

**An Assessment on Drinking Water Supply, Sanitation & Hygiene
In Limithna Village Development Committee
Parbat District, Nepal**

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LETTER OF RECOMMENDATION

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CHAPTER-ONE

INTRODUCTION

1.1 General Background of the Study

Nepal is divided administratively into 5 development regions and 75 districts. Village development committees (VDC) and municipalities are the lower administrative units in each district. Each VDC is comprised of 9 wards and the wards in a municipality range up to 35. Currently there are 3915 VDCs and 58 municipalities in the country. Ecologically, Nepal is divided into 3 regions called the mountain region, Hilly region and the Terai region (CBS 2001, p. 3)

In the past, Nepal was introduced by Hindu kingdom among South-Asian countries. By the interim constitution 2063, it is converted as secular state. It extends from 26⁰22' north to 30⁰27' north latitude and 80⁰4' east to 88⁰12' east longitude. Its average length from east to west is 885 km and average breadth is 193 k. m. (CBS 2001 p, 1)

The country has a great variety of topography, which is reflected in the diversity of weather and climate. The country experiences tropical, micro thermal, taiga and tundra types of climate. (CBS 2001 p, 5)

Water is the largest natural resource of Nepal. Nepal has more than 6000 rivulets and rivers. Annual mean flow of major rivers of Nepal is estimated to be 4930 cubic m/sec. Despite huge amount of water flow, there is lack of drinking water, as a result, inadequate access to safe water supplies, combined with poor environmental sanitation conditions and personal hygiene practices. These are major factors impeding the improvement to health condition in Nepal. Only 985546 ha. of total land is irrigated and 2215000 population is benefited for drinking water supply by 2003. The Department of Water Supply and Sewerage, the leading government agency has provided drinking water facility to the 123000 people by 2003 (CBS 2004).

The importance of water for our life clarifies the necessity to conserve this resource. With the intention of making world people aware about safe drinking water, the world drinking water day is being celebrated with different slogans every year on 22 March. Besides, majority of the rural population lives under very difficult living situation with a little facility of drinking water and sanitation. Within every five persons of developing countries, three are not achieving the necessary sanitary facility. This lack of adequate water for domestic purposes and lack of awareness of the importance of sanitation results into poor health condition. One of the basic objectives of water supply importance in rural Nepal is to improve the rural people's health (Shakya, 2005).

The development of successful life is possible only with water. Without water, existence of living creature is impossible. So, safe and clean drinking water is the basic need for the people.

Water is used for multi-purposes including drinking, bathing, washing and cleaning, agriculture, industries, hydropower generation as well as religious and recreational values such as swimming, fishing and different forms of eco - tourism.

In Nepal, the monsoon period with heavy rains occurs between mid-June and September. About 82 percent of the precipitations is confined to the monsoon period. A number of rivers flow from north to south originating from the snow of the Himalayan range. The river system of the country is made up of three main rivers Kosi, Gandki, and Karnali and their tributaries. There is plentiful perennial streams in the hill, and seasonally fluctuating rivers and shallow and deep ground water in the Terai.

The population of Nepal has always been increasing because of its high growth rate. The number of birth is higher than the number of death. The world's population is growing up by 80 million per year. In Nepal the total population will reach to 32.7 million by 2015 (UNDP/HDR, 2000, P.125). The annual population growth rate is recorded as 1.4 percent (CBS, 2011). About 80 percent of the total population depends on agriculture. The large and rapidly growing population makes reversal contribution to all environmental problems. So far as the water problems are concerned in terms of population, the water problems have become ever more severe.

Nepal is rich in natural resources but due to poor economic conditions, people do not have good access to safe drinking water facility. So, they are suffering from various kinds of water borne disease, viz. typhoid, cholera, jaundice, worm- infection and amoebic dysentery. The water resources are not available near most of the rural areas. The government of Nepal thinks over such problem and has started to invest annual budget for good management of the drinking water and sanitation sector. New, various INGOS, NGO and other social institutions have also started to work in the field of drinking water, sanitation and hygiene. Drinking water is the basic need of all human being. Provision of convenient, safe, clean and adequate drinking water is the declared commitment of government of Nepal. It has been realized that the development of water supply and sanitation sector (WSSS) brings in chained socio-economic benefits and public health improvements. Population growth, rapid urbanization and industrialization are impressing rapidly growing demands of water supply. It pressurizes the government for the development of water resources. The growing imbalance between the demand and supply has brought various problems. Poor water supply, sanitation and hygiene conditions have given rise to diarrhea, dysentery, hepatitis and parasites diseases and have exacerbated anemia and malnutrition among children. These diseases frequently take on epidemic form causing sudden heavy demands of health services, which have only limited resources to combat these out breaks. The same source of water is used for animal husbandry as well as to the human, which is not safe, clean and healthy. Generally in practice, drinking water for domestic animals has been taken from ill-managed ponds, which are made by local people.

Water is one of the natural resources which is farmed fugitive resource is mobile and must be captured before it can be allocated to individuals or groups. The thrown water can also be used in kitchen gardening where people produce fresh vegetables which helps them to generate income.

Water right has been developed as property rights and the basic principles governing prior appropriation provided security for this prosperity right. The priority system that was adopted, dictated that the first user in time had the superior right .

There is a long standing tradition of charging a very small amount for water. So, the revenue received from this system is very low. This has not only placed a heavy burden on the government but also has often led to inflationary borrowing.

The first piped water supply system in Nepal dates back to 1895 AD. The piped water system brought in to some areas of Kathmandu was known as Bir Dhara. Although the planned period started from 1956-62, greater stress on the development of rural water supply was stressed from the fourth plan period (1970-75) onwards. The advent of the International Water Supply and Sanitation Decade (IWSSD), a national plan for the sector was prepared so as to cover 67 percent of the total population with piped water supply and some 13 percent with adequate sanitation facility. Adequate thrust was given during the national plan periods (75 year plan) but failed for the development of the sector with the allocation of same 4 percent of the national annual budget for the water sector along. The achievement through was for less to that the ambition target in both water supply and sanitation during the decade, but the impetus that was given for the sector development was, however, an encouraging development. In 1972, a separate agency dealing inclusively with the sector was realized and Department of Water Supply and Sewerage (DWSS) was established. DWSS since then it has been responsible for supplying water to rural and some verberna areas of Nepal. The Water Supply and Sewerage Board (WSSB) was established in 1973 to take care of sector development in same major urban centres. WSSB was established in 1984, it was renamed as Nepal Water Supply Corporation (NWSC) 1990. Three municipalities outside the valleys are the working area of the NWSC. The municipality water supply system are run under the DWSC also had set a target to handle over to the NWSC gradually. For the development of small scale water supply projects with the maximum participation from the beneficiary communities the ministry of local development was held responsible.

Lack of water supply is the problem of the nation as a whole being a hilly area there is a high cost involved in supplied water and the revues received from water tariff is nominal. On the other hand, the demand for water is increasing every day, and the supplied piped water is insufficient to meet the demand of the people due to several causes as well as the leakage of water. So the current question is how to increase to supply of water and reduce the leakage of water. The appropriate pricing of water may help in water supply and decrease in leakage of water.

1.2 Statement of the problem:

Though, Nepal is one of the poorest countries of the world, it is the second richest country in water resources. There is no satisfactory utilization of water supply because of the poor economic condition and other domestic problem, such as lack of technology, unskilled manpower etc. Therefore, these resources have not properly been used. Lack of safe drinking water and the poor environmental sanitation is the recent phenomenon in Nepal. Most of the urban water supply schemes are intermittent seasonally and contaminated by human and animal waste.

There are various problems, which are overviewed in local level in getting access of drinking water and sanitation of the study area. Firstly, it has been very difficult to manage the position of taps because of the lack of large source of water. The houses are not near to each other. As a result, one tap covers only 3-4 houses and another tap covers 6-10 houses. Because of this scattered settlement it has been very difficult to supply watering this area properly. Again, the programs including training, seminar and discussion have not been held regularly. As a result, in the lack of public awareness, there has been problem of sanitation in the study area. Females are busy in domestic works. So it seems that female participation is very less than the participation of male in the construction.

The people of the study area are living with poor economic condition because of the lack of income generation activates. They don't have affordability to water services. Similarly, the study area does not have proper market. So the agricultural goods produced by the people have not been consumed and there is declination of income generation activities. Because of the lack of industrial development of this rural area, people are obliged to live poorly.

The increasing population in Limithana Village Development Committee (hereafter VDC) of Parbat district demands more quantity drinking water to be increased. As the increase in demand has not been met by corresponding increase in water supply, Limithana VDC has been experiencing water shortage in recent years. The present study is confined to water supply, sanitation and hygiene in Limithana VDC area of Parbat district along with the people's participation and its impact in the society. Still there are many issues, which have not been properly addressed; they are:

1. How do people get drinking water easily?
2. What is the condition of water supply and sanitation?

3. How do they show their participation in water supply sanitation and hygiene programme?

1.3 Objective of the study- :

The broad objective of the study is the assess of the socio economic implication of water supply, sanitation and hygiene in Limithana VDC of the Parbat district. The specific objectives of the present study are as follows-:

1. To assess the availability of water supply, sanitation and hygiene in the study area.
2. To explain the people's participation of water supply, sanitation and hygiene in the study area.
3. To look at impact of water supply, sanitation and hygiene in the study area.

1.4 Significance of the study -:

This dissertation entitled as *“An Assessment of Drinking Water Supply, Sanitation and Hygiene in Limithana Village Development Committee”* is an anthropological case study of Limithana VDC, Parbat. The specific objective of this research is to study the socio-economic impact of drinking water and people’s participation in rural area. Thus, it also helps for the academicians and other scholars and development practitioners, policy makers to analyze development processes and its impacts.

Drinking water is recognized as one of the most important basic need of the people. Provision of safe drinking water in adequate quantities is the present requirements of the people. Public water supplies are in operation to meet the changing requirements of the consumers. Subsequently, the quality of drinking water has become a prominent issue in these days. The government policies are to ensure sustainability and ownership by the users groups, particularly in the rural areas.

The sources of drinking water are in the condition of scare. There drought and the population is increasing rapidly. So, assessment of drinking water and proper sanitation management will be a challenging matter.

The study had importance both in National and local level. In national level it is helpful to make policies to manage water resources properly and remove poverty and other problems of the rural area by the means of proportional distribution of safer drinking water supply. Not only that, but also the study helps many institutions and associations to make plan for the development regarding many rural areas like the study area. Besides, the study informs about the present and past situation in terms of water supply and other subjects such as water borne diseases. The study provides the history of water supply and gives real information about the study area. It is useful to know the improvements and changes in the rural parts of the country. It also gives focus on people's participation, gender awareness, income generation and affordability which are essential for the policy makers of national and local level. It will be also helpful to researchers, students and persons interested in this sector.

1.5 Limitation of the Study

It is true that each research work has some limitations. So, the present study has also some constraints. This research is conducted in a specific place. That is why, the generalization made after this study may not applicable to other parts of the country, which have their own socio-cultural patterns & status. Hence, it is used for only study.

The study has fully focused on the area Limithana VDC of Parbat district. So results of this study may not represent the problems of the country as a whole. But the study has observed some social condition, economic condition and affordability of water supply, sanitation and hygiene in a micro level conducted within a short span of time. This study has based upon the water supply, sanitation and hygiene problems of the Limithana VDC of Parbat district.

1.6 Organization of the Study

The dissertation has been organized in eight chapters. The first chapter deals with the introduction of the subject matter including background of the problems, objectives of the study, significance of the study and organization of the study.

