

**Impact of Water Supply and Sanitation Activities on Social Change**

A Study of Simle Kusunde Community

Lekhnath – 9, Kaski

A Thesis Submitted to

Faculty of Humanities and Social Sciences

Department of Sociology/ Anthropology, Prithvi Narayan Campus, Pokhara

In Partial Fulfillment of the Requirements for the Master of Arts in

Sociology

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## Recommendation Letter

This is to certify that Mr. Shukra Raj Subedi has completed this dissertation entitled **“Impact of Water Supply and Sanitation Activities on Social Change, a Study of Simle Kusunde Community”** under my academic supervision. I, therefore, recommend it to the Research Committee of the Department of Sociology/Anthropology for its acceptance and final evaluation.

.....

Shanti Bhusal

Supervisor

## Letter of Acceptance

This dissertation entitled “**Impact of Water Supply and Sanitation Activities on Social Change, a Study of Simle Kusunde Community**” submitted to the Faculty of Humanities and Social Sciences Department of Sociology/Anthropology, Prithvi Narayan Campus, Pokhara by Shukra Raj Subedi has been accepted in partial fulfillment of the requirements for the Master of Arts in Sociology by the undersigned member of the dissertation committee.

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## TABLE OF CONTENTS

	PAGES
<b>RECOMMENDATION LETTER</b>	<b>II</b>
<b>LETTER OF ACCEPTANCE</b>	<b>III</b>
<b>TABLE OF CONTENTS</b>	<b>IV</b>
<b>ACKNOWLEDGEMENTS</b>	<b>VII</b>
<b>LIST OF THE TABLES</b>	<b>VIII</b>
<b>LIST OF THE FIGURES</b>	<b>IX</b>
<b>LIST OF ABBREVIATIONS</b>	<b>X</b>
<b>ABSTRACT</b>	<b>XI</b>

### CHAPTER ONE: INTRODUCTION

1.1	Background	1
1.2	Statement of the Problem	4
1.3	Objective of the Study	5
1.4	Rationale of the Study	5
1.5	Limitation of the Study	6
1.6	Operational Definition	6
1.7	Organization of the Study	10

### CHAPTER TWO: LITERATURE REVIEW

2.1	Theoretical Review	11
2.1.1	Theory of Natural Resource Management	11
2.1.2	Theory of Modernization	12
2.1.3	Theories of Modernity	13
2.1.4	Modernity and Social Inequality	14
2.1.5	Theory of Social Change	15
2.1.6	Patterns of Structural and Cultural Change	17
2.1.7	Water	19
2.2	Nepal Government Planning for Water and Sanitation Sector	21
2.3	Non Government Organizations in Water and Sanitation Sector	24
2.4	Review of Previous Study	26
2.5	Conceptual Framework:	27

## **CHAPTER THREE: RESEARCH METHODOLOGY**

3.1	Rationale of Selection of Study Site	28
3.2	Research Design	28
3.3	Nature and Source of Data	29
3.4	Universe	29
3.5	Pre-Test	30
3.6	Validity and Reliability	30
3.7	Ethics	30
3.8	Primary Data Collection Tools and Techniques	30
3.8.1	Household Survey	31
3.8.2	Focus Group Discussion	31
3.8.3	Observation Method	31
3.8.4	Key Informant Interview	31
3.8.5	Case Study	31
3.9	Data Analysis and Presentation	32

## **CHAPTER FOUR: SETTING OF THE STUDY AREA**

4.1	Physical Setting	33
4.2	Selected Characteristics	34
4.2.1	Population Composition	34
4.2.2	Religious Structure	35
4.2.3	Gender / Sex Distribution	35
4.2.4	Family Types	36
4.3	Economic Setting	37
4.3.1	Major Sources of Income	37
4.3.2	Land Holding Pattern of the Respondents	38
4.3.3	Livestock Holdings, Types and Distribution	39
4.4	Education	40

## **CHAPTER FIVE: SOCIAL CHANGE AND PEOPLES' INVOLVEMENT**

5.1	Peoples' Participation in Social Institutions	41
5.2	Social Structure	42
5.3	Social Behaviors	43
5.4	Economy	45
	Case Study One	47

## **CHAPTER SIX: IMPACT ON SANITATION, HEALTH AND SOCIAL STATUS AMONG PEOPLE**

6.1	Sanitation	48
6.1.1	Health and Environmental Sanitation	49
6.1.2	Household Sanitation	50
6.1.3	Personal Sanitation	51
	Case Study Two	52

## **CHAPTER SEVEN: SUMMARY, MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS**

7.1	Summary	53
7.2	Major Finding	54
7.3	Conclusion	56
7.4	Recommendations	57

<b>REFERENCES</b>	<b>58</b>
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Appendix A

Appendix B

Appendix C

Appendix D

## Acknowledgements

This dissertation “**Impact of Water Supply and Sanitation Activities on Social Change, a Case Study of Simle Kusunde Community**” has been prepared in accordance with the rules and regulations of the university to the compulsory paper (S/A 508) of the second part of master’s degree in sociology. It is an attempt to investigation of the social change and impact on health, hygiene and sanitation among the people of Simle Kusunde water and sanitation project at Lekhnath-9, Kaski.

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Shukra Raj Subedi

## LIST OF THE TABLES

<b>Table No</b>	<b>Title</b>	<b>Page No</b>
4.1	Population Composition	34
4.2	Religious Structure	35
4.3	Distribution of Population by Sex	36
4.4	Family Type	36
4.5	Major Source of Income	37
4.6	Land Hoding Pattern	38
4.7	Livesstock Holdings, Type and Distribution	39
4.8	Education	40
5.1	People Involvement in Social Institution before & Present	41



## **LIST OF THE FIGURES**

<b>Figure No</b>	<b>Title</b>	<b>Page No</b>
4.1	Map of Study Location	33
5.1	Community level Organizations	42
5.2	Saved Time Using Pattern	43
5.3	Income Generating Activities Adopted	44
5.4	Decision Making Role among the People	45
5.5	Sources of Income before and Present	46
6.1	Trend of Waterborne Diseases before and Present	48
6.2	Behaviour Change in Environmental Sanitation	49
6.3	Behaviour Change in Household Sanitation	50
6.4	Behaviour Change in Personal Sanitation	51

## **LIST OF ABBREVIATIONS**

CHRDU	-	Central Human Resource Development Unit
DWSO	-	District Water Supply and Sewerage Offices
DWSS	-	Department of Water Supply and Sewerage
MDG	-	Millunium Development Goal
MPPW	-	Ministry of Physical Panning and Works
NEWAH	-	National NGOs such as Nepal Water for Health
NGO	-	Non Governmental Organization
NWRDC	-	The National Water Resources Development Council
NWSSP	-	New National Water Supply Sector Policy
ODF	-	Open Defecation free
RMSO	-	Regional Monitoring and supervision Office
RWSSFDB	-	Rural Water Supply & Sanitation Fund Development Board
SO	-	Support Organization
VDCS	-	Village Development Committes
WASH	-	Water Sanitation and Hygiene
WUC	-	Water User Committee
WSS	-	Water Supply System
WCA	-	Water Consumer's Association
WUSC	-	Water User Sanitation Committee

## ***Abstract***

*The Impact study of water and sanitation activities at Simle Kusunde community has been conducted to explore, explain and analyze on social changes and impacts on health, hygiene and sanitation among the people before and after water and sanitation activities. The study has been focused on the pattern of personal, household and environmental sanitation as well as improvement on social status after adaptation social activities by the people of community. The major objective of the study is to explore and find the impact of Water and Sanitation Activities as well as changes by WASH activities over human lives focusing particularly its social impact on the study area before and after the Simle Kusunde water supply and sanitation project implementation.*

*At the end, research questions were raised and combinations of qualitative and quantitative methods were adopted. On the basis of the research objectives, the trend of social change and impacts on personal, household and environmental sanitation were analyzed and explained comparing on the issues of social change trend and status of health, hygiene and sanitation before the project and after ten years of the project implementation. Further, organizational development of socio-economic institutions and behavioral change among the people, trend of occupational structure have also been explored extensively. The other major task was income generating activities and the pattern of decision making role at household as well as community has been examined and explained. Household survey, observation, a schedule interview, case study and focus group discussions were adopted as part of techniques of sociological research so as to collect data. However, the primary data played a dominant role into drawing a valid conclusion. Some relevant and useful secondary data were also incorporated. To give a vivid picture of social changes and trend of behavioral change on health, hygiene and sanitation, the comparison of social status and sanitation status among the people of Simle Kusunde community before the water and sanitation project and after ten years of implementation were depicted.*

*The concept of natural resource management has shown the best way of safe water resource management for their healthy and hygienic life in the study area. Nepalese society can fit well into increasingly emphasized grassroots level for domestic and community level decision –making, participatory development and fair equity distribution. Here, in the Simle Kusunde community, the using water from traditional pond, lake and stream, have been*

*replaced by safe water from water taps near their surrounding with the adequate planning of water management, biodiversity conservation and the future sustainability of industries like agriculture, mining, tourism, fisheries, and forestry which helps to save time for water fetching. Local people have been utilizing their saved time for social works, animal husbandry, farming and children education. They are improving their health, hygiene and sanitation using safe drinking water, proper use of latrine, applying personal, household and environmental sanitation measures. The major traditional Income generation activities like fishing, goat keeping and agriculture has been changed to Bee keeping, small shop operation, hotel business and kitchen gardening along with agriculture.*

*The concept of modernization has affected the Simle Kusunde community from traditionalism to modernity in a decade. They have updated traditional methods of water fetching, applied new means of occupation, institutionalization of community activities as a product of human planning and action, an active process capable of being both changed and criticized. The theory of social change is an alteration of social order, change in the thought process in humans, access a paradigmatic change in socio-economic structure and driven by cultural, religious, economic, scientific or technological forces, people at Simle Kusunde community has alteration of occupation, extension of socio- economic organizations, change in role of decision making, change in health, hygiene and sanitation, adaptation of income generation activities and change in status of awareness.*

*However, compared to the yesteryear lifestyle, health hygiene and sanitation, involvement in social activities, occupational practices, involvement in income generation activities and decision making role for household and community decision trend of the community, the study has found that the water and sanitation activities along with time, technology and awareness has massive change the lifestyle, health, hygiene and sanitation and so on.*



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

History of human civilization indicates that human settlement started from the area where water resources are available. Greek civilization, Nile river civilization and Hwango river civilization are some example. Similarly, human civilization started from Kathmandu valley near Bagmati River is historical development of human in Nepal. It is very fertile land for human settlement. Initially, spring, well, pond and rivers are the sources of water use by human beings. It is also developed to safe water supply along with sanitation as with the development of human civilization and human settlement. Safe drinking water is one of the basic necessities of our life. It is also one of the indicators of human development. Lack of safe drinking water also leads to poverty and diseases. So availability of safe drinking water for the people is as important as food, shelter and clothes to live a healthy life. Drinking water and sanitation facility are the basic needs of human beings. Development of this sectorl has positive impact upon consumers' health, and will produce healthy manpower, which would contribute to the growth of other productive sectors and activities of the country. Healthy mind is the sign of positive thinking for development. Safe drinking water significantly controls water born diseases and on the other hand, it substantially minimizes health expenses to be incurred on treatment of such diseases. Apart from this, the time saved for water fetching could be utilized in productive works, which in turn, provide opportunity to earn more income to the public. Development of drinking water sector contributes to production of healthy manpower, additional income generation and less health expenditure on treatment. Al together would undoubtedly assist to achieve poverty eradication.

History of piped water supply system development in Nepal dates back to 1895 AD, when the first Bir Dhara system (1891-1893) was commissioned. The system also led to the establishment of Pani Goshowara Adda and it provided limited private and community stand pipes in few selected parts of Kathmandu. The water service was then gradually extended to few other prominent places receiving a fair priority in the First Five Year Plan, which started in 1956, but the sector activities were placed under the Department of Irrigation for a long until the Department of Water Supply and Sewerage (DWSS) was formally established in 1972. Since then it has been providing lead inputs in the

development of water supply and sanitation throughout the country. Initially, DWSS was limited to constructing comparatively larger water supply systems in the district headquarters and urban centers but it gradually expanded to have a nationwide network to serve all kinds of settlements - urban, semi-urban and rural areas. (Rural Water Supply and Sanitation Sector policy, 2004) The water sector and the DWSS underwent a major restructuring in 1990 when the sector activities were streamlined by defining DWSS as the lead agency in the sector. All water supply and sanitation programs split between DWSS and Ministry of Local Development (then MPLD) was consolidated to provide one window projects delivery through DWSS. This proved a major step in sector development as demonstrated by that the existing national water supply coverage of 37% in 1990 has been expanded to over 80% as of today. Similarly, the sanitation coverage defined as access to safe excreta disposal facility has been expanded from about 6% in 1990 to over 43% now. After the unified program implementation approach, it has been possible to achieve worthwhile sustainability of water supply and sanitation services through active participation of benefiting community in the planning, implementation process during projects construction by entrusting the regular operation and maintenance of these systems to the local users committees. (Rural Water Supply and Sanitation Sector policy, 2004, Nepal)

The interim constitution of Nepal has defined access to water as a fundamental right to its citizens and has set a target to provide all Nepalese with access to basic water supply and sanitation services by 2017 A D. To fulfill the developed plan by the government, in depth sociological studies and research are necessary to prepare long term plan and implement long term project on water and sanitation.

