding? (Observation)

| Cleanness of house | Before program | After program |
|--------------------|----------------|---------------|
| Yes | | |
| No | | |

21. Is there any flies around the house? (Observation)

| Flies in house | Before program | After program |
|----------------|----------------|---------------|
| Yes | | |
| No | | |