The second chapter includes the reviews of pertinent literature of the study. This consists of detailed explanation of reports, articles, dissertations and information of different publications. The literature review is followed by a general conceptual

framework based on pertinent theories and perspectives made by scholars including Durkheim, Marx etc. The third chapter is about research methodology, data collection tools and techniques that were applied during the study and method of data analysis. The fourth chapter is the description of the study area.

Similarly, the fifth chapter focus on the condition of water supply and sanitation and hygiene in Limithana Village Development Committee of Parbat district. Again, the sixth chapter deals with people participation in water supply and sanitation works in Limithana. Chapter seven introduces the impact of water supply, sanitation and hygiene in Limithana.

At last, chapter eight focuses on the socio-economic relation of the study for generating the summary, conclusion and recommendation of the study.

CHAPTER-TWO

LITERATURE REVIEW

There are different scholars, academician and different books, journals, previous research works, reports, acts, articles, plans, and policies, other published and unpublished documents that contribute the literature on water supply and sanitation development. Their studies include different aspect of rural water supply and sanitation development. Some of the study has been discussed as following:

2.1 Drinking Water as a Global Problem

Great pressure is being exerted on the water resources of many developing countries, particularly those located in arid or semi-arid regions. Acute water shortage exists in many areas of the world and is likely to become more severe in future years. In some areas further economic growth will not be possible until adequate additional water supply become available. In other areas failure to increase the water supply may well result in standards of living being reduced below present levels. Water shortage is one of the most important problems facing administrators and policy-makers in many developing countries (UN, 1965).

The rehabilitation of dirty water and sanitation system is immediately following, primarily dealt with the municipal systems in the more industrialized countries. This development process, helped by great scientific technical and industrial advances seems to be spreading with the positive benefits. The problem now, especially in the field of water supply and sanitation, which requires a global awareness and major investment along with the participation by the communities concerned is to help promote the courage of entire population in spite of the rapid increase in their numbers (UNICEF,1986).

It is evident over the past from decades that determining the effect of water supply and sanitation and other environmental factor of health and sequent the social and economic condition of communities and in particular on children was a much more complex matter than had at first been realized Biomedical, epidemiological, immunological, nutritional and other research, combined with technical developments and social science development have provided insight which now make it possible to plan more purposefully for remedial action. The recently intensified action in the field

of human resources development is an important factor in strengthening the special basis of water supply and sanitation program. This includes the training of people at all level, governments, technical support staff, social worker and above all community workers, themselves.

An estimated 1,800 million people need improved water supplies in the fifteen years to the end of the century, if developing countries are to reach the target of full coverage. The first half of the international drinking water supply and sanitation decade has seen increases in the percentage of rural population with access to safe water supplies, but only in Asian has the pace been quick enough to envisage a target of essentially full coverage by end of the century, to make a lasting impact on the urgent needs, community water supply strategies must be based on sustainable and replicable programmes, and must take account of the pace at which resource constrains can be over come. Human resource development programmes take time to produce result and institutional changes can only be accomplished gradually (WB, 1987).

An analysis of ADB's water operations shows positive trends. For such concerns as the in corporation of social and environmental dimensions, increased water user responsibility and water use efficiently, cost recovery, institutional strengthening, quality control, and monitoring arrangement. ADB's water projects, however, tended to be identified, processed, administered, and evaluated within their sub-sector context, reflecting the fragmented approach to planning and implementing water projects in most DMCs. For example, legal aspects of water allocation have been addressed in less than one quarter of approved projects, and only one third of the projects included water conservation measures. This tends to confirm that ADB's water loans have in the past, focused largely on improving water services (supply-side solutions) in a sub-sector context, and that relatively few have addressed water resource issues, including water scarcity and efficient allocation of water between different uses. The striking lesson from ADB's involvement in water related projects is that, as competition for water increases a more comprehensive and integrated approach to water operations is needed to encompass goals of social welfare, environmental integrity, and economic productivity. A new generation of water projects with an integrated approach to supply and demand management has emerged (ADB, 2000).

2.2 Comparing with Drinking Water Problem

One of the most important issues of a comprehensive water policy framework is to rationalize the competing demands from the agricultural, industrial & domestic sectors. The same source of water was used for animal husbandry as well as to the human. As demand for water will grow, and water resources diminishes, competition for the available resources will be intensified. Government will then face serious choices, with serious social, economic and environmental implications. In many irrigation systems, about 35percent of the water is lost on its way from the resource to the field. Domestic water supply also gets lost about 40percent water on its way from reservoir to domestic taps (GON & WB, 1996).

During the past two decades, there have been a larger number and variety of initiatives in rural areas and informal urban settlements to develop systems of community ownership and management of basis drinking water and sanitation services. Usually, NGOs have acted as intermediaries between communities and the authorities to help work out structures and systems (technological and financial), organize and fund training of community level workers, and enable water users associations and local water management committees to become established.

One factor in many successful schemes has been the participation of women as managers, village mechanics and health motivators. There has also been a strong emphasis on information-sharing and social mobilization. Choice of technology, and the potential for the community to run it and pay for the service, is critical. There is little point in providing electrically pumped supplies, or even hand-pumps, if breakdowns cannot be repaired. Communities are often well aware of their limitations (ADB, 2004).

At the world summit on sustainable development, governments, rightfully put pressure on themselves to deliver adequate sanitation and safe drinking water by 2015 to halve the proportion of people without access. They also confirmed the target of developing water resources management plans by 2005 a commitment first agreed at the Rio-de-Jenerio Earth summit, one and a half decade before.

The re-solution does not include any target for quantity. Clearly, water that is not used for drinking does not need to meet these standards. Particularly in rural areas,

people may tap a number of different water sources depending on what the water is to be used for and its availability, which may be seasonal (UN, 2004).

2.3 The Situation of Drinking Water Supply in Nepal

Drinking water supply, sanitation and hygiene sector is widely studied in Nepal. The earlier studies concentrated mainly in technical field and in providing the piped drinking water supply in the country. In the beginning, technical issues related with the supply of drinking water in the urban areas were taken prominently to study. Later, the water supplies in the rural areas are taken with the supported of UNICEF to improve the life of the people of the rural areas. Nepal Red Cross Society was selected as the implementing agency to work in the rural areas as catalyst between the people and the donor agencies.

With the support of Asian Development Bank and Government of Nepal has been implementing rural water supply programs in different parts of the country for the last one and half decade. This has really increased the coverage for drinking water in the country. The ethnicity, income level affordability and cost sharing have been considered in the selection of the schemes. On top of these factors, the community participation was taken as the important requirement for the initiation of the rural drinking water projects in the country. Under the ADB project, 22 district plans were prepared. These plans have provided the general background on the status of water and sanitation in these districts.

The water resources act published by GON, in 1992 has been enacted to address the need to make arrangement for conservation, management, rational utilization and development of water resources in Nepal; and to make timely legal arrangement for determining beneficial uses of water resources preventing environmental and other hazardous effects and also for keeping water free from pollution. This impact priorities the water use as drinking water, irrigation, other agricultural are: hydropower, industrial use, navigation, recreational uses and other uses (GON, 1993).

The piped water is considered as one of the sources of safe drinking water. Overall, nearly 45 percent households have access to piped water; almost half of which have private connections. The remaining 55 percent of households depends on covered well (39 percent), open well (7 percent) and other unreliable sources like

river and spring water (10 percent). Urban areas, as expected, have better access to safe drinking water relative to rural areas (58 percent versus 41 percent). Among development regions, the western development region has the highest proportion of households having access to piped water (61 percent) while the far- western development region has the lowest (34 percent). Among ecological belts, Terai has the least access to piped water (14 percent), where about 80 percent of households fetch drinking water from covered- wells. Urban Terai areas have better access to the safe drinking water relative to rural- Terai areas (NLSS, 2010/11, Vol. 1).

Most accessible facility in the country is the source of drinking water. Almost all (99 percent) of households are within 30 minutes of this source. Access is uniform during both rainy and dry seasons. Further, disparities across geographical regions and consumption quintiles are minimal (NLSS, 2010/11, Vol. 1).

2.4 The Policy and Trend on Drinking Water Supply

Nepal Water Supply Corporation published "Management Information Report" for all its staffs, to provide monthly record and dates, information related with production of water, connection, metering and meter – reading, tanker service, billing and collection financial position and others keeping this in mind that the water supply and sewerage to be managed systematically (NWSC, 1995).

The "Mid-term Evaluation of Drinking Water and Sanitation Programme" published by CREHPA have evaluated the programme conducted by Nepal Red Cross Society and Japanese Red Cross Society. The objective of the mid term evaluation is to assess the impact of drinking water and sanitation programme on the community in the project areas of the Terai and hill districts (CREHPA, 1996).

Water sector activities need to be gender sensitive at all levels, from policy down to community activities, and gender concerns need to be integrated in practices, plans, programs and projects. Little progress has been made in this area. More gender specific data are required in the water sector. Women play a central part in the provision, management and safeguarding of water (ADB, 1996).

The trend of local people involvement or participation on the rural program is not quite new but it was practiced since the establishment of democracy in 1950s. In Nepal the Decentralized Act of 1982, adopted the user's group approach in local development but its practice became more and more a short-term or a temporary

measure to get things done rather than as an end in itself that allows development on a long-term and self-sustained basis (Bhattachan, 2000)

Public Private Partnership (PPP) for water supply has been used to provide the sound mechanisms for developing partnership between the public (the government) and private (non-government) sectors. In which public sector retains its basic responsibilities of consumers to ensure the good water supply. Where the private sector can help the government to achieve this and can make things happen with commercially viable in the medium to long term (Brown, 2004).

Ministry of housing and physical planning (MHPP, 1989) had reported on the existing situation of the water supply systems in some towns of Nepal. It has also highlighted the needs and investment required for the water supply. It has pointed out several shortcomings and also forwarded many proposals for reforms. These include need for more water treatment plants upgrading the existing supply, networks and proposals for the control of contagious water borne diseases.

The World Bank had advised to the Government of Nepal for privatization of water supply & sewerage system of Kathmandu valley. NWSC itself a very potential organization with pool of experienced manpower in urban water supply management, it is needed to demonstrate its own competence in good management of urban water systems upon the necessary favorable environment. For this purpose, a Model Branch is formulated and established as prototype to show efficiency of NWSC with existing environment. NWSC has decided to develop Kamaladi Branch as Model Branch. A five years plan has been set-up for the Model Branch (NWSC, 2004).

Overall, 20 percent of households rate the drinking water facility as "good", while 55 percent think it to be "fair" and the remaining 25 percent think it is "bad". The rating of drinking water facility is the worst in urban areas particularly in the Kathmandu valley urban areas where 68 percent of household perceive the facility as "bad". This might be due to the fact that more urban households compared to the rural households rely on government facility for drinking water. The rural households depend on relatively traditional sources of drinking water and therefore are not counted as respondent households (i.e. not applicable for them). Households in the rural central Terai seem to be fairly satisfied with this facility. (NLSS, 2010/11, Vol. 2).