DWSS is currently implementing various programs both in the urban and the rural areas to achieve the national target of universal access to water and sanitation services by 2017 and the Millennium Development Goal (MDG) targets which aim to have the population (in 1990) without access to water and sanitation by 2015. The MDG targets for water supply and sanitation in Nepal stand at 73% for basic water supply and 53% for sanitation. DWSS programs are now being implemented to provide basic water supply and sanitation access, improved service levels in water supply as defined by the National Urban Water Supply and Sanitation Policy 2009, mitigating climate change effects in water supply and sanitation service delivery, regulation and bench marking of water utilities across the country as well

as mass scale promotion of sanitation activities to achieve a complete Open Defecation Free (ODF) status for the country by 2017. (National Sanitation Master Plan, 2011, Nepal)

An international day to celebrate freshwater was recommended at the 1992 and observed the first World Water Day on 22<sup>nd</sup> March 1993. Then after, Water day is celebrated every year on 22<sup>th</sup> March in Nepal. (Kantipur National Daily, 14<sup>th</sup> world water day 22<sup>th</sup> March 2005) The decade (from 2005 to 2015) was declared international decade for action with slogan “Water for life”. The government of Nepal has followed the decade with the slogan “water for all” organizing different programs in water and sanitation sector. Tenth five year plan of government of Nepal aimed to fulfill coverage of 76.6% people with facility of safe drinking water. Governmental as well as non governmental organizations have been mobilized to receive the objectives.

The drinking water supply for Pokhara Sub-metropolitan City is from Kalikhola of Armala and Bhotekhola of Purunchaur VDC. District Water Supply Office, Helvetas, UNICEF have been operated water supply and sanitation projects in different VDCs of Kaski District. To address rapid urbanization of Pokhara, drinking water from Mardikhola is also supplied with support from JIACA. Kalika, Majhathana, Hansapur, Begnas of Kaski are covered by Thak water supply and sanitation project, where as Mijuredanda and Maujha water supply and sanitation projects have covered the Mijuredanda and Maujha VDCs respectively. Governmental as well as non governmental organizations have completed the water supply and sanitation projects in different VDCs of Kaski. (RMSO, Kaski, Annual Report, 2011)

From 1989 to 1993, Nepal Red Cross Society, Kaski has completed 15 water supply and sanitation schemes entitle Basic Health and Water Supply Project for the community people of Majhathana, Sishua, Iekhanath, Rakhi VDCs with the financial support from Japan Red Cross. (Red Cross, Kaski, Annual Report, 1993) Similarly, from 1994 to 1999, Armala and Purunchaur VDCs have been covered by 16 water supply and sanitation projects lunched in partnership with the Japan Red Cross (Red Cross, Kaski, Annual Report, 1999). Water supply coverage in Nepal at present is 81% and sanitation is 46%. Similarly, water supply and sanitation coverage in Kaski is 83% and 62% respectively. Kaski district has been declared as first open defecation free district in Nepal. (RMSO, Kaski, Annual Report, 2010)

Government of Nepal has formed Rural Water Supply and Sanitation Fund Development Board (RWSSFDB) in 1995 to expand the demand based water supply and sanitation



projects with public participation at rural area of Nepal. It has worked through non-governmental organizations for water supply and sanitation. The Board has focused on hygiene and sanitation improvement and income generation. Kaski Red Cross has been mobilized by the Board from first batch to nine batches and has completed 86 projects in the rural areas of Kaski. (Red Cross, Kaski, Annual Report, 2012)

The process of water supply and sanitation project at Simle Kisunde community of Lekhnath started after receiving demand letter from Lekhnath to Kaski Red Cross. The Fund Board has approved the project in 2001, started developmental phase for 10 months, 12 months for implementation with software and hardware construction and completed the project in 2003. The project has covered 60 households with 299 populations where 24 households are Jalari, poor and excluded group from main stream of development.

## **1.2 Statement of the Problem**

After the development of pipe system in Nepal, many water supply and sanitation activities as form of different projects have been completed at rural, semi urban and urban area. But question of sustainability and social changes by the project are always being the matter of discussion. The previous research study has addressed the issues but the gaps are found on social impact and the changes of WASH situation on their study. This impact study has been carried to explore and analyze the understanding of water supply and sanitation Activities at Simle Kusunde community of Lekhnath after water supply and sanitation Project implementation. It has been focusing particularly its social impacts and the changes brought by WASH on the people. The major problem this study try to focus on exploration of social impacts and the changes brought by water and sanitation activities of the project. Especially, this study has focused on searching the answer of these research questions.

- ❖ What are personal, household and environmental sanitation pattern of people at study area before and after implementation of water supply and sanitation project?
- ❖ What type of social changes has been occurred after the implementation of project?
- ❖ What type of changes has been seen on social status among the people and adaptation of social activities by them after the implementation of the project?

### **1.3 Objective of the Study**

The major objective of the study was to explore and analyze the impact of water and sanitation activities and changes of WASH over human lives at Simle Kusunde community of Lekhnath after implementation of water supply and sanitation project focusing its social impact of the study area.

Moreover, the specific objectives of study were as follows:

- ❖ To identify the pattern of personal, household and environmental sanitation among the people
- ❖ To analyze about social change after project implementation
- ❖ To find the impact on health, hygiene and sanitation after water supply and sanitation project.

### **1.4 Rationale of the Study**

Many water supply and sanitation projects have been completed but they are not sustainable in Nepal because of inadequate management and operation system. They lack sociological studies at all levels, project planning, inadequate operation, insufficient monitoring and supervision. The top to bottom approach for project implementation is also the major cause of project failure. Feeling ownership to benefited groups, participatory role from respective stakeholders and community participation are essential to address at project selection, planning, implementation, decision making and benefit sharing for long term existence.

The study had been made to explore social impacts among benefited people of Simle Kusunde water supply and sanitation project which was completed in 2003. The project has passed 10 years of implementation where impact study would be feasible to explore, explain and analyze on positive as well negative social changes as well as on health, hygiene and sanitation. None of the studies have been carried out on social change regarding health, hygiene and sanitation activities. This study aimed to explore social changes and find the impacts on health, hygiene and sanitation in the community. It can also be helpful to water user committee providing them feedback, recommendation, and boost up for the future endower. So the topic was rationale in my thought and thus the topic had been selected for research study.

## **1.5 Limitation of the Study**

The study is an academic research for the partial fulfillment of Master of Arts in Sociology. It was based on the particular objectives, so the findings may be not generalized for another place or at the national level. The study had been undertaken limiting itself within the walls of budgetary, temporal and spatial boundaries. This study was limited to 60 households of Simle Kusubde water supply and sanitation project area. The study had focused on social change and impact on health, hygiene & sanitation among the people of study area before and after launching water and sanitation project. The finding and conclusion were drawn from this study may be widely use in similar type of community only but from the sociological viewpoint, a uniqueness of cultural characteristics occurs in different communities. Therefore, it might not be generalized in all cases.

## **1.6 Operational Definition**

### **I. Religion**

Religion is a system of belief, practice and philosophical values concerned with sacred, comprehension of life and salvation from the problem of human existence. (Scott, 1999)

Religion is unified system of beliefs and practices relative to sacred things that is things set apart and forbidden—beliefs and practices which unite into one single moral community called church all those who adhere to them. (Dhurkheim, 1912)

The concept of religion is more related to emotion and sentiments of the people that drives people towards some benevolent doings. (Max Weber, 1978)

### **II. Gender and Sex**

Gender is the term used to refer to the society constructed relations between women and men. It is a social-economic variable to analyze roles, responsibilities, constraints and opportunities of people involved, and it considers both men and women. (Zwarteveen, 1993)

Sex refers the biological characteristics; define humans as female or male. These biological characteristics are not mutually exclusive, as there are individuals who possess both; they tend to differentiate humans as males and females. (World Health Organization, 2002)

Sex role is for income generation and economic contributions where a home shared by a man or men and female partners, into which men bring the food and women prepare it. (Mead, 1949)

### **III. Society**

The term "society" came from the Latin word *societas*, which in turn was derived from the noun *socius* ("comrade, friend, ally"; adjectival form *socialis*) used to describe a bond or interaction among parties that are friendly, or at least civil. Without an article, the term can refer to the entirety of humanity. (Dictionary of Sociology)

### **IV. Consensus Analysis**

Consensus analysis is a theoretical model which posits that agreement in a given domain can provide a valid and reliable measure of cultural knowledge. (Romney et al, 1986)

### **V. Pre Testing**

Pre testing provides not only a test of the clarity of the questions and of the correctness of interpretation, but it also affords the possibility of discovery of new aspects of the problem under scrutiny but not anticipated in the planning stage. (Young, 1996)

### **VI. Family**

A family (from latin: *familiare*) is a group of affiliated by consanguinity, affinity, or co-residence and other most societies it is the principal institution for the socialization of children. (Dictionary of Sociology)

### **VII. Economic Development**

A main characteristic of economic development is the progress toward an increasingly intricate pattern of labor specialization. The earliest stages of economic activities particularly all goods and services are produced and consumed within the family group, but with economic development, people become specialized in particular tasks and the economy of the family group is superseded by the exchange of goods and services. (Boserup, 1970)

## **VIII. Livestock**

Livestock are an integral part rural livelihoods farming systems. Large numbers of poor and marginalized farmers depend on livestock as their primary source of income. Livestock are important resource and act as a 'bank' for poorer households. (Keren H Jobes, 2005)

In mixed farming systems in semi-arid regions, keeping animals is directly linked to crop production, as soil fertility depends on manure. In the arid areas of the world, livestock are often the only source of livelihood, and people's diet is predominantly based on animal products. (FAO, 2001)

## **IX. Education**

Education is the source of enlightenment and knowledge. It is one of the main agents for transformation of traditional society into modern one. Education is the transmission of knowledge by either formal or informal methods. (Dictionary of Sociology, 1999)

## **X. Institution**

An institution is a structure of social order and cooperation governing the behavior of a set of individuals within a community. It may be human or a specific animal one and identified with a social purpose, transcending individuals and intentions by mediating the rules that govern cooperative living behavior. (Stanford Encyclopedia: Social Institutions)

"Institution" is commonly applied to customs and behavior patterns important to a society, as well as to particular formal organizations of government and public services, these are the structures and mechanisms of social order among certain species. (Durkheim)

## **XI. Social Structure**

Social structure refers to the structure of social network ties between individuals or organizations. On the micro scale, it can refer to the way norms shape the behavior of actors within the social system. (Merton, Robert. 1938)

The notion of social structure as relationships between different entities or groups or as enduring and relatively stable patterns of relationship emphasizes the idea that society is grouped into structurally related groups or sets of roles, with different functions, meanings or purposes. (Olanike, Deji)

Social structure may be seen to influence important social systems including the economic, legal, political, cultural systems and others. Family, religion, law, economy and class are all social structures. The "social system" is the parent system of those various systems that are embedded in it. (Dictionary of the Social Science)

## **XII. Sanitation**

"Sanitation refers to the provision of facilities and services for the safe disposal of human urine and feces. Inadequate sanitation is a major cause of disease and improving sanitation is to have a significant beneficial impact on health both in households and across communities. It also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal. (World Health Organization)

For any social and economic development, adequate sanitation in conjunction with good hygiene and safe water are essential to good health. (Mara, Lane and Scott)

## **XIII. Environmental Health**

Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors. It is targeted towards preventing disease and creating health-supportive environments. (WHO Environmental Health)

## **1.7 Organization of the Study**

This study had been organized in seven chapters. Chapter one dealt with introduction in which background of the study, statement of the problem, objective of the study, rationale of the study, limitation of the study, organization of the study and operational definition had been incorporated. Chapter two presented review of literature. Theoretical review, policy and planning of government of Nepal, non governmental organizations' involvement in water and sanitation, review of previous study and conceptual framework had been discussed. Chapter three explained research methodology in which rationale of selection of study site, research design, data collection tools and techniques, and data analysis and presentation had been presented. Similarly, chapter four included physical and economic setting, selected characteristics and educational status of study area. Chapter five showed the social changes in the community, people and their involvement. Under this section people's participation in social institutions, social structure, social behaviours, economic situation and case study had been dealt. Chapter six showed the impact on health, hygiene, sanitation and social status among the community alongwith case study. At the end, the chapter seven described the summary, major findings, conclusion and recommendations

## **CHAPTER TWO**

### **REVIEW OF LITERATURE**

#### **2.1 Theoretical Review**

##### **2.1.1 Theory of Natural Resource Management**

Natural resource management refers to the management of natural resources such as land, water, soil, plants and animals with a particular focus on how management affects the quality of life for both present and future generations. (Billgrena, C. & Holme, H., 2008)