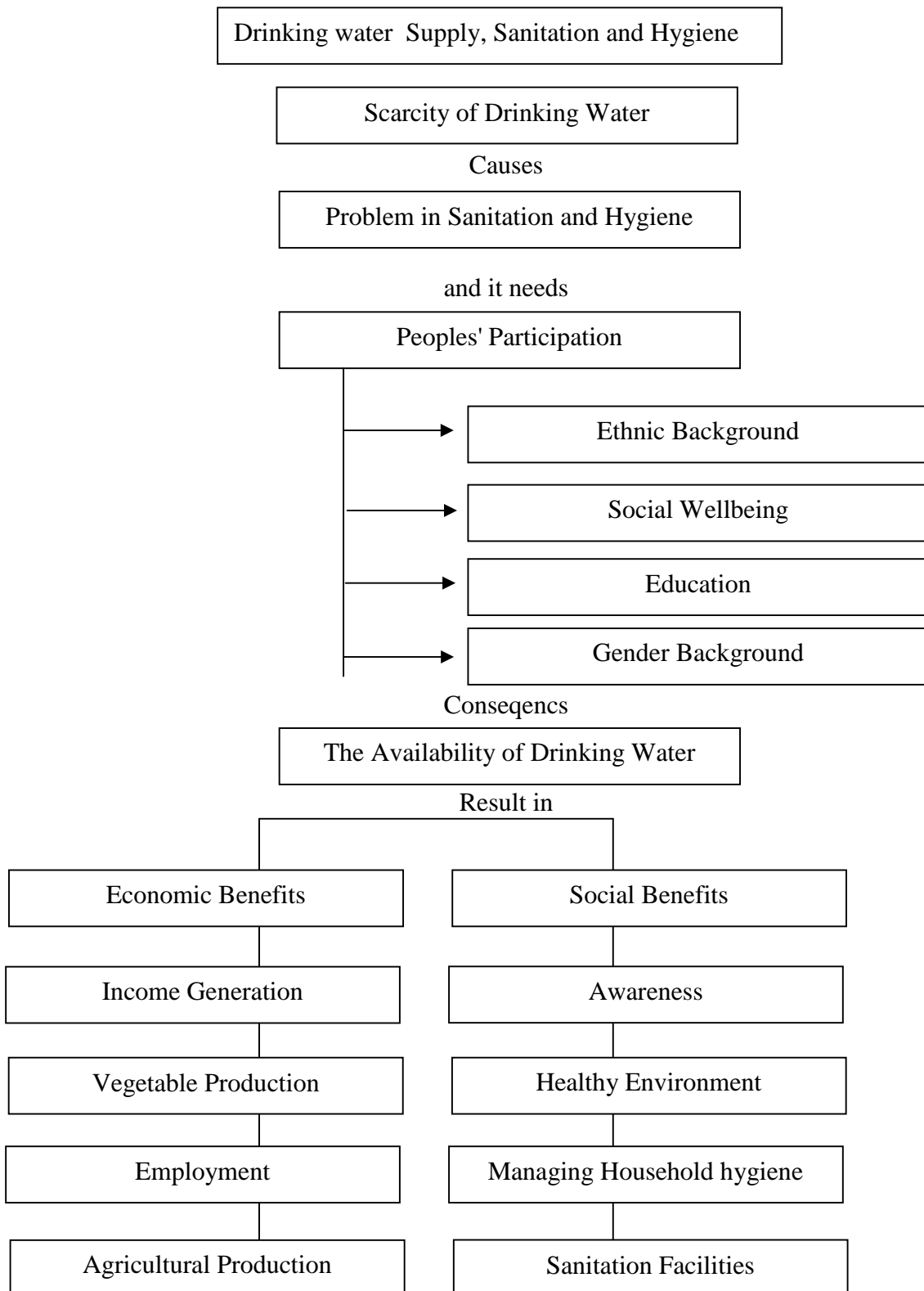
The general review of above mentioned literatures contain about water supply, sanitation and hygiene program. These previous studies have outlined the study area for the present study. The present study is related to identify the availability of water supply, sanitation and hygiene in Limithana VDC of Parbat district and people's participation because none of the previously done research have tried to identify the provision of drinking water supply, problems and peoples' participation in the study area.

2.5 Conceptual Framework for the Study

A sociological theory is a theoretical framework that can be used by researchers to analyze how social processes, structures and action are created and how they work. They are used to understand society and for social research. There are a few different developed theories, but they are similarly based on moral, metaphysical or epistemological point of views. Understanding social action and giving causes for its effects and course is at the root of sociological theory. Some theories include; macro-sociology (study of society as a whole), micro-sociology (study of individuals within society), structuralism (how society shapes individuals), social action (individuals create society as they act and react in socially meaningful ways), positivism (study of social facts in which and ways in which society influences the behavior of the individual), phenomenology (in which individuals interpret and create their social world) as well as such theories as feminist theory (how male dominance shapes social life), rational choice theory (as the interaction or utility maximizing individuals), social justice (as the concern of social exploitation and/or oppression),ethno methodology (as the way people make sense of life while living within that life), social constructionism (as social happenings develop in social contexts), and structural functionalism (as various social elements perform within the social system) amongst others.

The major theoretical approaches applied for this study are taken from Emile Durkheim, Karl Marx, and Erving Goffman and from feminist perspectives. These help to prepare a conceptual framework for this study.

The conceptual framework for this study has been outlined as follows:



CHAPTER-THREE

RESEARCH METHODOLOGY

A research undertaking must be equipped with research methodology. Research methodology is a format of methods that has to be followed as guiding principle in a scientific study. It is a science of methods/ rules and it deals every steps of method. Different methods can be applied in different researches. In order to achieve the objectives of the research, methodology is necessary. This research also adopted some specific methods. In this chapter, the research method used to conduct the present study by collecting required information is discussed. It deals with the selection of the study area, the research design, universe and sampling procedure, nature and sources of data, technique of data collection and the analysis of the data.

3.1 Selection of Study Area

Limithana VDC of Parbat district is selected as the study area for present study. There is no any type of study & research in this area till to date. So I am going to look about different types of problems changes in my periphery so I have selected this area for study. It has Brahmins, Chhetris, ethnic people and Dalit households in the community. The VDC is not able to provide safe and clean piped water supply for drinking to the community. In the past, people used to construct such type of taps or ponds to earn fame and religious merits.

In the past, local people of this community were found using the source of *Inar, well, Dhungedhara/tap, stream/river* and even rainwater for drinking and different purposes. They had to walk miles a way to fetch water. Mostly female were found to be involved at that time to bring water. The same source of water was used for domestic animals as well as to the human, which was not safe, clean and healthy. In addition, floods also used to make water source contaminated, that the local people used without boiling or purifying systems. Thus, different water borne diseases like cholera, diarrhea, dysentery, typhoid, worm infection etc affected them.

To bring water, people used to wake up early in the morning and sometimes stay late in the night. Because they had to complete their household work early in the morning and prepare for the fieldwork in the day. Mostly, women had to do additional

work and play dualistic role; housewife at home and labor at the field. This was also hindering in their health and education.

Traditionally as well as culturally, Nepali people believe that flowing water is considered pure and safe for drinking and domestic purposes. Water is considered as holy elements in Hindu Mythology. Only Hindu people are living in the study area. Hindu person is regarded clean after a ritual bath i.e. *snaan*. So people want to bath with fresh water (*saji pani*) taken from source.

In this regard, I felt to explore the status of water supply, role of people's participation and its impacts brought on the community people's life from anthropological and sociological respective.

3.2 Research Design

This study has incorporated both exploratory as well as descriptive research design. This study has tried to explore the impact of water supply and sanitation program on the community and their physical environment. The study has also described the socio-economic, cultural and demographic characteristics of the people of study area. Many questions had asked with people of this study area for the problems. This has helped in identifying the problems of the particular study area.

3.3 Nature and Sources of Data

This study has been based on both primary & secondary data. Primary data has been collected from the field study especially from observations, using scheduled questionnaire and interview techniques. The secondary data have been taken from different articles, journals, reports, office documents, conference paper and annual and periodical publications of related institutions such as Nepal Water Supply Corporation (NWSC), Development of Water Supply & Sewerage (DWSS), Rural Water Supply & Sanitation (RWSS), Rural Women Development Center (RWDC), District Development Committee (DDC), Village Development Committee (VDC) , Central Bureau of Statistics (CBS), Asian Development Bank (ADB), World Bank (WB), The United Nations (UN) and various related web sites.

3.4 Universe and Sampling

Limithana VDC is heterogeneous in terms of caste composition. The people having different castes and ethnic groups are living in different localities with different professions and activities. There are so many casts such a Brahmin, Chhetri, Janajati and Dalit. For this research purposive sampling method has been used. Within this sampling, cluster sampling method has been applied to collect the required information. Firstly, the study area has been divided into different clusters. The overall study area comprises 384 Households of Limithana VDC, which have been spread in different cluster. About 20 percent of the households have been taken in this research. The respondents are distributed as caste and sex. A total of 77 respondents from 1 to 9 wards were selected for interview. Among them 37 (48.05percent) were male and 40 (51.94 percent) were female. Like wise 58 of the total respondents (75percent) Brahmin/ Chhetri, 1 of the total respondents (1.29 percent) ethnic and 18 of the total respondents (23.37percent) Dalits were selected purposively.

3.5 Respondents

Information is the main pivot of research. Without actual data research can not be fruitful. Thus, source of information should be accurate and appropriate. Respondents are extremely important sources. Therefore, in this research the head of the households were taken as the respondents. Apart from them, key informants, teachers, social workers and local political leaders were also the sources of the information collected.

3.6 Key Informant of the Interview

This technique is an important tool employed to generate the key data on various aspects of drinking water, sanitation and hygiene, impact and other related information. A list of key informants was obtained during observation and consulting water users from the people of different status, such as teachers, former VDC ward members, WUC members, elder people, and water experts. These techniques were to generate information in the specific issue on the subjective factors, culture, of maintaining transparency & accountability and other necessary information. In this purpose, 20 key informants were taken.

3.7 Methods of Data Collection

The reliability and validity of any research work depends on its methods and techniques used for data collection. For this study, the methods of data collection are the most important to obtain reliable, valid and consistent information. In order to obtain such necessary information from the field the following methods have been used.

3.7.1 Observation

Observation is the basic tool for the collection of qualitative data from the fieldwork. The study area has been visited & observed in-terms of water supply, sanitation & hygiene system. Participant and non- participant observation were the main sources for obtaining primary data. Both observations were used in this study. The VDC has assisted to find out the real data of the study area and main resources of my study area were local people and representatives. I was helped to find out the ground of the problems. The observation was conducted to study the existing situation, impact, personal health and sanitation, waste management and participation of the local people in the study area. The observation has been mainly focused on the useful of drinking water supply, sanitation and hygiene. The basic information has been collected by the observation and field visit from the study area.

3.7.2 Interview Schedule

During the research period, a set of questionnaire was developed to obtain the information about drinking water supply, sanitation and hygiene in the village. The respondents have been asked many questions about the problems. People have been taken interview, which helped me to find out the real problems of this area. It has been known the people's participation including the former status of drinking water system, sanitation and hygiene sector.

3.7.3 Household Survey

Household survey has been used to achieve the basic socio-economic and other information of the households. Both males and females have been taken as the primary respondents of the household survey. This technique has been used to collect

qualitative as well as quantitative data. Respondents have been asked questions to find out socio-economic status.

3.7.4 Focus Group Discussion

Focus group discussion was very compatible during the field survey and success to achieve reliable information. In focus group discussion was held with user, users' group, personnel and VDC officials to obtain the level of participation, affordability and willingness to pay to the service.

A checklist was developed for the group discussion. Focus group discussion was carried out with the people of different caste and ethnic group, gender and age in different research site. Children were selected for regulated impact of diseases female group for time saving and sanitation impact. Qualitative information about the project was collected through the group discussions.

3.7.5 Questionnaire

In this study many questions were used to get actual information about the drinking water and sanitation sector. Mainly structured and unstructured questionnaires were used for the collection of data for selected households.

3.8 Data Analysis and Interpretation

Information does not speak by itself. The information collected in the field, which should be analyzed and interpreted in order to make the research meaningful. Analysis is the careful study of available facts so that one can understand and draw conclusions from them on the basis of established principle and sound logic. For the purpose of this study, the different data obtained by using various sources which are scanned and tabulated under different headings. Data gathered from primary and secondary sources and they are analyzed according to their nature. Qualitative data has been descriptively analyzed whereas quantitative data has been analyzed and interpreted on the basis of statistical tools like percentages and different charts.

3.9 Operational Definition of Key Terms

Adequate sanitation: the provision and ongoing operation and maintenance of a safe and easily accessible means of disposing human excreta and waste water.

Community: the people living in the study area despite their nature of caste or ethnic identity.

Decision Making: taking mandate of related authorities while operating the specific task.

Domestic Water Supply: generally implies development and supply of safe and adequate water needed for human consumption i.e. for drinking, household and hygienic uses.

Drinking water: water, which is brought by the community people from the available sources and distributed for the purpose of drinking within community.

Gender bias: Meetings or decisions etc. are dominated by one of the sexes: 'Male-bias': men are dominating in number or decision making (female-bias: women are dominating).

Hygiene education: planned and systematic attempt to provide information to enable people to take action to prevent water and sanitation related illness and to maximize the benefits of improved water and sanitation facilities.

Hygiene promotion: an activity to encourage behavioral change that serves to prevent infection from communicable diseases.

Integration of WASH: the services of both water supplies as well as household and environmental sanitation are linked well with hygiene education and will be provided to the same beneficiaries identified as facing health problems due to the lack of services.

Improved Sanitation and hygiene: the process where people transform themselves to demand, develop and sustain a hygienic and healthy environment for themselves by erecting barriers to prevent the transmission of diseases primarily deriving from pathogenic contamination.

Participation: it means to take part or have a share in any activity. It refers to the involvement, contribution, sharing of the benefits in the process of development.

Poor and Excluded: groups, individuals and households politically , economically, socially, culturally and self discriminated on the basis of their gender,

caste, ethnicity, age, marital, status, sexual orientation, religion, language disability, HIV status and where they live and have previously limited access to development opportunities.

Resource Management: with skillful treatment, use of the resources in a systematic manner.

Sanitary facilities: refers to latrines; solid waste disposal sites; waste management equipment; and cloth washing, hand-washing and shower or bathing units.

Sustainable Development: consumption and exploitation of natural resources by preserving the rights of future generation.

Water Supply: generally implies development and supply of safe and adequate water needed for human consumption i.e. for drinking, domestic and hygienic uses and for other uses such as for livestock, individual and municipal purposes.

WASH Program: the package that contains the provision of safe and adequate water supply, provision of safe sanitary facilities and the promotion of improved hygiene behavior.

Water User Committee: a group formed to regulate the system for the better management of water supply and to mitigate the dispute/conflicts.

CHAPTER-FOUR

SETTING OF THE STUDY AREA

4.1 Introduction of the study area:

Parbat district of Nepal is located between 27⁰ 88" latitude and 83⁰ 39" longitude and situated 850 m to 3500 m from the sea level. Parbat district is a hilly and back warded area located in the western development region of Nepal. It is one of the four districts of Dhaulagiri Zone. The total area of this district is 494 Sq.km, at the center of Syangja, Myagdi, Gulmi, Kaski and Baglung districts. In administrative point of view, there are 55 VDC, 11 Ilakas and two electoral constituencies (CBS, 20011). According to preliminary report of population census 2011, the total population of the district is 1, 47,076 among them 81,719 (55.56 percent) are female and 65,357 (44.44 percent) are male. The total number of houses in Parbat district is 31,527 and households is 36, 037 and the population density is 298 per Sq.Km which is higher than the national level density of population which is 181 per Sq.Km.

Limithana VDC is situated in Parbat district. It is around 35-40 Km southward from Kushma, the district headquarters. It lies between 28⁰ 08'00" from 28⁰ 09'53" north latitude and 83⁰ 38'49 from 83⁰ 40'50 east longitude, at the altitude of 700m to 2200m from sea level. The total population of Limithana VDC is 2176. (D.P. 2068 B.S.). Limithana VDC consists of various caste/ethnic groups but the dominating groups are Brahmin. Nuclear family system is the main feature of the social structure. In the Northern part of Limithana lies Khanigaun VDC, in the Southern part, lies Kurga VDC, in the west, lies Thanamaula VDC and in the east lies Debisthan, Kurga and Thanamaula VDCs.

4.2 Physical setting of the Limithana VDC

Administratively, Parbat district is divided into 55 VDC, Limithana VDC is one of them. The total area of this VDC is 778.30 ha. with 384 households. Limithana VDC is located about 35 to 40 Km. from the district headquarters and East to West length about 7 km and north and south about 9 km. It is situated at the altitude of 700m to 2176m from sea level.

4.3 Climate

The area of Limithana VDC is small with geographical point of view but diversifies climatically. The climate of this VDC can be divided into two broad categories: warm temperature and cold temperature. The temperature of the VDC is flexible. During the winter season -5°C from 2°C in the winter and in the summer season 29°C from 36°C temperature can be found. The average temperature is 16°C to 27°C . The study area receives maximum 100 and average 4000mm to 5000mm rainfall annually.

4.4 Population Distribution

Population plays a vital role in the drinking water and sanitation management of the study area. The growth of the number of people is viewed as a national problem. It generates a number of problems which have a multiplier effect on national phenomena.

According to CBS the total population of Parbat district is 147076 in B.S 2068 and the number of households is 36037. The total number of males is 65357 and of the females of Limithana VDC is 81719 in the total population. The total population of Limithana is 2176 in 384 households. The total number of male population is 1073 and of the females is 1103. The population of Brahmin is the largest among other caste/ethnic groups.

Table No 4. 1

Ward	H.H.	Male		Female		Total	
		Number	percent	Number	percent	Number	percent
1	40	126	11.674	113	10.25	239	10.98
2	43	132	12.30	131	11.87	263	12.08
3	38	88	8.20	92	8.34	180	8.27
4	36	96	8.94	101	9.15	197	9.05
5	41	113	10.53	129	11.69	242	11.12
6	44	138	12.86	130	11.78	268	12.31
7	27	81	7.54	85	7.70	166	7.62
8	52	136	12.67	167	15.14	303	13.92
9	63	163	15.19	155	14.05	318	14.61
Total	384	1073	100.00	1103	100.00	2176	100.00

Source: D.P. 2068

As seen in the above table the total population of the VDC, the number of female exceeds male. In ward no 3, the population is the least where in ward no 9, the population is the largest.

4.5 Economy of the Village

As in other rural parts of the country the economic activity of the people of Limithana VDC is based on agriculture. Almost all the population is engaged in agricultural activities. The main agricultural products are paddy, wheat, maize, potato and millet. Besides these, animal husbandry, and vegetable growing are other cash economic activities. Most of the young generation is engaged in foreign employment in India, Gulf countries and Western countries. Due to the lack of cultivated land as well as unequal distribution of land, more than half of the population does not produce enough food to feed them for the year. Very few people are involved in non-farming activities. Some people are working in government offices. The income source of VDC is based on different sectors.

The farmers sell rice, maize and milk in the local bazaar. Beside these, farmers raise the goats that is also a source of income generation in that area. The method of cultivation is still traditional i.e. they plough the fields with plough and yoke by oxen. Farmers use the compost and organic fertilizer from cattle dung manure. Some of them have started to use chemical fertilizer and hybrid seeds.

4.6 Socio-Cultural Pattern

Society is a web of social relationship. Every people living in a society want to do something and more around the phenomena. Culture is an umbrella term for human being. Generally, culture is a manmade factor. All the activities of human beings are included in culture. Culture is a factor of development. In the name of development we have adopted new social movement. The study area is composed of various castes/ethnic groups like, Brahmins, Kami, Damai, Sarki, Newar and others. Every caste has its own cultural aspect. Inhabitants of this area have occupied traditional ritual since traditional period. But, now in the name of modernization, socialization, transportation, education, interstate etc. affected the socio-cultural pattern of people. All castes/ethnic groups have some behavior owning of highly closeness to each other. 'Give respect and take respect' is the major slogan of the local people. Birth ritual, marriage and death ritual are similar in all castes in the study area.

The Dalit people also adopt their different customs like Brahmins through Hindu system but they do not have sacred thread (Janai). Principally high caste people do not take wine and other so many things, which is common to untouchables. The

Dalit people of the study area speak Nepali language. They do not have their own mother tongue. High caste people are depended upon Dalit for leather goods and agricultural wage labor, similarly, Dalits are dependent upon high caste people for their survival not only leather work but also by many other ways. Dalit of this area are adopting new tools and technology through which they are getting more yields. Thus most of the Dalit of the study area have been changing their socio-cultural, educational as well as economic condition.

4.7 Education

Education is light of life, which goes from womb to tomb. It is the power of knowledge. It is essential for wisdom, competency and excellence. Education is inborn and fundamental right of people.

Education is the most important factor to change the condition of drinking water and sanitation of the study area. Most of the people of Limithana VDC are far behind the light of education. In this area, the Brahmin, Chhetri and Newar are more educated than the others such as Damai, Kami and Sarki. At present, there are three primary schools, one boarding school and one secondary school.

Table No 4. 2

S.N.	Name of Schools	Total students/staff	Toilet situation						Water supply situation
			pans (No.)		urinal (No.)		disable friendly		
1	Limithana S. School	325	1	1	0	0	0	0	good
2	Devisthan P. School	62	1	1	0	0	0	0	bad
3	Janata P. School	68	1	1	0	0	0	0	good
4	Suryodaya P. School	20	0	0	0	0	0	0	bad
5	Jana Kalyan Boarding School	156	1	1	0	0	0	0	good
	Total	631	4	4	0	0	0	0	

Source: Field Survey, 2012

4.8 General Health Situations

Health is wealth. Healthy mind, in a healthy body, in healthy environment can achieve goals of sustainable development including all the aspects of human being. In Limithana VDC there is one sub health post. People are getting dispensary service from there. According to health post incharge people are suffering from many diseases like skin disease, diarrhea, dysentery, and jaundice and respiration problem. 80 percent of the population is suffering from waterborne disease but there is no any symbol of pestilence. Health worker are always preservative in these disease. Every ward of this VDC has a woman health volunteer (WHV). WHVs provide general health facilities to the local people. Similarly, there are lot of community Health Works (CHW), Community Medicine Assistants (CMA) and Assistant Nurse Midwives (ANM). These technicians provide health facilities to the local people. In

Limithana VDC there is one private clinic. Private clinic help to 'cure' than to 'prevent'.

4.9 Water Sources

Limithana VDC is that part of the country where there are different kinds of water sources. In this area there are many streams, which contribute the Kaligandaki. Mainly Lamaya Khola, Chirdi Khola, Khaphal Bhot and Kalidaha etc are the main stream of this area which irrigate some parts of the cultivated land.

There are different source of water which provide the facility of drinking water, which are as follows:

Table No 4.3

S.N.	Source of water name	S.N.	Source of water name	S. N.	Source of water name
1	Khalidhaha	8	Dimri Ko Bot	15	Bhageni Khola
2	Mirgale pani khani	9	Tiwari Dhara	16	Khaphalbhot
3	Chanaute	10	Pande Ko Dhara		
4	Chirdurdhunga	11	Pipal Bot	17	Jaisiki Dhara
5	Uttare Spring	12	Sim Dhara	18	Tin Dhara
6	Sota khola	13	Lamichhane Dhara	19	Lakuri Dhara
7	Dhumse	14	Lampata		

Source: Field survey, 2012

The people of Limithana VDC area have been using drinking water from different springs and rivulets, but recently government of Nepal had been connected through the KALI DHAHA Project. People have been getting drinking water easily, after the successful completion of the project. Now this project has been interrupted because of landslides and technical problem. The people heavily depend upon the spring water.