Natural resource management deals with managing the way in which people and natural landscapes interact. It brings together land use planning, water management, biodiversity conservation, and the future sustainability of industries like agriculture, mining, tourism, fisheries, and forestry. It recognizes that people and their livelihoods rely on the health and productivity of our landscapes, and their actions as stewards of the land play a critical role in maintaining this health and productivity. (Billgrena, C.& Holme, H., 2008)

Natural resource management is also congruent with the concept of sustainable development a scientific principle that forms a basis for sustainable global land management and environmental governance to conserve and preserve natural resources. Natural resource management specifically focuses on a scientific and technical understanding of resources and ecology and the life-supporting capacity of those resources. Environmental management is also similar to natural resource management. In academic contexts, the sociology of natural resources is closely related to, but distinct from, natural resource management. (Grimble, R., 1998)

Management of natural resources involves identifying who has the right to use the resources and who does not for defining the boundaries of the resource. (Ostrom and Mickie, 2005) The resources are managed by the users according to the rules governing of when and how the resource is used depending on local condition. (UNDP, UNEP, World Bank and Resources Institute, 2005) A successful management of natural resources should engage the community because of the nature of the shared resources the individuals who are affected by the rules can participate in setting or changing them. (Ostrom and Mickie, 2005) The users have the rights to device their own management institutions and plans under the recognition by the government. The right to resources includes land, water, fisheries and



pastoral rights. (UNDP, UNEP, World Bank & Resources Institute, 2005) The users or parties accountable to the users have to actively monitor and ensure the utilization of the resource compliance with the rules and to impose penalty on those peoples who violates the rules. (Ostrom and Mickie, 2005) These conflicts are resolved in a quick and low cost manner by the local institution according to the seriousness and context of the offence. (UNDP, UNEP, World Bank and Resources Institute, 2005)

### **2.1.2 Theory of Modernization**

Modernization theorists often saw traditions as obstacles to economic growth. Furthermore, while modernization might deliver violent, radical change for traditional societies it was thought worth the price. Critics insist that traditional societies were often destroyed without ever gaining promised advantages if, among other things, the economic gap between advanced societies and such societies actually increased. The net effect of modernization for some societies was therefore the replacement of traditional poverty by a more modern form of misery, according to these critics. (Brugger & Hannan, 1993) Others point to improvements in living standards, physical infrastructure, education and economic opportunity to refute such criticisms.

Modernization refers to a model of an evolutionary transition from a 'pre-modern' or 'traditional' to a 'modern' society. The teleology of modernization is described in social evolutionism theories, existing as a template that has been generally followed by societies that have achieved modernity. (Brugger & Hannan, 1993)

Among the scientists who contributed much to this theory are Walt Rostov, who in his *The Stages of Economic Growth: A Non-Communist Manifesto* (1960) concentrates on the economic system side of the modernization, trying to show factors needed for a country to reach the path to modernization in his Rostov a take-off model. David Pater concentrated on the political system and history of democracy, researching the connection between democracy, good governance and efficiency and modernization. Seymour Martin Lipset in "Some Social Requisites of Democracy" (1959) argued that economic development sets off a series of profound social changes that together tend to produce democracy. David McClelland (*The Achieving Society*, 1967) approached this subject from the psychological perspective, with his motivations theory, arguing that modernization cannot happen until a given society values innovation, striving for improvement and entrepreneurship. Alex Inkeles (*Becoming Modern*, 1974) similarly creates a model of *modern personality*, which

needs to be independent, active, interested in public policies and cultural matters, open for new experiences, rational and being able to create long-term plans for the future. Edward Said "Orientalism" interprets modernization from the point of view of societies that are quickly and radically transformed.

### **2.1.3 Theories of Modernity**

Among the most conspicuous theories of social change are those that go under the name of "modernity" or "modernization" and include other related terms, such as "development" as well. Yet within this family of theories there are significant differences about whether modernization involves continuity or discontinuity, whether the theorist is relatively optimistic or pessimistic, whether the "modern" phase of social development has given way to some other era. Two examples of scholars who have stressed the continuity of development are Weber and Parsons. Weber's description of Occidental rationalism is particularly emphatic on diverse systems as rational bourgeois capitalism and socialism. Parsons posited the constancy of certain values in modernization and in a "relatively optimistic" to flourish for another one hundred to two hundred years (Parsons 1971, 141). Most nineteenth-century theories of modernity were optimistic in character and based on ideas of progress. By and large, the theorists who focus on the specific characteristics of "advanced industrial societies" often implicitly assume that capitalism, democracy, the market economy, and a prosperous society will assert them and live on (Zapf 1983, 294). Bendix (1979) offers another variant of modernity that tempers Western European rationalism with realism. He notes the loss of the Western feeling of superiority, which had lasted for centuries, and argues that excesses in the developments that brought about modernity are responsible for that loss. Bendix stresses on the twofold nature of the value of modernity and his rejection of an exclusively optimistic or pessimistic interpretation. Above and beyond these different assessments there is general agreement that modernity involves both rapid and all-encompassing change and that the origins of this process go back several centuries. There are, however, some differences in identifying the decisive turning points. Parsons places the beginning of modernity in the Renaissance and Reformation, but in addition he stresses the salience of the industrial and democratic revolutions and the educational revolution that followed. In this contribution to this volume Eyerman dates the decisive origins of modernity much later. He stresses the impact "of industrialization, urbanization, and political democracy on essentially rural and autocratic societies." More specifically, he identifies the place and time as "Europe in the half of the nineteenth

century." Bendix also describes modernization as emerging from the changes in the social structures in England and France that were associated with the industrial and political revolutions in these societies. Perhaps these differences in interpretation can be reconciled by indicating that those who identify earlier origins refer more to cultural origins and those who stress later developments emphasize the dramatic changes in social structure. The issue of the end of modernity and the onset of post modernity is also a matter of disagreement. Fundamentally, the dispute is over the question of continuity versus discontinuity. The elements of any theory of the process of modernization can usually be identified under the headings of structural determinants, processes and mechanisms, and outcomes. These elements indicate that theories of modernization belong in the category of theories of social change.

#### **2.1.4 Modernity and Social Inequality**

A number of the contributions to this volume take up the reciprocal relations among structured inequality, group contradictions and the conflicts that arise from them, and modernity. These relations are evidently complex. Inequality plays a large role in shaping modernity because it generates class and group conflicts, which become the basis of the institutional invention and innovation that come to constitute the structures of modernity. The increasing proliferation of roles and institutional structures, however, provides an ever-increasing number of structural bases for inequality. Indeed, some have identified distinctive patterns of inequality (such as class, gender, and race) as the fundamental characteristic of modernity.

With respect to the overall diagnosis of patterns of inequality in the contemporary West, we find three general points of view. Marxist-oriented authors, see increasing inequality, without agreeing its structural bases. Braverman (1974), focusing on the labor process in monopoly industry wake of Taylorization labor power which produced greater proletarianization. Gorz (1982) stresses working class is divided between a well-organized core in primary labor markets and a fragmented, nonorganized lumpenproletariat at the periphery of the laboring society in the form of "new" social movements. A second group of authors sees unchanging social inequality as "stable" or even "ultrastable" because of the distribution of property and income has not changed more than a few percentage points in the past fifty to a hundred years. Yet another group of authors observes a tendency toward a reduction in inequality Recent empirical studies have produced results that are consistent

with this opinion. This becomes most viable when other dimensions of political inequality, educational inequality, and the leveling of life-styles.

Many of the apparent confusions and contradictions among these diagnoses of inequality probably stem from the problem of confounding apples and oranges. Different answers will emerge depending on which aspect of inequality—the labor process, the distribution of property and income, social mobility and status attainment, or access to education, power, and prestige—is chosen for focus. In any event, rather than treating the subject of inequality as a unified whole it seems essential to disaggregate the notion into its various dimensions in order to identify the different patterns of inequality and the different mechanisms that determine the character of each.

The metaframework laid out at the beginning of this introduction is applicable to the study of inequality and its changes. With respect to structural conditions and mechanisms, the two general traditions in sociology are the functionalist and the conflict approaches. The functionalist approach stresses cultural (value) determinants and allocative mechanisms; the conflict approach stresses structures of domination and processes of conflict.

### **2.1.5 Theory of Social Change**

A society, or a human society, is a group of people related to each other through persistent relations, or a large social grouping sharing the same geographical or virtual territory, subject to the same political authority and dominant cultural expectations. Human societies are characterized by patterns of relationships (social relations) between individuals who share a distinctive culture and institutions; a given society may be described as the sum total of such relationships among its constituent members. In the social sciences, a larger society often evinces stratification and/or dominance patterns in subgroups. Insofar as it is collaborative, a society can enable its members to benefit in ways that would not otherwise be possible on an individual basis; both individual and social (common) benefits can thus be distinguished, or in many cases found to overlap. A society can also consist of like-minded people governed by their own norms and values within a dominant, larger society. This is sometimes referred to as a subculture, a term used extensively within criminology.

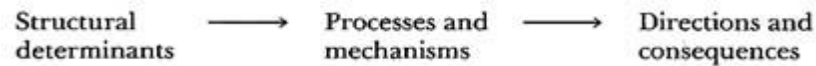
More broadly, a society may be illustrated as an economic, social, or industrial infrastructure, made up of a varied collection of individuals. Members of a society may be from different ethnic groups. Used in the sense of an association, a society is a body of

individuals outlined by the bounds of functional interdependence, possibly comprising characteristics such as national or cultural identity, social solidarity, language, or hierarchical organization. Social progress is the idea that societies can or do improve in terms of their social, political, and economic structures. This may happen as a result of direct human action, as in social enterprise or through social activism, or as a natural part of socio cultural evolution.

Change is such an evident feature of social reality that any social-scientific theory, whatever its conceptual starting point, must sooner or later address it. At the same time it is essential to note that the ways social change has been identified have varied greatly in the history of thought. Furthermore, conceptions of change appear to have mirrored the historical realities of different epochs in large degree. In his essay for this volume Giesen shows that even though ideas of time existed and evolved over thousands of years—ranging from the identification of time as a period of action and a period of living to the differentiation of time according to hierarchical position (the gods are eternal; empires rise, prosper, and fall; humans have a time lifespan), to the conception of time as progress—stability and order were the norm and changes were exceptional. But in more recent centuries the dominant conceptions of change itself have changed. Social change as a concept for comprehending a continual dynamic in social units became salient during the French Revolution and the industrial revolution in England, both periods of extraordinary dynamism. Comprehensive change became normal, and, accordingly, social philosophers and later sociologists gradually replaced the older ideas of natural constants and the contractual constructions of natural and rational order with conceptions of social change, even though precise formulations were slow to appear. For these thinkers social change was "a property of social order, known as change" (Luhmann 1984, 471). Theory of change must contain three main elements that must stand in definite relation to one another:

- ❖ Structural determinants of social change, such as population changes, the dislocation occasioned by war, or strains and contradictions.
- ❖ Processes and mechanisms of social change, including precipitating mechanisms, social movements, political conflict and accommodation, and entrepreneurial activity.
- ❖ Directions of social change, including structural changes, effects, and consequences.

Graphically, these may be arranged as follows:



Even this rendition of the metaframework for models of change is overly simple, for among the structural determinants of different processes of social change are the accumulated consequences of previous sequences of change.

Social change refers to an alteration in the social order of a society. The base of social change is change in the thought process in humans. It may refer to the notion of social progress or socio-cultural evolution, the philosophical idea that society moves forward by dialectical or evolutionary means. It may refer to a paradigmatic change in the socio-economic structure, for instance a shift away from feudalism and towards capitalism. Accordingly it may also refer to social revolution, such as the Socialist revolution presented in Marxism, or to other social movements, such as Women's suffrage or the Civil rights movement. Social change may be driven by cultural, religious, economic, scientific or technological forces. More generally, social change may include changes in nature, social institutions, social behaviors, or social relations. In social sciences, social order is a set of linked social structures, social institutions and social practices which conserve, maintain and enforce ways of relating and behaving. A "social order" is a relatively persistent system of institutions, patterns of interactions and customs, capable of continually reproducing at least those conditions essential for its own existence. The concept refers to all those facts of society which remain relatively constant over time. These conditions could include property, exchange and power relations, but also cultural forms, communication relations and ideological systems of values.

### **2.1.6 Patterns of Structural and Cultural Change**

Among the most persistent themes that appear in the evolutionist and neoevolutionist literature are those of differentiation, integration, conflict, and, in particular, the relationship among these. The notion of differentiation (or specialization) was central in the work of most authors but the causes and consequences of social differentiation remain unclear.

One way of organizing existing thought on structural differentiation is to trace the ways in which this phenomenon has been related to both integration and conflict. The differentiation was regarded as a fundamental principle of change, but the integration of specialized

activities was not problematic because it was regarded as a result that emerged from the aggregation of voluntary exchange in society. Marx posited contradictions, conflicts, and ultimate disintegration as arising from the differentiation of economic and social positions in economic systems. Durkheim stressed the need for positive integration in a differentiated society if anomie and conflict were not to become endemic.