4.10 Transportation and communication facilities in the study area

Transportation and communication are the main pivot of development. Higher the accessibility of communication and transportation, higher the access to prosperity. Nepal is a rural based country. Most of the rural areas are deprived of transportation and communication. Rural urban linkage is possible only through social overhead capital (SOC). There are various typologies and components of rural urban linkage. Among them transportation, communication, services and institution are the vital components.

Parbat district is hilly and backward district of western development region. This district is accessible to the SOC facilities. Mostly SOC facilities are centralized in district headquarters but most of the VDCs are not in access to the transportation and side by side communication. There are 55 VDCs in Parbat district. Among them Limithana VDC is one. Now this VDC is accessible to the both commutation and transportation.

4.11 Occupational status

Occupation is a part of the social status of a person and also, determines the success of people in society. Occupational status is a great element, which reflects the socio-economic status of a person. In this VDC most of the people are engaged in agriculture sector and few are engaged other occupations such as business services, industry etc. The agriculture is the major source of livelihood. The given table no. 4 below shows the average data of occupation structure of the Limithana VDCs.

Table No 4. 4

Kind of Occupation	Total	percentage
Agriculture	204	53
Business	38	10
Services	62	16
Labour	65	17
Other	15	4
Total	384	100.00

Source: VDC Profile, 2011

The table shows that 53 percent of the total population depends on agriculture sector. And the rest of the people are involved in the other sector of which business 10 percent, service 16 percent, labour 17 percent and other 4 percent.

Limithana VDC of Parbat district is one of the remote villages of Parbat. According to the district profile of Parbat, it has the total population of 2176. The population of females exceeds the number of the males. The climate of the study area is mild temperate with 4000 to 5000 cm annual rainfall.

Most of the people of this village are farmers. Other employments including army, civil service, teaching and foreign employment are exceptions. Basically there is dominance of Hindu culture with its various cast division and tradition. Primary education has been provided to almost all children at the present day situation. Due to the lack of nearby health services and health education, people generally suffer from water borne diseases.

People use various sources of water including *dhunge dhara*, spring water, well and recently piped drinking water. Because of low transportation service people are compelled to transport goods and travel on their own physical strength.

CHAPTER-FIVE

CONDITION OF WATER SUPPLY AND SANITATION IN LIMITHANA

5.1 Use of water source (Same/different) for households purpose

Most of the respondents use water for drinking, cooking, bathing, washing and for all the household purpose from the same source of water by means of pipe. The number of the respondents who use drinking water by the means of pipe is 68 (88.39percent) and remaining 9 (11.68percent) respondents get water from the same source but different means, that is directly from the spring without piped method.

Table No.5.1

Source	Caste/Ethnic Group						Total
	Brahmin/Chhetri		Adibasi/ Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Same water source for various purpose	26	26	1	0	7	8	68 (88.237%)
Different water source for various purpose	2	4	0	0	1	2	9 (11.68%)
Total	28	30	1	0	8	10	77(100%)

5. 2 Connection of piped drinking water

Connection to piped drinking water was found in 71 (92.20percent) households and not connected was found in 6 (7.79percent). 6 house-holds are at the top of the spring water and they think they don't have necessity of piped drinking water. For them it is easier to get water from the spring water directly than from the pipe connected water. Respondents use piped water facilities not only for drinking purpose but also having bath and washing as well irrigation. As they have multipurpose, they are not satisfied with piped water system.

Table No. 5.2

Sources	Settlement			Gender		Total
	ward 1-3	ward 4-6	ward 7-9	M	F	
Connection to piped water	23 (95.83%)	22 (91.66%)	26 (89.65%)	35 (94.59%)	36 (90%)	71(92-20%)
No connection to piped water	1 (4.16%)	2 (8.33%)	3(10.3%)	2 (5.4%)	4 10%)	6 (7.8%)
Total	24 (100%)	24 (100%)	29 (100%)	37 (100%)	40 (100%)	77 (100%)

Source: Fields Survey, 2012

5. 3 Time required reaching water source in different seasons

The time required to reach the water source varies with the season. In rainy season, 28 (36.36percent) households require (0-10) minutes, 40 (51-94) households had required (10-20) minutes and 9 (11.68percent) households require (20-30) minutes to reach of water source.

Table: 5.3

Source	Settlement			Gender		Total
	ward 1-3	ward 4-6	ward 7-9	M	F	
Rainy Season						
0-10 min	8	11	9	18	10	28 (36.36%)
10-20 min	12	10	18	15	25	40 (51.94%)
20-30 min	4	3	2	4	5	9 (11.68%)
Total	24	24	29	37	40	77 (100%)
Winter/Summer Season						
0-10 min	6	5	4	6	9	15 (19.48%)
10-20 min	8	9	13	13	17	30 (38.96%)
20-30 min	10	10	12	18	14	32 (41.55%)
Total	24	24	29	37	40	77 (100%)

Source: Fields Survey, 2012

In most of the households females fetch the water. In a few households children fetch water. In some households male fetch water in rare case. In winter/summer 15 households require (0-10) minutes, 30 households require (10-20) minutes and 32 households require (20-30) minutes to reach the water source.

5. 4 Use of water source and amount of water used by season

The almost popular water source was found to be the public tap among the households of Limithana VDC area, both in rainy and winter/summer seasons. The following tables show per day consumption of water.

Table No. 5.4

Use of water source and amount of water used in Rainy Season

Types of water source	Ethnicity			Amount (Liter)				Gender		Total
	Brahmin /Chhetri	Adibasi	Dalit	0-100	100-200	200-300	300+	M	F	
Well	1					1		1		1 (1.29%)
Public tap	54	1	17	10	35	18	9	34	38	72 (93.50%)
House tap	1						1	1		1 (1.29%)
Stream/river/Pond			1	1					1	1 (1.29%)
Collected rainy water	1					1			1	1 (1.29%)
Spring water	1				1			1		1 (1.29%)
Total	58	1	18	11 (14.28%)	36 (46.75%)	20 (25.97%)	10 (12.98%)	37	40	77 (100%)

Source: Fields Survey, 2012

Table No. 5.5**Use of water source and amount of water used in Winter/ Summer Season**

Types of water source	Ethnicity			Amount (Liter)				Gender		Total
	Brahmin /Chhetri	Adibasi	Dalit	0-100	100-200	200-300	300+	M	F	
Well	1					1		1		1 (1.29%)
Public tap	55	1	17	9	26	24	14	34	39	73 (94.80%)
House tap	1						1	1		1 (1.29%)
Stream/ river/Pond			1	1					1	1 (1.29%)
Collected rainy water										
Spring water	1			1				1		1 (1.29%)
Total	58	1	18	11 (14.28%)	26 (33.76%)	25 (32.46%)	15 (19.48%)	37	40	77 (100%)

Source: Fields Survey, 2012

In rainy season, public tap was used by 72 (93.50percent) household followed by those who used well, other sources, stream/river, pond, spring water and at least house tap and collected rainy water by 1 (1.29percent). An amount of 100-200 liter of water per day was the rate used by maximum 36 (46.75percent) households and 300+ above it. Per day water was used by minimum 10 (12.98percent) households.

In summer / winter season, public tap was used by 73 (94.80percent) of the households/ respondents the followed by well, spring water other source. Steam and household tap 1 (1.29percent). 100-200 liter per day water was used by the maximum 26 (33.76percent) households used and the minimum 11 (14.28percent) households used 0-100 liter per day each.

5. 5 Problem and opinions concerning drinking water

The opinion of the respondents concerning drinking water is as following table. The households have different views about the present situation of the drinking water which they are using. According to them the water that has bad smell, bad taste, polluted with mud and sand, contaminate with worms and other microorganisms, and some other factors. This shows that they are not satisfied with the present drinking water system. The opinions in the following table shows the problem concerning the drinking water system.

Table No. 5.6

Complains	Ethnicity						Satisfaction with drinking water		Total
	Brahmin /Chhetri		Adibasi		Dalit		Yes	No	
	Male	Female	Male	Female	Male	Female			
Bad smell	1	1	0	0	1	1			4 (5.2%)
Bad taste	2	1	0	0	0	1			4 (5.2%)
Polluted water muddy/sandy	21	27	1	0	6	7			62 (81%)
contaminated microbes worms	3	1	0	0	0	1			5 (6.5%)
Other	1	0	0	0	1	0			2 (2.6%)
Total	28	38	1	0	8	10		77 (100%)	77 (100%)

Source: Fields Survey, 2012

Household respondents reported various problems in drinking water 62 (80.51percent) respondents reported that the drinking water as polluted, 5 (6.49percent) respondents reported it as contaminated with microbes worms, 4 (5.19percent) respondents reported the bad smell of water and bad taste and 2 (2.59percent) showed other problems.

Most of the respondents use same water source for various purposes. The main sources of drinking water are traditional *dhunge dhara*, well and piped water. In recent days, piped connected drinking water is the main sources. The time to fetch water varies from season to season. In the rainy season it is easier but in the winter season it takes rather more time. Although they have different water sources, people have different problems and perception on water system.

CHAPTER SIX
PEOPLE'S PARTICIPATION IN WATER SUPPLY IN
LIMITHANA

6.1 People's participation in drinking water system

Participation of people in drinking water and sanitation programme was studied among dalit, ethnic, women, disadvantages and other people. This participation in water supply in this VDC is dependent on the characteristics and distribution of the respondents which is described as followings.

6.1.1 Characteristics of the Respondents

This chapter discusses the major findings of the study. It describes the status of water supply and sanitation that were found among the sampled households during the study period. Besides it, this chapter describes the people's participation in water supply and sanitation system. This chapter also deals with the finding related to the impact of drinking water and sanitation in the community and personal hygiene in the study area over 5 years of time.

6.1.2 Caste wise distribution

It is found that Limithana VDC is heterogeneous in terms of caste composition. The people having different castes and ethnic groups are living in different localities with different professions and activities. There different castes such a Brahmin, Chhetri, Janajati and Dalit. As shown in table 5, the respondents are distributed as caste and sex. A total of 77 respondents from 1 to 9 wards were selected for interview. Among them 37 (48.05percent) were male and 40 (51.94percent) were females.

Table No. 6.1

Caste/Ethnic group	Settlement	Gender		Total
		Male	Female	
Brahmin/Chhetri	58 (75%)	28 (75.67%)	30 (75%)	58 (75.32%)
Adibasi/Janjati	1 (1.29%)	1 (2.70%)	0 (0%)	1 (1.29%)
Dalit	18 (23.37%)	8 (21.62%)	10 (25%)	18 (23.37%)
Total	77 (100%)	37 (48.05%)	40 (51.94%)	77 (100%)

The majority of respondents were Brahmin/Chhetri 58 (75.32percent), Adibasi/Janajati 1 (1.29percent) and Dalit were 18 (23.37percent).

6.1.3 Sample distribution of respondents

Nine wards from Limithana VDC were selected for the study. Total 384 household were found in Limithana VDC. Among those, ward (1-3) -24 (31.16percent), ward (4-6) -24 (31.16percent), and ward 7-9 -29 (37.66percent) of sampled households were selected.

Table No. 6.2

Area	Total households	Sample households
wards 1, 2, 3	121 (31.51percent)	24 (31.16percent)
wards 4, 5, 6	121 (31.51percent)	24 (31.16percent)
wards 7, 8, 9	142 (36.97percent)	29 (37.66percent)
Total	384 (100percent)	77 (100percent)

Mostly 25 (32.46percent) households had in other's people's participation and 22 (28.57percent) had women, untouchable 18 (23.37percent), disadvantage had 11 (14.28percent) and 1 (1.29percent) had ethnic people's participation for drinking water in decision making.

Table No. 6.3
People's participation in drinking water system.

Group	Settlement			Caste			Participation			Gender		Organization of meeting		Total
	ward 1-3	ward 4-6	ward 7-9	Brahmin/Chhetri	Adibasi	Dalit	High	Medium	Low	M	F	Yes	No	
Dalit	5	6	7				1	5	12	12	6			18 (23.37%)
Ethnic			1				1			1				1 (1.29%)
Other	11	7	7				3	4	18	18	7			25 (32.46%)
Women	6	7	9				1	3	18		22			22 (28.57%)
Disadvantage	2	4	5				1	2	8	6	5			11 (14.28%)
Total	24	24	29	58	1	18	7 (9.09%)	14 (18.18%)	56 (72.72%)	37	40	14 (18.18%)	63 (81.81%)	77(100%)

Source: Fields Survey, 2012

According to household respondents, dalits, ethnic, women and disadvantaged people had low participation in drinking water and sanitation as 56 (72.72percent), medium 14 (18.18percent) and high 7 (9.09percent), participation 63 (81.81percent) respondents said that there were not organized meeting whereas 14 (18.18percent) said that the few meetings were organized.

6.1.4 Selection of project and expenditure on drinking water:

Most of the respondents 34(44.15percent) selected the drinking water project, followed by school 9 (11.68percent),sanitation 13 (16.88percent),hospital 6 (7.79percent), irrigation 9 (11.68percent), electricity 4 (5.19percent) and other projects selected 2 (2.59percent).

Table No. 6.4

field of choice for support	Caste			Exp Rs.		Gender		Total
	Brahmin /Chhetri	Adibasi	Dalit	5000-10000	1000-15000	M	F	
School	7		2					9 (11.68%)
Hospital	5		1					6 (7.79%)
Drinking water	26	1	7	55 (71.42%)	22 (28.57%)			34 (44.15%)
Electricity	4							4 (5.19%)
Sanitation	9		4					13 (16.88%)
Irrigation	6		3					9 (11.68%)
Other	1		1					2 (2.59%)
Total	58	1	18			37	40	77 (100 %)

Source: Fields Survey, 2012

If any project of organization requests for drinking water 55 (71.42percent) of the respondents said that they could deposit Rs. 5,000-10,000 and 22 (28.57percent) respondents reported that they could deposit Rs. 10,000-15,000 each. Though 22 (28.57percent) respondents opined that they could deposit great amount of money then remaining respondent but all questioned for the reliability of project and they would deposit as much as they could.

People participation in drinking water system has been analyzed according to caste, gender and economy level of the respondents. Almost all the respondents have contribution in drinking water and sanitation construction and implementation projects.

CHAPTER SEVEN

IMPACT OF WATER SUPPLY ON SANITATION AND HYGIENE IN LIMITHANA

7.1 Form of drinking water:

Limithana VDC area is mostly suffering from polluted water. So, the respondents have to use various methods of making water pure. Despite these problem 41 (53.25percent) of the households use direct (plain) water. 16 (20.77percent) the households filter, 11 (14.28percent) households used boiled method and 9 (11.68percent) households use chemical respectively.

Table No. 7.1

Form of use drinking water	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Boiled	6	3	0	0	1	1	11 (14.28 %)
Filtered	5	7	0	0	3	1	16 (20.77 %)
Using chemical	3	5	0	0	0	1	18 (11.68 %)
Direct (Plain) use	14	15	1	0	4	7	41 (53.25 %)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

7.2 Ways for the safe usage of drinking water

Almost half of the total households/ respondents 46 (59.74percent) use water only by cleaning the water pot and 11 (14.28percent) use soap and water, 17 (22.07percent) households use ash and water for cleaning the drinking water pot. Mostly, upper class castes use soap, but lower class castes use ash and water for cleaning the water pot. It would be better to clean pot water by pot washing powders and water which are prescribed from the health point of view.

Table No. 7.2

Method	Caste			Gender		Total
	Brahmin /Chhetri	Adibasi/ Janajati	Dalit	M	F	
1. Method of cleaning water pot						
With only water	36	1	9	25	21	46 (14.28 %)
With ash and water	12	0	5	6	11	17 (20.77 %)
With soap and water	8	0	3	5	6	11 (11.68 %)
Other	2	0	1	1	2	7 (53.25 %)
Total	58	1	18	37	40	77 (100 %)
2. Proper storage						
Clean before filling	28	1	10	19	20	39 (50.64 %)
Though stored water	20	0	5	13	12	25 (32.46 %)
Covering water pot	10	0	3	5	8	13 (16.88 %)

Other	0	0	0	0	0	0
Total	58	1	18	37	40	77 (100 %)
3. Handling						
Cleaning of WP (mug, glass) before use	29	1	8	18	20	38 (49.35 %)
Dipping cup of glass in water	21	0	5	12	14	26 (33.76 %)
pouring water from pot	8	0	5	7	6	13 (16.88 %)
Other	0	0	0	0	0	0
Total	58	1	18	37	40	77 (100 %)

Source: Fields Survey, 2012

During storage of water 39 (50.64percent) of the respondents store water before cleaning the water pot, 25 (32.46percent) of the respondents store water pot throwing some water before collecting water and 13 (16.88percent) of the respondents store water by covering the water pot. 38 (49.35percent) of the respondent get water out of the pot after cleaning cup, mug, glass before use. 26 (33.76percent) of the respondents have been found to take out of water by dipping cup, mug, glass without cleaning and 13 (16.88percent) of the respondent get out of water by pouring water through the pot.

7.3 Situation of Toilet Use

Most of the households have toilets but 12 (15.58percent) had no toilet due to various reasons such as lack of ideas, short of money and defecation in open plane. Mostly, Dalit people have no toilets.

Table No. 7.3

Causes	Caste			Toilet		Gender		Total
	Brahmin /Chhetri	Adibasi	Dalit	Yes	No	M	F	
Lack of idea	1	0	1			1	1	2 (16.66 %)
Shortage of money	1	0	2			2	1	3 (25 %)
Toilet in open	2	0	1			1	2	3 (25 %)
Shortage of land	1	0	3			2	2	4 (33.33 %)
Total	5	0	7			6	6	12 (100 %)

Source: Fields Survey, 2012

7.4 Personal Sanitation

7.4.1 Hand washing habit

Most of the households/respondents in Limithana VDC have the habit of washing hands before meal, after meal and after touching the dirt. But only few of them wash hands after work. Hand washing habit was mostly found among Brahmin/Chhetri but less among Janajati, Dalit, ethnic people and old people.

Table No. 7.4

Activities	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Before meal	4	7	0	0	3	3	17 (22.07%)
After meal	18	15	1	0	3	4	41 (53.24 %)
After toilet	2	2	0	0	1	0	5 (6.49 %)
After touching dirt	2	3	0	0	1	1	7 (9.09 %)
After work	1	2	0	0	0	1	4 (5.19 %)
Other	1	1	0	0	0	1	3 (3.89 %)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

7.4.2 Materials used in washing hands

Most of the households/respondents 23 (29.87percent) use soap while washing hands and at least 3 (3.89percent) of the respondents use mud and ash. Higher castes use soap, whereas the lower caste uses mud/ash in washing their hands. The reason, except Brahmin, Chhetri and other has not use soap, is that they are uneducated as well as they can not afford money for it.

Table No. 7.5

Activities	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
			Male	Female	Male	Female	
Soap	12	9	0	0	1	1	23 (29.87 %)
Mud/Soap	1	2	1	0	1	1	6 (7.79 %)
Water/Soap	5	7	0	0	1	2	15 (19.48 %)
Mud/Water/Soap	2	2	0	0	0	1	5 (6.49 %)
Soap/Ash	4	6	0	0	1	2	13 (16.88 %)
Soap/Ash/Mud	2	1	0	0	1	1	5 (6.49 %)
Ash/Mud	1	2	0	0	2	1	6 (7.79 %)
Mud	1	1	0	0	0	1	3 (3.89 %)
Other	0	0	0	0	1	0	1 (1.29 %)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

7.4.3 Bathing frequency

Most of the respondents 24 (31.16percent) take bath 8 times a month, while the least of the respondents 2 (2.58 percent) take bath only 2 times a month. But, 1 (1.29percent) of the total respondents take bath just once a month.

Table No. 7.6

Respodent in frequency	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
2	1	1	0	0	0	0	2 (2.59 %)
4	2	3	0	0	0	0	5 (6.49 %)
5	4	6	0	0	2	2	14 (18.18 %)
6	4	5	0	0	1	1	11 (14.28 %)
8	10	9	1	0	2	2	24 (31.16 %)
9	0	1	0	0	1	1	3 (3.89 %)
10	2	1	0	0	0	1	4 (5.19 %)
12	3	2	0	0	1	1	7 (9.09 %)
15	2	2	0	0	1	1	6 (7.79 %)
30	0	0	0	0	0	1	1 (1.29 %)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

7.5 Waste Management and water borne Disease

7.5.1. Ways of managing the wastes

Solid Wastes are disposed in various ways by the respondents. 40(51.94 percent) of the respondents are disposing the waste materials in pits which are put near the house, but 14(18.18 percent) of the respondents are disposing the waste materials indiscriminately everywhere. 21(27.27percent) of the respondents are disposing the waste materials through private waste collector. 2(2.59percent) of the respondents use other means of disposing the waste materials. The VDC has not managed any disposal endpoint for waste yet.

Table No. 7.7

Place	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Pit near the house	15	16	1	0	4	4	40(51.94 %)
Private waste collector	7	9	0	0	2	3	21(27.27 %)
Everywhere	5	5	0	0	2	2	14(18.18 %)
Others	1	0	0	0	0	1	2(2.59 %)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

7.5.2. Causes of water borne diseases

Most of the respondents 41(53.24%) think that dirty water is being the cause of disease. 16 (53.24%) of the respondents opined the cause of such diseases as dirty food, whereas 8 (10.38%) reported that the cause being the disposable materials. 10 (12.98%) find the cause of diseases as sanitation problem. The rest of the respondents 2(2.59%) think that education problem being the cause of disease.

Table No.7.8

Cause	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Dirty Water	16	14	1	0	5	5	41(53.24 %)
Dirty Food	6	7	0	0	1	2	16(20.77 %)
Sanitation problem	3	5	0	0	1	1	10(12.98)
disposable waste	3	3	0	0	1	1	8(10.38)
Education problem	0	1	0	0	0	1	2(2.59)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

7.5.3. Common water borne diseases

The most common water borne disease is diarrhea 22 (28.57 %t) respondents usually suffer from this disease. Only (1.29%) of the respondents reported that they have been suffering from worm infection and cold. Other common water borne diseases are

cough/ cold, Jaundice, dysentery, fever/ throat infection, pneumonia and skin disease in the decreasing order.