Alexander argues that to improve the theory of differentiation, it is "necessary [to have] ... a more phase-specific model of general differentiation and of social process alike." Here Alexander focuses on the key role of war and conflict. He argues that the theory of differentiation has as yet been unable to incorporate the notions of "political repression," "ferocious violence," "oppression," and "war." By distinguishing between polarization and differentiation on the one hand and various historical situations on the other, Alexander works toward a scheme that will more readily incorporate processes of change such as revolution, reform, and reaction. One advantage of his formulation is that it proposes a reciprocal relationship between conflict, conquest, and repression on the one hand and processes of differentiation on the other. Each set of variables plays a central causal role in the development of the others. In related formulations Eder regards conflict as starting mechanisms of social change through variation, and Eyerman's analysis begins with societal conflict. This focus on conflict brings to mind the Marxist heritage of differentiation as the source of the contradictions that destabilize and ultimately destroy a society. Lockwood's and Dahrendorf's criticisms of Parsons's formulations of the positive relation between differentiation and integration pushed both of them somewhat in a Marxist direction in that they regarded conflict as the core consequence of differentiation, especially the differentiation of authority.

Dahrendorf's current views of social change still echo this position: "Social change is defined in terms of direction and rhythm by that power of unrest for which it is so difficult to find a sufficiently general name, by incompatibility, discord, antagonism, contradiction and resistance, through conflict" (Dahrendorf 1987, 11). Finally, it should be noted that Eisenstadt's insistence on the centrality of group conflict in the development of civilizational change is in keeping with the general thrust noted: the effort to synthesize systematically the conceptions of conflict, differentiation, and integration.

In addition to a rebirth of interest in differentiation, which is a phenomenon primarily at the social-structural level, there has been a revitalization of interest in cultural change and the

power of culture as an active determinant of institutional change. This tradition brings to mind above all the work of Max Weber, which established the dynamic power of culture, particularly religion, in social change.

### **2.1.7 Water**

Water covers 71% of the Earth's surface, and is vital for all known forms of life. On Earth, 96.5% of the planet's water is found in oceans, 1.7% in groundwater, 1.7% in glaciers and the ice caps of Antarctica and Greenland, a small fraction in other large water bodies, and 0.001% in the air as vapor, clouds (formed of solid and liquid water particles suspended in air), and precipitation. Only 2.5% of the Earth's water is fresh water, and 98.8% of that water is in ice and groundwater. Less than 0.3% of all freshwater is in rivers, lakes, and the atmosphere, and an even smaller amount of the Earth's freshwater (0.003%) is contained within biological bodies and manufactured products. (Henniker, J. C., 1949)

Water on Earth moves continually through the hydrological cycle of evaporation and transpiration (evapotranspiration), condensation, precipitation, and runoff, usually reaching the sea. Evaporation and transpiration contribute to the precipitation over land. Safe drinking water is essential to humans and other lifeforms even though it provides no calories or organic nutrients. Access to safe drinking water has improved over the last decades in almost every part of the world, but approximately one billion people still lack access to safe water and over 2.5 billion lack access to adequate sanitation. There is a clear correlation between access to safe water and GDP per capita. However, some observers have estimated that by 2025 more than half of the world population will be facing water-based vulnerability. A recent report (November 2009) suggests that by 2030, in some developing regions of the world, water demand will exceed supply by 50%. Water plays an important role in the world economy, as it functions as a solvent for a wide variety of chemical substances and facilitates industrial cooling and transportation. Approximately 70% of the fresh water used by humans goes to agriculture. (Baroni, L.; Cenci, L.; Tettamanti, M. & Berati, M., 2007)

The earth is the only place in the universe, known so far, where liquid water exists in substantial quantity. Oceans, lakes, rivers, glaciers and other liquid water bodies or solid water cover more than 70% of our world surface. Only a small fraction of the Earth's abundant water is available to us as fresh water. About 97% is found in the Ocean that is too salty for drinking, irrigation and industry. Out of the remaining 3% that is fresh water,



2.997% is locked up in the ice caps for use to living organisms. So only about 0.003% Earth's total volume of water is easily available to us in the form of soil moisture, exploitable ground water, water vapor and lakes and stream. (Lekhak, 2003) The amount of water human body is 80% so human life can not sustain without water. It is very essential and important substances for life. Because of inadequate vision and planned to use properly, majority of people are beyond the access water facility.

Water is basic to life and good quality water is sufficient quantities for drinking and sanitation is a critical determinant of the standard of rural and urban life. (Shah, 2000) Water is very essential for Water pond and well management, development of drinking water system, electricity production, irrigation, and industry operation. The quantity water pollution is on the basic of increasing level of drinking water. Fifty lakh people in the world die due to the water born diseases annually. The management of safe drinking with awareness on personal, household and environmental sanitation is only tools to reduce human lose form waterborne diseases. So clean water is the common property, resource and water is life. Water and human life are inter related each other, good health needs safe and healthy water

Almost Nepalese fulfill their necessity of drinking water from traditional water sources. In hilly area, almost houses are located far from the sources and the water fetching is mainly done by women. In some places, they take hours of time which deprives the girls from their basic education. If the tap would have been constructed near the house, the requery of water fetching is reduced and they would have time for other economic activities. (Dixit, 2004)

There are new challenges for water management in mountain area not only because of increasing water needs of the population but also on account of many changes in the environment and in society. Water is a dynamic and critical natural resource has implications for institutional and policy structures of any given society. (Baskota, et al, 2000)

## 2.2 Nepal Government Planning for Water and Sanitation Sector

Further to the planned intervention, Nepal government has made several policy interventions in the water and sanitation sector. The major interventions have been reviewed in the following paragraphs:

- I. **National Code of Conduct (1963)** established the prior use criteria for water resource allocation and confirms the priority of upstream use, except in prior use instances. It also gives the right to use land (private, public) for irrigation infrastructure, contingent on payment of necessary and reasonable fees and compensation. This act is not always consistent with the Water Resources Act.
- II. **Directives for construction and management of water supply projects (1991)** outlined the process for establishing a water system through area of steps that specify DWSS and local government's roles and responsibilities during the project planning, implementation and post construction phase. The document includes several attachments formalizing the role of the WUC in water service provision, and initiating the move toward DWSS becoming facilitation rather than an implementing agency.
- III. **Water Resource Act (1993)** stipulated that the state owns all water resources and citizens only have the right of use. The control and management of certain aspects of water resources also fall within the jurisdiction of local government including VDCs and municipalities. Drinking water and domestic use has for drinking and domestic purposes.
- IV. **Nepal National Sanitation Policy (1994)** defined sanitation as all activities that improve and sustain hygiene, to raise the quality of life and individuals' health. The policy directives focus on behavior change, community involvement, and the participation of NGOs as partners on development. The policy outlines major efforts in health and hygiene education lined to the provision of WSS services.
- V. **Water Supply Regulations (1997)** established certain requirements for the formation of a Water Consumer's Association (WCA), its legal regulation and roles and responsibilities to provide water itself or through a licensee.

- VI. **Local Self-Governance Act (1999)** sought to strengthen the decentralization process delegation greater authority and responsibility of to local committees vested with the power to collected fees from consumers for O& M.
- VII. **New National Water Supply Sector Policy (NWSSP), 1998** is an official blueprint of the government elucidating commitment and future direction in the water supply and sanitation sector. The document provides clear cut policy strategies of ninth plan and future programs including an elaborate framework of planning and programming, technology, institutional needs, legal issues, financial aspects, operation and maintenance, information management etc. Among others, the document clearly outlines that "His Majesty's Government will attempt constantly to protect the environment, improve environmental sanitation and control any activity which endangers healthy and the productive lice of Nepali people". The document targets to achieve the following objectives:
- Provide and ensure safe, convenient and adequate water supply to all Nepalese people with sanitation as an integral component and with specific focus on disadvantages groups.
  - Reduce the suffering and drudgery of women and children, who are traditionally involved in collecting water and taking care of domestic sanitation and hygiene.

In order to achieve these objectives, the document has given matching strategies and have said down policies, which covers areas such as policy and programming technology, institutional, legal framework, financial aspects, operation and maintenance and information management.

### **2.2.1 Institutional Arrangements**

- I. **National Planning Commission** is responsible for overall water sector planning and coordination. The NPC sets overall national policy, strategy, and National Plan targets for all sectors of Nepal's economy.
- II. **National Water Resources Development Council. The National Water Resources Development Council (NWRDC)**, established under the Water Resources Act of 1992, is responsible for national water resources decision –making.

III. **Ministry of Physical Planning and Works (MPPW)** is responsible for formulating and guiding sector activities to meet objectives and targets outlined in the National Department of Water Supply and Sewerage.

IV. **Department of Water Supply and Sewerage** is the lead government agency for WSS, DWSS is now the lead agency in the sector with the responsibility for sector planning, coordination, technical standards, management of design and construction activities for WSS facilities, coordination of health and hygiene education, and construction of sanitation facilities. Although current policy is to facilitate WSS construction with O&M the responsibility of Water Use Groups, DWSS continues to operate and maintain a number of larger water supply systems through its District Water Supply and Sewerage Offices (DWSO). There is a DWSO in each of the 75 districts, headed by a District Engineer. The DE manages a staff including Assistant Engineers, Overseers, Water Supply and Sanitation Technicians, a Women's Worker and administrative support staff. Additional project related staff and temporary staff are assigned to the district, depending on workload and the number (and size) of water supply systems under the direct management of the DWSO office. DWSO responsibilities include:

- Coordination of centrally funded program activities with local government agencies;
- Design of new water supply systems;
- Managing the construction process( including training for WUSCs and technicians, and coordinating sanitation programs);
- Operating and maintaining water supply system that have not yet been handed over to WUSCs; and
- Providing backup technical and financial support to communities as requested to overcome major water supply system problems.

V. **Ministry of Finance** is responsible for allocating budgets for WSS Programs.

VI. **Ministry of Local Development** has the overall responsibility for overseeing activities at district, and village level. The ministry provides administrative, technical, and financial/ accounting support to DDCs through the Local Development Officer (LDO) and his staff. Various local government agencies including DDCs, Municipalities and

VDCs each have responsibility for providing WSS services. Although budgets for construction of facilities are limited and must address other sector needs as well, these agencies to a limited extent do support the construction or rehabilitation of smaller water supply schemes through central government grant funds.

### **2.3 Non Government Organizations in Water and Sanitation Sector**

Besides governmental organization, a wide range of international NGOs and indigenous NGOs, bilateral and multilateral agencies, and independent board are created to liaison between the funding agencies and the users. NGOs are also working to improve WASAN services in rural areas. National NGOs such as Nepal Water for Health (NEWAH) and Nepal Red Cross Society have a substantial history of sectoral support particularly for the construction of small gravity water systems, shallow tube well system for hand pumps, and promotion of improved sanitation. Donor-financed projects ( eg FINIDA's rural water supply and sanitation project in the Lumbani Zone) pioneered project implementation modalities that built the experience of small local NGOs , strengthened any specific weaknesses, and then included them as full partners as Support Organization (SOs) in the project planning and implementation process. The Rural Water Supply and Sanitation Fund Development Board (RWSSFDB) have adopted a similar approach that to date has included nearly 100 smaller local NGOs as SOs. International NGOs such as Water Aid and Helvetas have also worked in partnership with local NGOs, providing funding; guidance and training to strengthen both national and local NGOs. There are now twelve national NGOs and as many as a hundred local NGOs that have participated in WSS projects almost all of this experience is with small gravity WSS schemes in the hills, or hand /borehole programs in the Terai. Rural Water Supply and Fund Development Board was established to provide financing for rural WSS systems through district involvement of local NGOs. The Fund Board is an autonomous entity established under the auspices of MHPP, Which is represented on the Board of Directors. The Fund Board provides assistance to rural communities through district level and local level NGOs (referred to as Support Organization of SOs). SOs manage the pre-development, development and post development phases of project , focusing especially on community awareness, planning and training aspects of a project. Larger national NGOs and private companies (referred to as Service Agencies) provide training and technical services to the Fund Board and participating SOs. World Health Organization Environmental Health Program has been supporting DWSS for some 32 years through the Community Water Supply and Sanitation

Project and since 1995, through the Environmental Health Program. The water quality monitoring program developed from a 1996 conference, which identified the need for drinking water quality standards, and a country-wide monitoring and surveillance system. A national task force on drinking water quality has been established with some 16 member representing DWSS, NWSC, MHPP, Department of Health, the Bureau of Standards, and selected experts. UNICEF Environmental Sanitation Program (UNICEF) has been supporting the WSS sector in Nepal since 1992. The current hygiene, sanitation, and sustainable water supply program (1997- 2001) is funded at about \$1.5 million annually. The DWSS Environmental Sanitation Section and the Central Human Resource Development Unit (CHRDU) are the key government partners for the program with collaboration from Nepali NGOs and support from consultants. The UNICEF is also helping the government to prepare the national sanitation action plan which seeks to integrate sanitation and hygiene, community participation, child rights and gender issues into national policy, planning and programs. Similarly, it is supporting the intensive hygiene and sanitation program, which aims to produce measurable change in the health of children through transmission and reinforcement of health and hygiene messages about hand washing, food and water protection/ covering garbage disposal, construction and use of sanitation facilities, clean food, and proper use of clean water. Finally, the third program, sustainability in water supply, seeks to ensure that the benefits of past investments are realized.