Table No. 7.9

Diseases	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Diarrhea	9	7	1	0	2	3	22(28.57 %)
Cough/ cold	2	2	0	0	0	1	5(6.49)
Fever/ throat infection	2	3	0	0	1	0	6(7.79 %)
Jundice	2	4	0	0	1	2	9(11.68 %)
Skin disease	1	0	0	0	0	1	2(2.59 %)
Dysentery	5	4	0	0	1	1	11(14.28 %)
Phenomena	3	8	0	0	1	2	14(18.18)
Diarrhea/ Dysentery	4	2	0	0	1	0	7(9.09 %)
Worm int/ cold	0	0	0	0	1	0	1(1.29 %)
Total	28	30	1	0	8	10	77 (100 %)

Source: Fields Survey, 2012

The males mostly suffer from diarrhea, dysentery; cough etc. and females suffer from jaundice, pneumonia and cough mainly.

Water borne diseases mostly affect the Dalit, and ethnic peoples than the Brahmin and Chhetris.

7.4.4. Treatment of Sickness

About 28 (36.36%) of the respondents have been treated at hospital but 4 (5.19%) have been at home by the priest and wizard. A small percentage of respondents 11 (14.28%) are being treated with herbal method during their sickness.

Table No. 7.10

Cause	Ethnicity						Total
	Brahmin /Chhetri		Adibasi /Janajati		Dalit		
	Male	Female	Male	Female	Male	Female	
Household treatment	1	2	0	0	1	1	5(6.5 %)
Treatment from priest wizard and conjurer	0	1	0	0	1	1	3(3.9 %)
At hospital	10	13	0	0	2	3	28(36.4 %)
Household/ Hospital	11	12	1	0	1	1	26(33.8%)
Household/ Priest, wizard	1	0	0	0	1	2	4(5.2%)
Herbal treatment	5	2	0	0	2	2	11(14.3%)
Total	28	30	1	0	8	10	77(100 %)

Source: Field Survey, 2012

Different forms of drinking water have been used in Limithana VDC. People drink water by boiling, filtering, using chemical, directly. The water pots are cleaned by using soap and ash. Most of the families have toilet. Most people have hand washing habit before eating, after eating and after toilet use. Waste management is done by making pits near the house and private waste collector but some of the people throw waste everywhere, which is the cause of water borne diseases. The common water borne diseases are fever, diarrhea, jaundice, pneumonia, cough, cold etc. The house hold treatment is the primary treatment in this village. People believe in rituals for treatment. Tendency to go to the hospital is very rare and they go to the hospital at last.

CHAPTER-EIGHT

SUMMARY, CONCLUSION AND RECOMMENDATIONS

8.1 Discussion with Key Informants

Different views were given by the key informants. Social workers, official members of drinking water and health sector, health workers, volunteers, educated people, local leaders of political parties, teachers, NGOs members and businessmen were selected as key informants. Questioners and checklist were used as tools of information collection.

The views of the key informants are listed as followings.

1. Management of drinking water sector should be given to the community people.
2. High participation of the community people is needed.
3. Government should give priority to fulfill need based programme i.e. drinking water, health, education and sanitation.
4. Mobile health programme may be effective for children.
5. Local government should launch solid management system.
6. Awareness and promotion programme in drinking water and water borne diseases is being necessary.

8.2 Views of Other People.

The views of other people related the drinking water, sanitation and public hygiene in the study area are as follows:

1. Local leaders should give priority to public awareness and community people's participation in drinking water.
2. According to the members of drinking water office, water resources should be preserved and utilized properly.
3. Health workers said that in case the government provides funds it would be easy to launch health programme in the community sector regularly.

4. Social workers, NGOs members and educated people said that awareness programme in health and drinking water for the community people may be more effective.
5. GOs, NGOs, INGOs, and other various organizations concerned with the drinking water and sanitation sectors should be activated in this sector in the study area.
6. Some local leaders, educated persons said that public private partnership should be necessary for the drinking water system.

8.3 Summary of the Findings

Nepal is one of the landlocked and developing countries but it is the second richest in water resource all over the world. Nepal is also equipped by the great Himalayas & glaciers, which are the main source of fresh water. Water is a common property like air. Without it, life does not exist. It is one of the basic needs of human beings for their survival. People use to collect water to fulfill their daily needs i.e. bathing, cloth washing, Kitchen gardening etc.

Pure and safe drinking water helps people to make them healthy. Healthy people are the human resource of the country. Pure & clean drinking water helps to control water-borne-diseases. The access of water near to the houses of the people helps to save time, which they have to spend on fetching water; instead, they can invest this time for income generation. That is why, the present study is relating to the drinking water supply, sanitation and hygiene people participation and the impact of the drinking water and sanitation in the study area has been carried out.

The researcher has used different kinds of research methods to study. Regarding the research design, the exploratory cum descriptive research design was used. The primary and secondary (quantitative as well as qualitative) both kinds of data were applied. But, most of the primary data were collected from direct visit of the field. The tools and techniques were applied during the study comprise structure and unstructured interview schedule, key informant interview, focus group discussion, household survey and observations. The structured questions were prepared with the help of supervision before leaving the field. Limithana VDC of Parbat district was selected as the study site.

The major findings of the study area are as followings:

1. Different castes like Brahmin, Chhetri, Janajati and Dalit live in the study area. But Brahmin and Chhetri are in majority.
2. Mostly Janajati and Dalit have larger family size in comparison of Brahmin and Chhetri due to the lack of education.
3. Most of the people of the study area have piped connected drinking water. They need to walk up about 10 minutes in rainy season and about 20-30 minutes in winter to fetch water. People are using the same source of water for bathing, washing and drinking.
4. The quality of the water being used is very poor because most of the respondents opined it as dirty, bad smelling, contaminated with chemicals and bad taste.
5. Various classes of people such as untouchable, ethnic, women and disadvantaged groups have no proper participation in programme initiation, implementation and benefit sharing.
6. Most of the people in the study area directly drink the water without purifying it. It is the major cause of the spread of various water borne diseases.
7. A few households in the study area don't use toilet due to financial problem, lack of idea, frequent use of open toilet and lack of land.
8. Most of the people of the study area are aware of the waste material disposal techniques. 61 out of 77 respondents were found to have a pit or private waste collection center near their houses. But this does not mean that there is no any sanitation problem.
9. The people have very poor personal cleanliness with regards to bathing, hand washing, sanitation management, pure drinking water and toilet use. So, they are suffering from various water borne diseases.

8.4 Conclusion

This study has assessed the findings of the situation, people participation and impact of drinking water and sanitation in the study area.

Drinking water is important not only for human survival, but for sound public health. The availability of pure drinking water directly or indirectly assists the poverty alleviation in the sense that it helps to improve labour productivity which occurs from the increase in the average life span of the people, reduction in infant and child mortality rate and improved public health. Such indicators improve health related human development index (HDI). Most of the women and children have to spend substantial time of the day in collecting and in fetching water. Easy access to drinking water, therefore, undoubtedly saves the time which can be utilized comfortably in other economic activities. In the case of children, the saved time provides them more educational opportunities. The other benefit of easy access to pure drinking water areas is that it increases women literacy and assists in promoting gender equality.

Education is a major factor for proper utilization of drinking water and management of sanitation. Education status was found to be very poor in the study area. Searching of water resources, ways of drinking water, protective ways from diseases and environmental pollution, personal cleanliness, awareness, promotion are the basic outputs of education. So, it is being a challenge for a healthy life.

Organization of meeting with drinking water and sanitation has been found very rare. Participation of untouchable, ethnic, disadvantaged and women in the programme decision making and implementation, initiation, responsibility and benefit sharing has been found vary rare.

Government of Nepal has planned to drinking water supply in different villages of Parbat district. According to the policy, the Government of Nepal has played a significant role in water supply in the study area. Government of Nepal has policy to distribute water with improved, continuity, reliability and accessibility. Despite the successful completion of the scheme, some changes are seen. Some interruptions are caused by landslides and floods. The people are willing to recon slide and floods, reconstruct in the small scale.

Feeling the difficulties in the past time, people do not want to see any interruptions caused by nature.

Poor management of concerned authority, people of the study area are being deprived of the drinking water. They have to use the same water sources for drinking, bathing and washing purpose.

Most of the people of the study area were found using plain water instead of using the various methods of purification. So the people have been suffered from water borne diseases like diarrhea, jaundice, cough, cold, fever, dysentery and skin diseases and they have been found to be receiving treatment at home with priest, wizard, conjurer of herbal method.

A financial problem occurs when people can spend in extra unwanted activities but when it comes to such as toilet; they say they do not have money. It is a matter of the lack of awareness was found to be the main cause of not using toilet. People have poor personal cleanliness such as bathing frequency, washing hands before and after meal and waste management.

8.5 Recommendations

Various suggestions are recommended base on this study findings on drinking water and sanitation access at least in the study area.

- Water is always prone to possibilities of being contaminated in natural (with less risk) or manmade environment (with high risk). Water is not clean because it is water (a challenge to the Hindu perception of water as something naturally pure).

- Store drinking water in cool clean and pots (gagris) preferably clay and bronze (bacteria grow better in hot plastic gagris, which are never cleaned inside). Cover the pots so flies, birds and domestic animals do not drink from the pots.

- Limithana VDC has various water resources such as streams, wells and public taps. Therefore, maintenance of the system sources and ensuring equal participation of all people with proper method can make supply of water to each household possible.

- For the success of the program planning, implementation and management local leaders, technicians, local people area, development agencies, private institutions, NGOs/INGOs should be fully devoted also in order to harness opportunities.

- Awareness programme in drinking water, sanitation and personal health to child, student and people should be launched.

- Users group should be formed to participate for launching of the programme sustainable.

- The community should be trained in income generation activities. The time saved from reduced water carrying responsibility will allow community member to participate in such income generation activities.

- Immunization program for prevention of water-borne-disease, training to people, health education to students, use of purified water, methods of purification of water, personal cleanliness can make the people's life healthy.

- The tree plantation program should be launched to protect the environment which also deals to protect the water cycle mechanism.

-An office should be installed to watch out the proper management of drinking water and sanitation status of the study area.

-Point source protection program with material contribution from beneficiaries should be launched in the community to pressure the nearby alternative water source.

-A water recycling programme should be launched to preserve the rainy season's water. It may help to the water crisis in dry season as well as help to irrigation.

-Managing the public toilets and household disposals are essential for improving the sanitation situation in the study area.

- The related institution must give environmental educations & hygiene education.