## **2.4 Review of Previous Study**

### **2.4.1 Sanitation and Drinking Water**

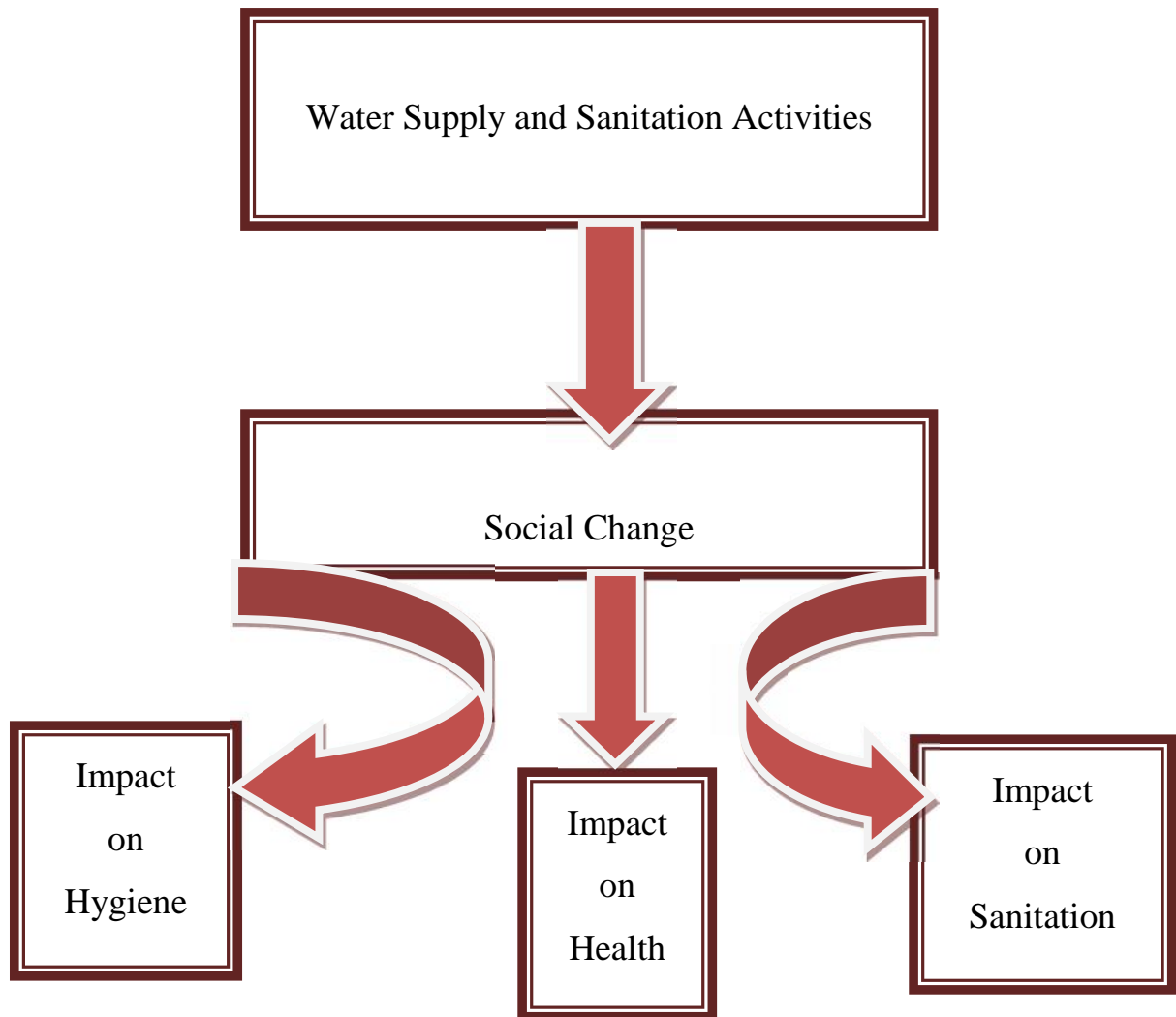
In the decade of 1970s, in the international area, two women, one British economist- Barbara Ward, and the other American anthropologist Margaret Mead- individually initiated the activity for drinking water supply at the United Nations (UN) Conference on Human Settlement (HABITAT) in Vancouver, 1976. They emphasized on favorable policy formulations and approvals on water supply and sanitation. The following year, World Water Conference, Argentina, was carried forward with the specific recommendations so that the UN created a ten-year- program to focus on water and sanitation. The General Assembly of UN subsequently passed the resolution creating the International Drinking Water Supply and Sanitation Decade, 1980-1990. To express the commitment on the International Drinking Water and Sanitation Decade, Nepal Government stated its priority

concern to have accessible piped drinking water supply by the end of its five year plan. According to UNDP (2001), 80 percent of Nepalese people have access to improved water supply where sanitation coverage is only at 27 percent. In the primordial time, drinking water in the village or rural areas was planned by the rural people themselves. They themselves used to identify the sources and use the water. The distributions of water were made on the basis of mutual understanding. They used to maintain the source collectively and use it. The modern organizational / governmental efforts to develop drinking water supply sector have not had long history as a systematic approach. In Nepal, the Ministry of Water Resources was originally held responsible for all the drinking water supply under its Department of Irrigation and Water Supply, which was established in 1966 and the development was performing its roles till 1971. And in 1972, under the umbrella of the Ministry of Water, the Department for Water Supply and Sewerage (DWSS) was created (Adhikari, 2001). Lack of public participation is the main cause of Water supply and sanitation project unsustainable in Nepal (World Bank report 1992). Development is impossible without people participation where major numbers are not benefited if women are excluded (Luitel 1992). Drinking water is major used by rich and high class people of village in the project supported by foreign donor. Poor and dalit people are getting waste water (Rural area water planning, Sharma 2002)

Nepal Living Standards Survey, 1996 conducted by central Bureau of statistics of Nepal Government (G/N) estimated that about 33 percent of households of the country have access to piped water (supposed to be safe water). Nearly 66 percent of the households depend on wells which are not acceptable from a health point of view. About 21 percent of households depend largely on unreliable sources like river and spring water. The access to piped water varies significantly with regions, urban and rural parts of the country. Only 31 percent of rural households of the country and 4.4 percent of the households in the Terai have access to piped water supply. Majority of households in Terai (97.2%) receives water from well and land pumps that are not at adequate depth for yielding safe water. In the mountains and the hill regions, a considerable proportion of households depend on other sources like river and seasonal spring water. (NRCS, DWSP. 1998/99)

## 2.5 Conceptual Framework

To study the social impact of Simle Kudunde Water Supply and Saitation Project, the social change and impact on health, hygiene and sanitation had been studied.





## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This chapter clearly showed the methodological approaches applied and put forward a description on how informations were collected and analyzed.

#### **3.1 Rationale of Selection of Study Site**

Basically, the study area was in Simle Kusunde community, north-east part of Lekhnath municipality ward no-9 and an adjoining area of Bagnas Lake. It is sloppy and even scatters land. The study had been made to explore social impacts among benefited people of Simle Kusunde water supply and sanitation project which was completed in 2003. The implementation of the project have been running for 10 years where impact study would be feasible to explore, explain and analyze on positive as well negative social changes and regarding health, hygiene and sanitation. The community has varieties of ethnicity, geographical and environmental diversity. So, the study would be valuable. None of the previous studies had attempted to explore the impact of water and sanitation activities on social change. It can also be helpful to user committee providing them feedback, recommendation and boost up for the future endower. So the topic and the study site is rationale in my thought and thus the area had been selected for research study.

#### **3.2 Research Design**

In the current study the Exploratory Research Design had been used to understand various aspects or issues related to impacts and changes to the community which had focused on health, hygiene and sanitation practices while descriptive research design had used to describe the causes and effects of involvement, and social, cultural, and cognitive significance of community participation in various activities. The study had explored the social impacts and changes of water supply and sanitation project to the community. So the people of the community were the main sources of the information, which had gathered for the study, especially from covered area of the project. The study had described the general life pattern, socio-economic condition and cultural features of them. The research had used both an exploratory and a descriptive research design. This had facilitated the exploration of

different benefit and practices on water supply and sanitation, peoples' participation and, the socio-economic activities as well as change in cultural activities.

An interview schedule model had used for the collection of information. However, the descriptive design had employed to grasp the differently scattered information. No specific variable had taken as determinant and no specific hypothesis had formulated. In this connection brief description of local culture, economic, educational scenario, demography along with its relationship with the gravity flow water supply had been discussed and sanitation and the institutional activities related water supply and sanitation were described.

### **3.3 Nature and Source of Data**

The nature of data is primary raw information from community people through field survey and for secondary information, Critical review of statistical reports, annual reports and profiles of district and village development committee, profiles and plan documents, journal articles, government policy documents and other published materials and official records of INGOs and NGOs had been taken as sources of information.

Both primary and secondary data were used in this study. Household survey, observation, schedule interview, case study and focus group discussions were adopted as part of techniques of sociological research to collect qualitative and quantitative data. Primary data played a dominant role into drawing a valid conclusion. The main sources of primary data were the household head and other members, community leader, women and institutional members.

Secondary data were collected by adopting various secondary means. Beyond other means, it was collected from previous studies, published and other unpublished documents from related literatures. Secondary information was helpful enough in checking the validity and reliability of empirical field data. Some important quantitative hard data were also included.

### **3.4 Universe**

This study had specially focused on social impacts and the changes by WASH activities among the people of Simle Kusudne community. For that propose, the universe of the study site was 60 households and total population is 299 at Piple, Nagarchowk and Dhaulikuna in ward no -9 of Lekhnath municipality. Due to the small size of household and population, the census study had imposed. The primary information had been collected from household

head. During the household survey, some household heads were not available, so primary information from household representative had been collected.

### **3.5 Pre-Test**

For the purpose, at the very beginning the pilot study was carried out in 10 household at the community covered by Kahun Adharsha rural water supply and sanitation project. The pilot study had helped to refine the questions in the schedule and to discover new aspects about social impacts and the changes. Some important inferences and insights were obtained from this procedure. It had been incorporated into the schedule before final questions had been prepared and administered.

### **3.6 Validity and Reliability**

The research method and questionnaire had been tested using the pretest method through the pilot study to the similar water supply and sanitation activities at Kahun VDC among 10 households. After the pilot study, the research methods and questionnaire model had been refined for the valid conclusion. The information had been collected and analyzed with adequate method for validity test of the findings. The information had been tested and verified repeatedly and the findings were found the same. For reliable result and finding actual, real and factual data were used and repeatedly tested.

### **3.7 Ethics**

This research study was based on sociological research ethic. The primary data had been collected from the local people voluntarily concerning only on research objective. The information had been collected in direct presence of local people. Individual and household matter had not been coped during field survey. The collected information had presented as exact as they had provided during field survey. The informants had been assured for privacy and confidency while collecting information

### **3.8 Primary Data Collection Tools and Techniques**

Primary data had been collected by employing various techniques via the field study adopting various participatory means viz. household survey, case study, interview, observation, focus group discussion, etc.

As the research study had mainly been based on primary data, men and women have equally involved. However, special attention had been given to the women in order to get their views and attitude toward WASH activities during the process of gathering information.

### **3.8.1 Household Survey**

Enumeration in the first phase of the fieldwork, each household had enumerated using the interview schedule. A small list of key items had been prepared for gathering the information.

### **3.8.2 Focus Group Discussion**

Two focus group discussions had been held for cross comparison of the data collected from the household survey. A checklist was used for the discussion among groups of local people which helped for cross comparison of the data from formal interviews, observation and household survey.

### **3.8.3 Observation Method**

Observation of household had been operated to collect more qualitative data such as use of drinking water sanitation behaviors, kitchen gardening and vegetables cultivated, women and children's activities, water user groups activities and their discussion related with water and sanitation . Both covert and overt observations had been conducted to obtain related data. A checklist was used to conduct unstructured observation.

### **3.8.4 Key Informant Interview**

Local history, inception of gravity flow water, attempts to solve the drinking water problems, changes in life patterns had been recorded from key informants. For this, a schedule with unstructured questions had been used for informal interview to the cross comparison of the data from formal interviews.

### **3.8.5 Case Study**

Case study method in-dept had been used for the study of some members of the community which helped to gain information related social changes and impact on health, hygiene and sanitation. It helped in recording verbal stories, unique events related water and sanitation.

### **3.9 Data Analysis and Presentation**

Collected data had been analyzed using qualitative and quantitative tests. The quantifiable raw data from the field survey had been processed and analyzed using appropriate tools from the computer program. Few simple statistical tools such as frequency and percentage had been used. Likewise, tabulations and graphic presentation had also been made to present and analyzed data. More qualitative data, which was not quantifiable had manually managed and descriptively analyzed. Moreover, figures and diagrams had been used to present and analyzed some qualitative data. An attempt had been made to interpret the qualitative data with sociological approach. An effort had been made to maintain the objectivity and avoid data error by comparing them with different data collection from different sources.

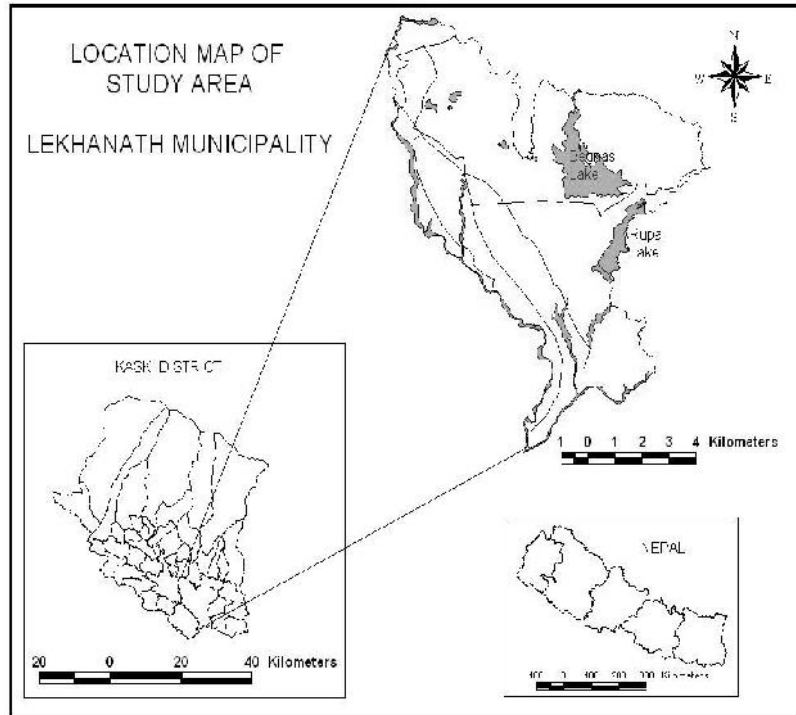
## CHAPTER FOUR

### SETTING OF THE STUDY AREA

#### 4.1 Physical Setting

Figure 4.1

Simle Kusunde community is situated at the north east site of Lekhnath municipality with sloppy land towards Begenas Lake. It has scattered in to three different clusters such as Piple, Nagar Chowk and Dhaulikuna where Piple is in the northern part of the community with total 39 households settlement. It



has sloppy land facing towards Begnas Lake and covered with thick forest. Nagar Chowk and Dhaulikuna are in the west and east of the community with total 10 and 11 household settlements respectively. These two clusters are in the plain land joining to the Begnas Lake with cultivated land. It lies between  $28^{\circ} 9' 51''$  to  $28^{\circ} 10' 22''$  latitude and  $84^{\circ} 5' 18''$  to  $84^{\circ} 5' 37''$  longitude. The study area is covered by hillock in north and plain in south with sub-tropical climate. Begnas Lake is in the east and north. The community is in ward no. 9 of the municipality spread approximately 3,500 M. It lies 686 to 752 meter high from the sea level. It has spring of Govende Dhara, Dhuli Kuna, Sisne, Bhat, Kayara, Sal Danda, Maan Dhare, Kusende and Begnas Lake for sources of water. Land in the north is covered by sal forest and cultivated plain land in south is made by sangukhudi khola. Buffaloes and cows are domestic animal in few houses except Jalari houses.

## 4.2 Selected Characteristics

### 4.2.1 Population Composition

Population composition refers to the demographic makeup of persons within a geographic area. The community has scattered settlement at Piple, Dhaulikuna and Nagar chowk. Simle Kusunde water supply and sanitation project has covered 60 households with 299 populations where 23 households are Bramins, 3 households are Chhetri, 4 households are Sharki, 2 households are Tamang, 1 household is Kami, 1 household is Rai, 1 house is Gurung, 1 household is Giri and 24 household are Jalari, poor & excluded group from main stream of development. The Table 4.1 shows the population composition of the community.

**Table 4.1**

**Population Composition of Community**

Places	Household Number	Population		Total
		Male	Female	
Piple	39	87	99	186
Nagar Chowk	10	26	28	54
Dhaulikuna	11	26	33	59
Total	60	139	160	299

*Source: Field Survey, 2012*

The study area is scattered in different places like Piple, Nagar Chowk and Dhaulikuna of Lekhnath municipality ward no. 9, of Kaski district. The scattered settlement in the Table 4.1 depicts that out of total population of 186, 87 male and 99 female live in Piple. While 54 populations of 10 households live in Nagar Chowk. Another cluster of the community is Dhaulikuna where 59 people live under 11 households.

#### 4.2.2 Religious Structure

Religious structure is a network, groups or organization made by the individuals and groups with similar type of feeling in superstitious power. It is binding mechanism to individual and for the groups. Two type of religious structure have been found in Simle Kusunde community such as Hinduism and Buddhism.

**Table 4.2**

**Religious Structure of the Community**

Religion	Population 2012	
	Population	Percentage
Hindu	282	94.32
Buddhist	17	5.68
Total	299	100

*Source: Field Survey, 2012*

The Table 4.2 clarifies the religious structure of the community. The table explores that the religious structure of the community is complex and diverse with 94.32 percent of population following Hinduism while 5.68 percent of the total population following Buddhism. The higher number of Hinduism follower has showed the impact of Hinduism on majority of local people.

#### 4.2.3 Gender / Sex Distribution

Gender is the range of physical, mental, and behavioral characteristics pertaining to, and differentiating between, masculinity and femininity. Depending on the context, the term may refer to biological sex (i.e. the state of being male, female or intersex), sex-based social structures or social roles (as in gender roles), or gender identity. Depending on the context, the term may refer to biological sex (i.e. the state of being male, female or intersex), sex-based social structures or social roles (as in gender roles), or gender identity. Female Population is higher than male population at Simle Kusunde community.



**Table 4.3**  
**Distribution of Population by Sex**

Sex	No of Respondent	Total population	Percent
Male	42	140	46.82
Female	18	159	53.18
Total	60	299	100

*Source: Field Survey, 2012*

The Table 4.3 clarifies that the number of male respondent is higher than female but the population of male is lower than female which consists 46.82 and 53.18 respectively. Nevertheless there is division of labor at household level between male and female. Mostly females are engaged in expressive roles—household chores, socializing and nurturing children whereas males are involved in instrumental roles – outside works. However, both male and female are involved in community level activities.

#### **4.2.4 Family Types**

Family is the basis of human society. Although the nature and structure of the family vary from one society to another, a society without families is not known to us. Relationship between the members of the family is deliberately formed based on marriage and descent. The interpersonal relationships within the family make the family an enduring social unit. The family is not only the basic group; it is also viewed as the oldest in institution of mankind, which has the power to withstand social changes. The biological and social reproductions of the family are indispensable for the society to maintain its continuity in the world context.

**Table 4.4**  
**Distribution of Respondents by Family Type**

Types of Family	Frequency	Percent
Joint Family	40	66.66
Nuclear Family	20	33.34
Total	60	100

*Source: Field Survey, 2012*

From the Table 4.4, it discerns that 66.66 percent are joint families. While less of the families 33.44 percent are the part of a Nuclear family. They marry early, have children and live together so it is found in the highest number. Due to their low income and poverty, they are not able to make other separate house and occupational activities. The community has socio- cultural practice of living together in their joint family.

### 4.3 Economic setting

#### 4.3.1 Major Sources of Income

Income is earning of an individual and a family in daily monthly and yearly basis in general. People of Simle Kusunde Community have been adopting multiple occupations for earning for their family. Agriculture is major income source beside other occupations. The total 20 household out of 24 Jalari household have fisheries only.

**Table 4.5**  
**Statement of Family Income**

Sources of Income	Household	Percentage
Agriculture only	7	11.66
Agriculture with hotel business	3	5
Agriculture with foreign service	2	3.33
Agriculture with service	3	5
Agriculture with wage labor	8	13.34
Fishing only	20	33.34
Fishing with hotel business	4	6.67
Hotel business only	2	3.33
Wage labor only	4	6.67
Foreign service only	5	8.33
Service only	2	3.33
Total	60	100

*Source: Field survey, 2012*

The Table 4.5 has presented sources of income of the community. The source of income in the community is agriculture in general. While majority 24 household of Jalaris have fishing

as the major source of income and some of the other are involving in some different activities. Some Jalaris and Bramins join in new profession as hotel business, Foreign Service and retail shop operation. The table paints a clear picture on economic plight of the community. About 33.34 percent households of the community are found engaged in just fishing as major source of income. While agricultural occupation is adopted as side source of income.

#### 4.3.2 Land Holding Pattern

Agriculture is main occupation adopted by nearly 80% people in Nepal. Development of economic condition of country is possible through adequate farming based planning. (Bal Ram Acharya, Sociology of Economic Development 2065) Land resource is necessary for agricultural promotion and animal husbandry. Simle Kunsunde community of lekhnath municipality has very less ( 35.57 hector) cultivated land, 79.15 hector forest, 2.1 hector grassland, 0.15 hector residential area and .31 hector stone area. (Field survey 2012) As the community has less agricultural land and more land covered by forest, there is high possibility on forest based activities and income generation activities. The Table 4.6 shows land holding pattern of the respondents.

**Table 4.6**

#### **Land Holding Pattern Respondents**

Respondents	Number	Percentage
Holding land by male (among male respondents)	28	46.66
Holding land by female (among male respondents)	10	16.66
Holding land by male ( among female respondents)	5	8.34
Holding land by female ( among female respondents)	17	28.34
Total respondents	60	100

*Source: Field Survey, 2012*

The Table 4.6 clarifies that the proportion of male holding land is still higher than female which consists of (28+5)33 male, (46.66+8.34) 55% respondents. And the proportion of female is 45%. Traditionally, as the community is male dominated, the ratio is higher than

the present data. Because of Government law and sensitization among the women on education, holding of the land and other property improving and increasing to women population.

#### 4.3.3 Livestock Holdings, Types and Distribution

Animal resource has been playing as important role as influencing factor of the socio cultural life of the rural people in the studied area of Simle Kusunde community. The major source of income is agriculture within the community. While for their secondary source of income, they are rearing some domestic animals.

**Table 4.7**  
**Livestock Holding, Types and Distribution of Respondents**

Particulars	Study area: Piple	Study area: Nagar Chowk	Study area: Dhaulikuna	Total
Types of Livestock	Number	Number	Number	Number
Buffalo	12	7	8	27
Goat	15	12	5	32
Hen	75	19	12	106
Duck	37	-	-	37
Total	139	38	25	202

*Source: Field study, 2012*

The Table 4.7 clarifies that 15 households of Piple are found to be involved in hotel business activities in northern hills facing towards the Bagnas Lake. They are also taking some multiple uses of domestic animals such as Buffaloes, Goats etc along with hen and ducks. The people of 24 Jalari households are adopting fishing as a major occupation along with hotel business and domestic animals, hen and duck in some households. The above table depicted that Hen (106) and Duck (37) are prime domestic animals of the community. Few households in Piple, Nagarchowk and Dhaulikuna are rearing Buffalo (27) and Goat (32). Because of lack of land resources, much of the community households are not involved in

animal husbandry. For buffalo and goat rearing, they need much land resources and forest resources for fodder priority but it is not the case for hen and duck. As a result, they rear them in their households.

#### 4.4 Education

Jalari, major settlement at Piple of Simle Kusunde community have lack of formal knowledge and education, are known as uneducated, illiterate or egalitarian. In the present situation, they prefer to send their children for formal education from different available schools and collages. Whereas other ethnic groups at Nagarchowk, Dhaulikuna and even Piple including Bramin and Chhetri have access to the formal education. The Table 4.8 shows status of education at Simle Kusunde community.

**Table 4.8**  
**Education status among the respondents at community**

Respondent	Illiterate	Literate	SLC	Intermediate level	Total
Male	8	29	1	4	44
Female	1	12	4	1	18
Total	9	41	5	5	60

*Source: Field Study Survey 2012*

The Table explores the education status of community. More male are literate than female where very less number of people are getting SLC and Intermediate. In overall context of education, majority of population have just literate from formal and informal education. The 24 Jalari households out of total 60 households are marginalized people and they do not have adequate access on education. They do not have option for living beside fishing. The least income from the fishing isn't sufficient for good educational status.

## CHAPTER FIVE

### SOCIAL CHANGES AND PEOPLES'S INVOLVEMENT

In this chapter the study primarily focused on the involvement of Simle Kusunde community in social institution, social structure and their behavior change, cultural, religious and economic trend before and after water and sanitation project. Comparison of Local people participation in community level social activities and changing trends before 10 years and now is presented for analyzed.

#### 5.1 Peoples' Participation in Social Institutions

The water and sanitation project completed at Simle Kusunde community has empowered the people of community. The trend of involvement of people in social institution has changed after water and sanitation activities. They have increased the number of peoples' involvement in social institution and changed the view of local people towards social institutions.