REFERENCES

- ADB, (1998). *The Bank Policy on Water: Working Paper*, Asian Development Bank, Manila.
- ADB, (2000). *Water in the 21st Century*, Theme Paper No. 8, Annual Report 2000.
- ADB, (2001). *The Environment Program, Chalanges and Changes at the Dawn of the New Millennium*.
- ADB, (2004). *Water and Poverty: The Themes*, Asian Development Bank, Manila.
- ADB/ICIMOD, (2006). *Environment Assessment of Nepal: Emerging Issues and Challenges*, Asian Development Bank/International Center for Integrated Mountain Development. Kathmandu, Nepal.
- Brown, Roger L., (2004), *Provision of Water Supply by Public-Private Partnership. 'Water Supply and Public-Private Partnership'*, United Nation, ESCAP.
- CBS, (1994), *Population of Nepal by Districts and Village Development Committees, Municipalities (Population Census 1991)*, Central Bureau of Statics (CBS), Kathmandu.
- CBS,(2001), *Statistical Report of Nepal,2001. Government of Nepal, Central Bureau of Statistics, National Planning Commission Secretariat, Thapathali, Kathmandu.*
- CBS, (2003), *Population Monograph of Nepal, Volume-1 (2003)*, Central Bureau of Statics (CBS), Kathmandu, Nepal.
- CBS,(2004), *Statistical Pocket Book*, Central Bureau of Statistic, Kathmandu.
- CBS, (2005), *Environment Statistics of Nepal*, National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu, Nepal,
- CBS, (2011), *Preliminary Results of National Population Cessus, 2011. Government of Nepal, Central Bureau of Statistics, National Planning Commission Secretariat, Thapathali, Kathmandu.*

- CREHPA, (1996), *Mid-Term Evaluation of Drinking Water and Sanitation Program*, Center for Research on Environment Health and Population Activities, Kathmandu, Nepal.
- (Durkheim, E. (1915). *The Elementary Forms of the Religious Life: A Study in Religious Sociology*. Translated by Joseph Ward Swain. New York: Macmillan.)
- DWSS and UNICEF, (2002), *Nepal State of Sanitation Report (1999/2000)*, Steering Committee for National Sanitation Action, Kathmandu.
- District Profile,(2058), Parbat*. DDC, Parbat.
- FDB, (1997), *An Introduction of Nepal Rural Water Supply and Sanitation Fund Development Board*, Fund Development Board, Kathmandu.
- FNCCI, (2000), *Nepal and the World and Statistical Profile*, Facts and Figures, 2000, Kathmandu Nepal.
- Government of Nepal,(2031), *Mechi-Mahakali, 2031:Volume-3*, Ministry of Information and Communication, Nepal.
- Government of Nepal, (1990), *The Constitution of the Kingdom of Nepal*, Ministry of Law and Justice, Law Books Management Board, Kathmandu.
- Government of Nepal, (1993), *Water Resource Regulations, Ministry of Law and Justice*, Law Books Management Board, Kathmandu.
- Government of Nepal, (1997), *Approaches to the Ninth Plan*, Author Nepal and Unofficial English Translation.
- Government of Nepal/NPC,(2003), *Population Monograph of Nepal, Volume-1*, National Planning Commission (NPC) Kathmandu, Nepal.
- MHPP, (1989), *Urban Water Supply in Nepal*, Ministry of Housing and Physical Planning, Kathmandu, Nepal.
- NLSS,(2010/11), *Nepal Living Standard Survey*. Statistical Report Vol.1/2, October 2011, National Planning Commission(NPC), Kathmandu, Nepal.

- NPC, (1998), *The Ninth Plan (1997-2002) and The Tenth Plan (2003-2007)*, National Planning Commission (NPC), Kathmandu, Nepal.
- NRCS, (1996), *Plan of Action: Drinking Water and Sanitation Program*, Nepal Red Cross Society, Kathmandu.
- NRCS, (1998), *Drinking Water and Sanitation Programme*, Fourth Phase, Nepal Red Cross Society (1999-2002/03).
- NRCS, (2003), *Drinking Water and Sanitation Programme*, Annual Report Kathmandu, Nepal.
- NWSC, (2004), *Annual Report 2004*, Nepal Water Supply Corporation, Kathmandu.
- NWSC, (2051), *Nepal Khanepani Sansthan: EK Parichaya*, (A Nepali Verson) Nepal Water Supply Corporation, Kathmandu, Nepal.
- NWSC, (2052), *Management Information Report*, Nepal Water Supply Corporation, Kathmandu, Nepal.
- Prasai, N.R., (2004), *An Impact Evaluation of Rural Drinking Water Project in Karmiya VDC of Sarlahi District*. Project Report Submitted to the Central Department of Rural Development, T.U.
- RWSSP, (2005), *Annual Report 2005*, Rural Water Supply and Sanitation Fund Development Board, Kathmandu, Nepal.
- Subedi, D.R., (2005), *Biodiversity for Food, Water and Health*, The Rising Nepal, National Daily, July 2, 2005, P. 4.
- ,Shakya , Roshan, (2005),*Paniko Pariman Ra Prabhav* (In Nepali), The Gorkhapatra Daily, April, 16.
- Thapa, MK, (1998), *Rural Water Supply and Sanitation Programme in Nepal: A Case study of Khanigaon and Tallophile of Nuwakot District*. Dissertation Submitted to the Central Department of Science, T.U.
- UN, (1965), *Proceedings of the Interregional Seminar on the Economic Application of Water Desalination*, New York,, USA.

UN, (2004), *Economic and Social Commission for Asia and the Pacific Water Resources Journal*, December 2004.

UNICEF, (1986), *Water and Sanitation in UNICEF*, New York, USA.

Uprety, L.P.,(1999), *A Draft Review Paper on Social Component in Water Resource Strategy Formulation (WRSF)*, Consolidated Management Services, Nepal (P) Ltd.

Village Profile, (2061), Pang Limithana VDC, Parbat.

W.B., (1987), *Community Water Supply*, Washington DC, USA.

Questionnaire for the study

Interview no.

Date:

1) Name of respondent:

2) Caste :-

3) VDC: -

Ward no. :-

5) Household structure:-

How many members are there in your household?

Number ()

S.N.	Relation	Age	Gender	Educational level	occupation
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

6) Where is your drinking water source?

Within the compound of house.

Yes () No ()

Within the public places.

Yes () No ()

7) Is your household using water for cooking bathing and washing from the same source?

Yes () No ()

8) Is the water source used in winter and summer the same? Yes () No ()

9) How much time is required to reach the souce of water used for drinking and cooking?

Time in rainy season () Min/hrs

Time in dry season () Min/hrs

10) Which type of water source do you use for drinking and cooking? How much water do you consume? please tick on the following.

S.N.	Rainy season	tick	Litre/day	Winter/ Summer	tick	Litre/ day
1	Well			Well		
2	Public tap			Public tap		
3	House tap			House tap		
4	Stream, river/ pond			Stream, river/ pond		
5	Collected rainy water			Collected rainy water		
6	spring water			spring water		
7	others			others		

11) How many time do you consume for drinking water?

- a) 5-0 minutes b) 10-20 minutes c) 20-30 Minutes d) above 30 Minutes

12) Are you satisfied with your drinking water quality?

- Yes () No ()

13) If not, which types of problems are there in the drinking water?

- a) Bad smell ()
 b) Bad taste ()
 c) Polluted muddy, sandy water. ()
 d) Contaminated, with microbes (worms) ()

14) Have you and your household members suffers from water born diseases?.

- Yes () No ()

15) If you were offered a project support, which of the following would you choose?

- a) School () b) Hospital ()
 c) Managed drinking water system. ()
 d) Electricity () e) Sanitation ()
 f) irrigation()

16) For a drinking water supply project, which type of help can you and your household give?

- a) Cash () b) Labor () c) Both () d) None ()

17) If any meeting organized to discuss about a drinking water supply project?

- Yes () No ()

18) If yes, were the following people present in the meeting or not?

- a) Untouchable group () b) Ethnic group ()
c) Women () d) Disadvantaged people ()

19) Is any drinking water and sanitation organization or committee is contacted/ requested for project implementation?

- Yes ()
No ()

20) How was the role of the following people in the decision making process?

- a) Untouchable : High () Medium () Low ()
b) Ethnic Group : High () Medium () Low ()
c) Ethnic Group : High () Medium () Low ()
d) Women : High () Medium () Low ()
e) Disadvantage: High () Medium () Low ()

21) Who is mainly responsible in collecting water?

- a) Women () b) Male ()
c) Girl () d) Boy ()

22) In what way are you using drinking water?

- a) Boiled () b) Filtered ()
c) Using chemical () d) Direct (plain) use ()

23) In your view, which problems arise due to unsafe water?

- a) Bad smell () b) Teeth problem ()
c) Sickness() d) others ()

24) Do you know about the importance of cleaning the water pot before it is used?

- Yes () No ()

If you know, how do you clean the water pot?

- a) With only water () b) With ash and water()
c) With soap and water () d) Other()

25) How do you store water in your home?

- a) Clean it before filling. ()
- b) After throwing the stock of water. ()
- c) Covering the water pot with lid. ()
- d) others ()

26) How do you take out water from the pot?

- a) Cleaning the cup, mug, glass before use. ()
- b) Dipping cup, mug and glass into the water. ()
- c) Powering water from pot. ()
- d) Other. ()

27) Do you know contaminated by human faces (fecal matter) can cause disease?

Yes ()

No ()

If you know, what are the disease caused by that contamination?

- 1)
- 2)
- 3)

28) Do you have a toilet in your home?

Yes ()

No ()

29) If you have, of which type?

- a) Pit toilet ()
- b) Ventilated toilet ()
- c) Pour flush ()
- d) Cistern flush ()

30) If you have no toilet why?

- a) Lack of idea about it. ()
- b) Shortage of money. ()
- c) Habit of outdoor defecation open place. ()
- d) Shortage of land, space. ()
- e) Others ()

31) What materials do you use for washing hands? Mark (√) for yes and (x) for No.

S.N.	Activities	Children below five years		Women		Men	
		Wash(√)	No wash(x)	Wash(√)	No wash(x)	Wash(√)	No wash(x)
1	Water						
2	Ash and water						
3	Husk and flour and water						
4	Mdy/ day/ soil						
5	Soap and water						
6	Others						

32) When do you and your household members take bath? Mark (√) for yes and (X) for no?

S.N.	Activities	Children below five years		Women		Men	
		Wash(√)	No wash(x)	Wash(√)	No wash(x)	Wash(√)	No wash(x)
1	Twice a day						
2	Daily						
3	Once in a day						
4	Twice in a week						
5	Once in a week						
6	Once in a month						

39) What are the causes of water borne disease?

- a) Dirty water. ()
- b) Dirty food ()
- c) Lack of sanitation on house and public places. ()
- d) Disposal of human waste and other waste materials all around. ()
- e) Lack of education/ awareness about health and healthy life. ()

40) If your household members become sick, what do you do? (Indicate priority with a number)

- a) Household treatment. ()
- b) Treatment from priest, wizard conjurer()
- c) Treatment at hospital. ()
- d) Others ()

41) When your household member suffers from diarrhea, what do you do? (indicate number as priority)

- a) Drink Jevan Jal. ()
- b) Household treatment. ()
- c) Treatment with priest wizard, conjurer. ()
- d) Treatment at hospital. ()

42) Which of the following diseases appeared in your household un the past one year?

S.N.	Diseases	Children below 5 years	women	men
1	Typhoid			
2	Worm infection			
3	Dysentery			
4	Diarrhea			
5	Cholera			
6	Skin disease			
7	Malaria			
8	Jaundice			
9	Other			

43) How much did you spend for the treatment of water borne disease in the past one year?

S.N.	Diseases	Expenditures
1	Typhoid	
2	Worm infection	
3	Dysentery	
4	Diarrhea	
5	Cholera	
6	Skin disease	
7	Malaria	
8	Jaundice	
9	Other	

Thanks for cooperation.

CHECKLIST

Interview no.

Date :

1) Name of respondent :

2) Name of Office :-

3) Gender:-

1. Are you satisfied with drinking water quality?

Yes { }

No { }

2. If there is offered a project support, which of the following would you choose?

a. School { }

b. Hospital { }

c. Managed drinking water system { }

d. Irrigation { }

e. Others { }

3. Are you involved in the drinking water and sanitation programme?

Yes { }

No { }

4. What is the role of following people in the participation of drinking water system?

Caste	High	Medium	Low
a. Untouchable	{ }	{ }	{ }
b. Ethnic group	{ }	{ }	{ }
c. Women	{ }	{ }	{ }
d. Disadvantaged	{ }	{ }	{ }

5. Are the people getting water easily?

Yes { }

No { }

6. In your views, which problems arise due to dirty water?

a. Bad smell { }

b. Teeth Problem { }

c. Sickness { }

d. Others { }

7. In what form/ way are people using drinking water?

a. Boiled { }

b. Filter { }

c. Using chemicals { }

d. Direct use { }