**Table 5.1**  
**Involvement of the community people in social institutions before 10 years and now**

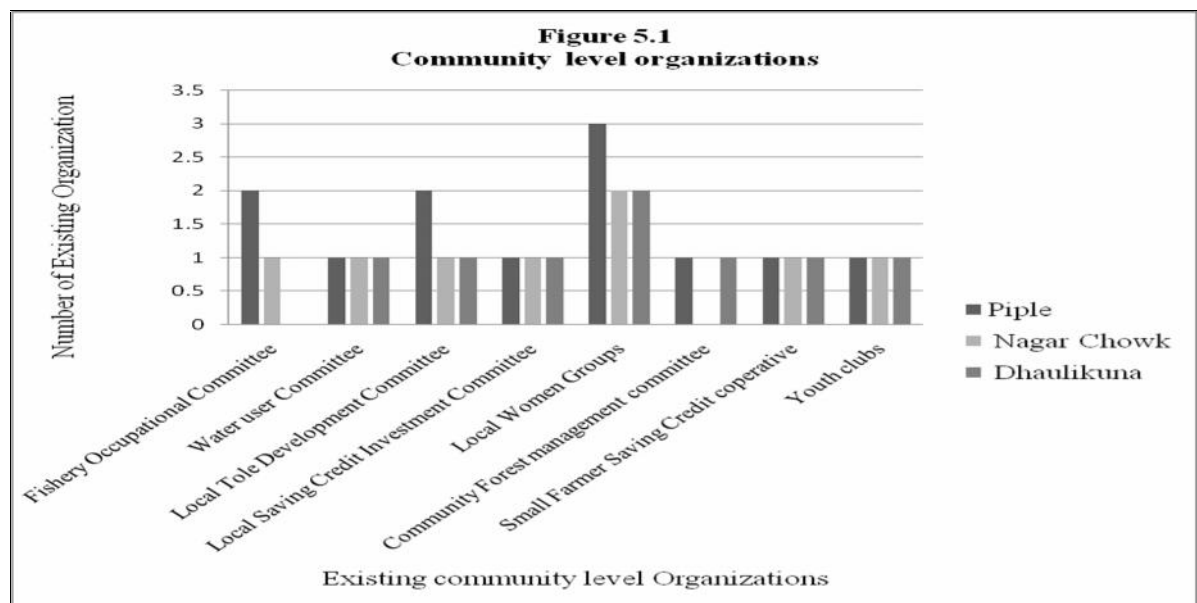
Existing organization	Before 10 year		Now	
	People Participation out of 60	People Participation in out of 100 %	People Participation out of 60	People participation in out of 100 %
Water user committee	4	6.66	57	95
Fishery management committee	11	18.34	24	40
Local community development committee	7	11.62	53	88.34
Women groups	10	16.67	46	76.67
Community forest management committee	5	8.34	51	85
Local farmer cooperative	6	9.96	58	96.67

*Source: Field Survey, 2012*

The changing trends of local people involvement in social institution has presented in table 5.1. Traditionally, the very few people (1 to 11 numbers of people) involved in existing committee in the community which is 6.66% to 18.34% indicates that local people have very less access in social institution. But now 24 to 58 people out of 60 have involved in different existing community level committee which is 40% to 96.67%. It indicates that the local people have increased their involvement in social institution.

## 5.2 Social Structure

Social structure is social network which has tied between individuals, groups or organizations. It shows relationship among them and the influences of the social system. Individuals, groups and existing organizations at Simle Kusunde community have coordinated and co-operated each other for the betterment of the community.



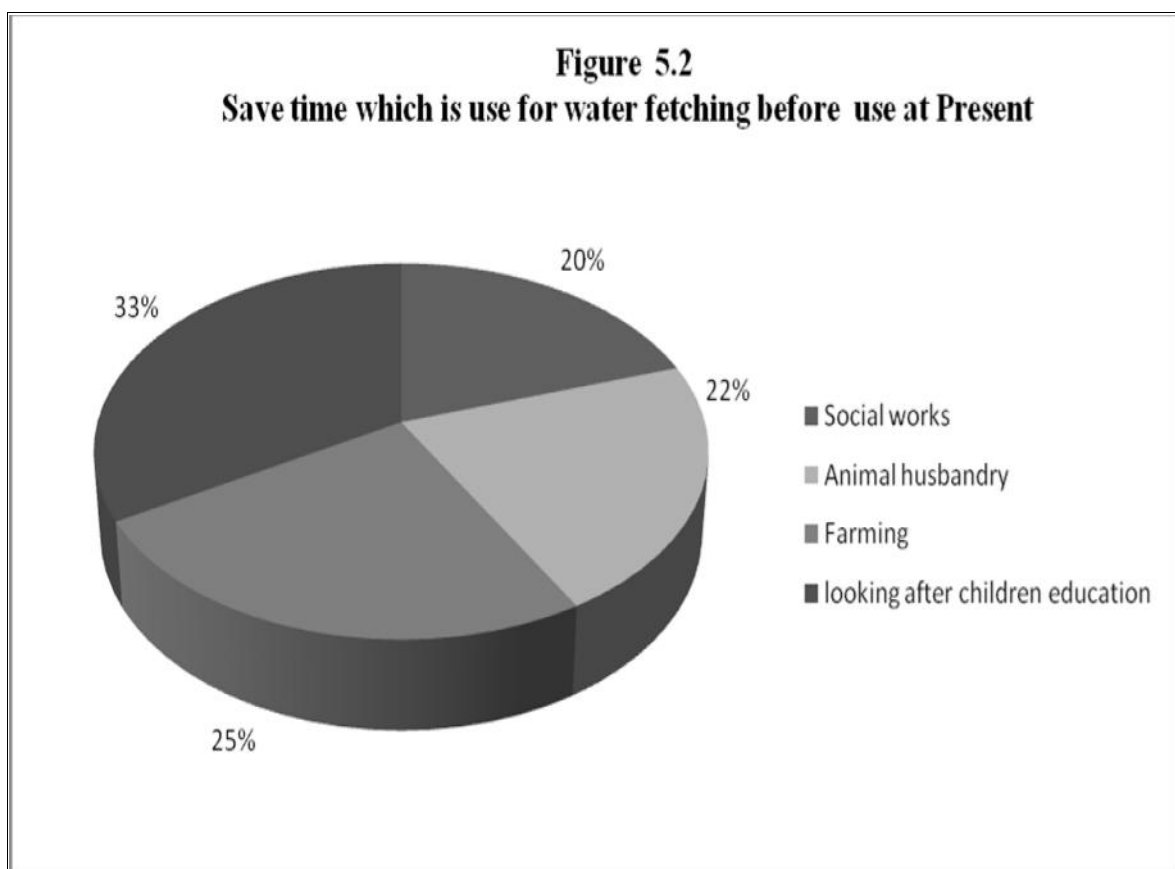
*Source: Field Survey, 2012*

The Figure 5.1 has presented number of existing social and economic organizations at Piple, Nagar Chowk and Dhaulikuna. According to Gyan Bahaddur Jalari one of key informants, some of these organizations were existed before water supply and sanitation activities in the community but were not active. At present, local people have started their economic activities through local saving credit investment and small farmer saving credit cooperative. Such cooperative and social organizations build the social networks which tie themselves for economic betterment. The active encouragement of these organizations has influences on social, economic, political, cultural and other system at community.

### 5.3 Social Behaviors

In sociology, "behavior" itself means an animal-like activity devoid of social meaning or social context, in contrast to "social behavior" which has both. In a sociological hierarchy, social behavior is followed by social actions, which is directed at other people and is designed to induce a response. Further along this ascending scale are social interaction and social relation. In conclusion, social behavior is a process of communicating.

People of Simle Kusunde have used their spare time for social works, animal husbandry, farming and child education which has directed by social action as example to other people.

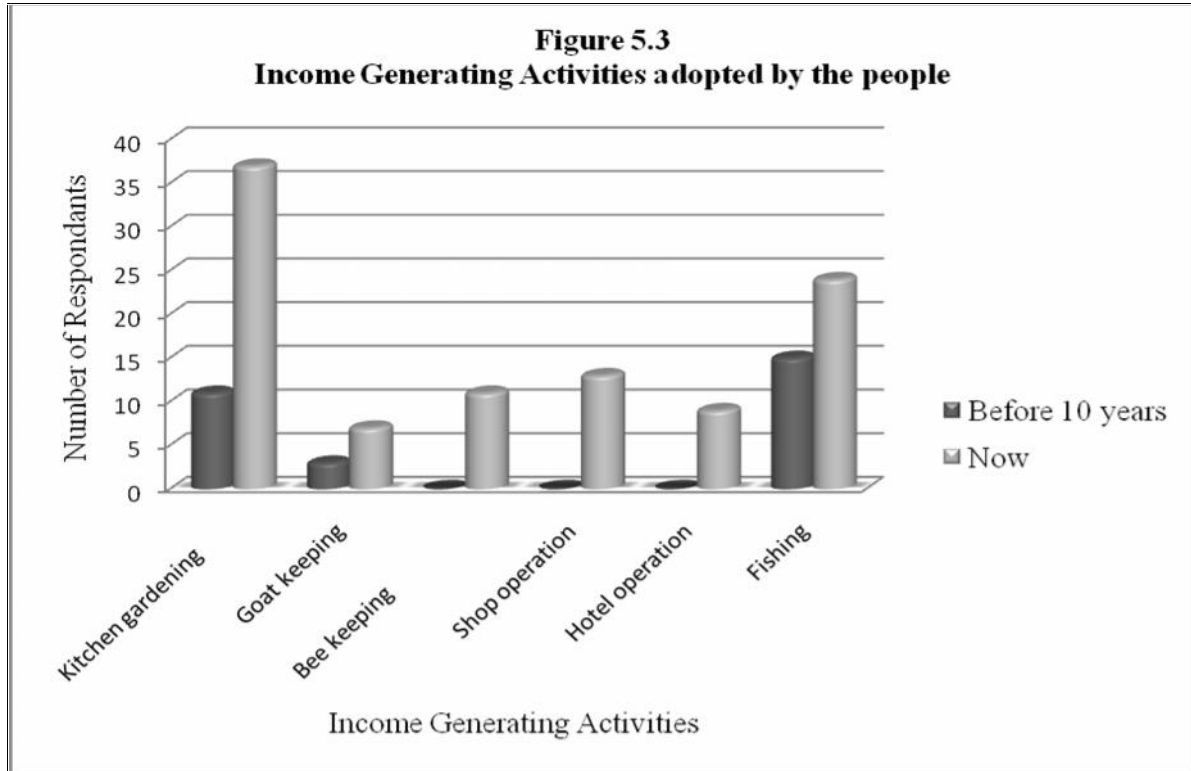


*Source: Field Survey, 2012*

The Figure 5.2 presents that people have been utilizing the leisure time that was to spend for water fetching before. They are using the time for social works, animal husbandry, farming and children education.



Bee keeping, shop operation and hotel business are newly adopted income generating activities along with kitchen gardening, goat keeping and fishing by people after water and sanitation activities. They have started to adopt extending income generating activities.

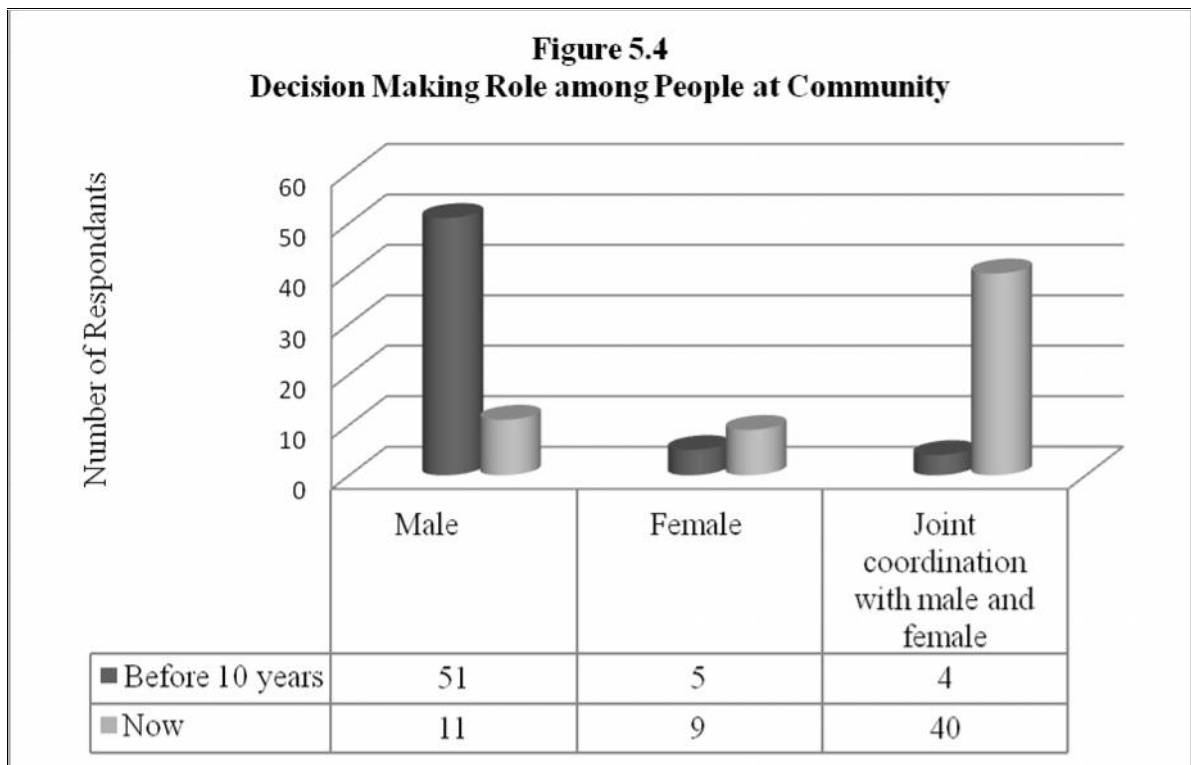


*Source: Field Survey, 2012*

The Figure 5.3 presents the income generation activities adopted by the people at Simle Kusunde community before and after the water supply and sanitation activities. Kitchen gardening is common practice among most of the people. After adequate water supply and sanitation activities, people have improved the personal, household and environmental sanitation. Bee keeping, small shop operation and hotel business are occupational mobility beside other income generation activities after implementation of water and sanitation project.

Decision making has played important role for household and community development. Previously, every decision of household and community at Simle Kusunde community was taken by male as household head. After the empowerment by the water and sanitation activities, the trend of decision making has been changed. Now they are taking decision in

joint coordination with male and female in each and every household and community works.

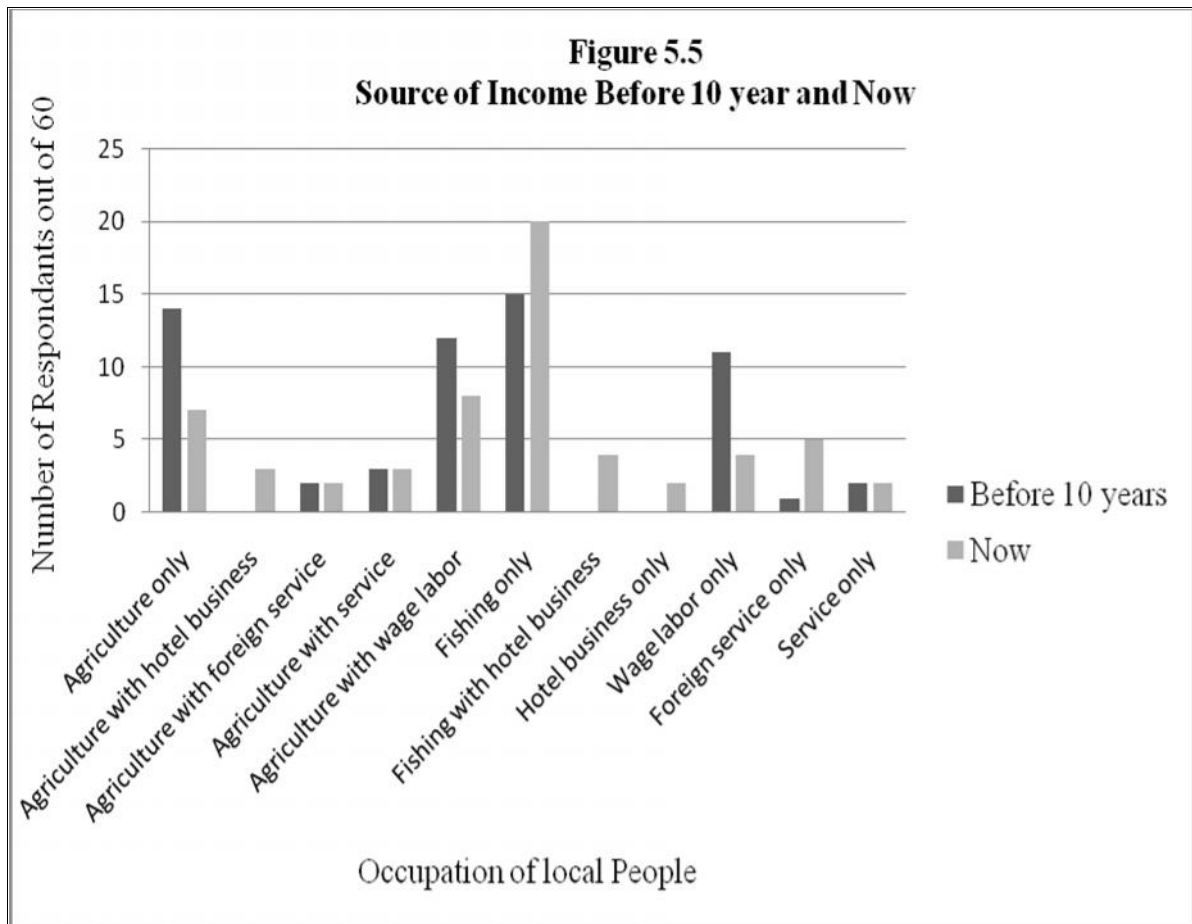


*Source: Field Survey, 2012*

The Figure 5.4 presents role of decision making at house and community. It has compared the role before 10 years and at present. It indicates the changing trend of decision making in joint coordination between male and female.

## **5.4 Economy**

The economic system of Simle Kusunde community consists of the labor, capital, land resources; production, trade, distribution and consumption of goods and services. It is the result of a process that involves its technological evolution, history and social organization, as well as its geography, natural resource endowment, and ecology, as main factors. These factors give text, content, and set the conditions and parameters in which an economy functions.



Source: Field Survey, 2012

The Figure 5.3 describes economic activities among the local people of Simle Kusunde community before 10 years and now. After the water and sanitation project, people have improved their hygiene and sanitation, so that they have extended sources of income instead of agriculture. Now they have adopted hotel business along with agriculture and fishing.

### **Case Study One**

*A literate respondent of 54 years old lives near Begnes Lake at the hill of Piple with her wife, two son and two grand children in a small house as a joint family. He has currently operated hotel business for internal and external tourists. His works start as early as six in the morning. It's been almost five years since he started to run the hotel business.*

*Before water and sanitation activities, we were suffering from waterborne diseases, community seemed dirty and agriculture was major occupation. We were spending more than an hour for one trip of water. Health, hygiene and sanitation of the community were very poor. Because of inadequate sanitation and drinking water, tourists and visitors used to return from edge of Begnas Lake without entering to the village though it has good scenery and tourist spot. Women had hesitated to talk with strangers. We did not have income generating activities. Villagers did not show interest for social and community development activities. No saving and credit had been operated in the community.*

*After the water and sanitation project, safe drinking water is available near to our house, we have got different trainings on health, hygiene & sanitation, capacity building, income generation, saving credit, community management, social inclusion and community development. Awareness rising have been started at community. Local people have been aware on safe drinking water, health, hygiene and sanitation. After that the trend of waterborne diseases has been decreased. Health, hygiene and sanitation have been improved. People have applied the health, hygiene and sanitation measures so that, our village seems clean and attractive. Internal as well as external visitors have started to visit Piple to view Begnas Lake and surrounding mountains from the hill near Lake and village. I have started hotel business since last 5 years and changed my profession from agriculture to hotel business. Now, I have monthly saving nearly 20, 000 rupees feeding my family.*

*I do not think our community would have changed drastically and possibility of the new profession would have been available so soon. It has changed my life style and family status. We have adequate water supply and sanitation project which has changed our life and income.*

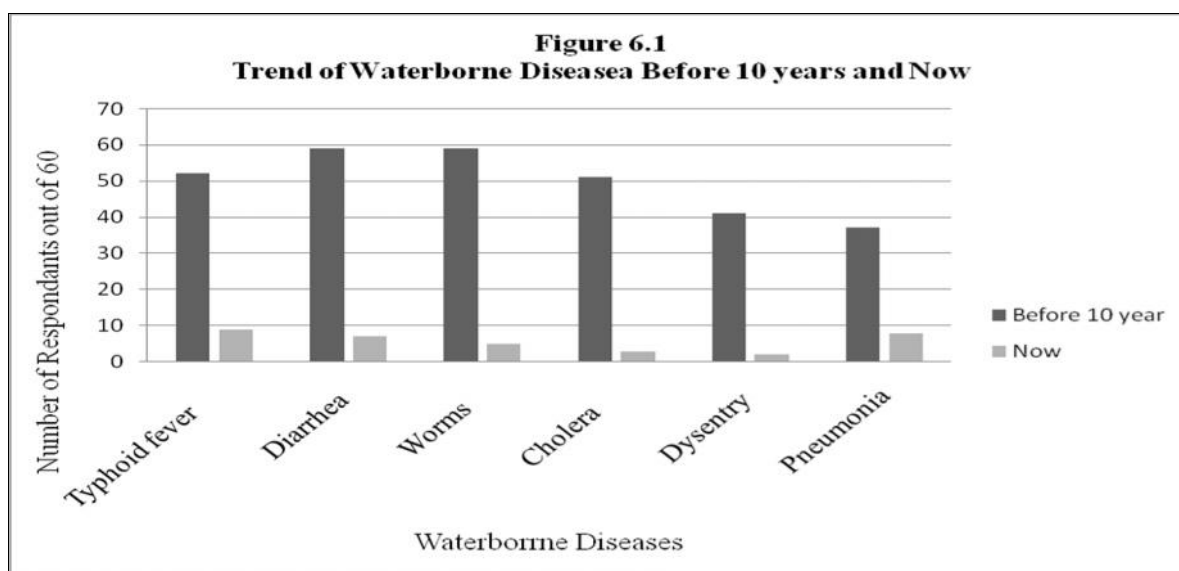
## CHAPTER SIX

### IMPACT ON SANITATION, HEALTH AND SOCIAL STATUS AMONG PEOPLE

In this chapter the study primarily focuses on the impacts on personal, household and environmental sanitation among the people of Simle Kusunde community. The condition of personal, household and environmental sanitation before the water and sanitation project lunched at community and at present is brought to analyze. The comparison on social status developed by the project is investigated the improvement on public health and sanitation.

#### 6.1 Sanitation

Because of dirty water and poor sanitation waterborne diseases spread among the people. The Figure 6.1 presents the trends of waterborne diseases before and after water and sanitation activities at Simle Kusunde community. Typhoid fever, Diarrhea and Worms which are major waterborne diseases occurred at the community before the water and sanitation project but it's dramatically decreased after availability of safe drinking water and adequate awareness on sanitation measure.



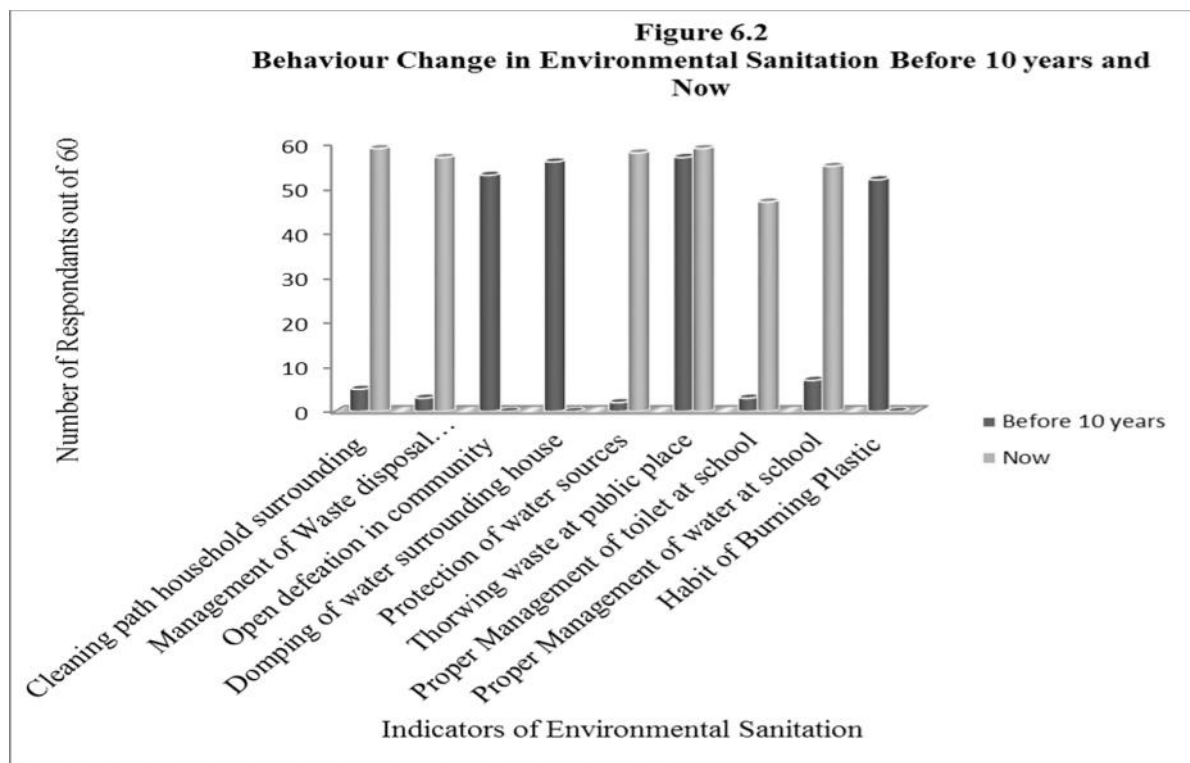
*Source: Field Survey, 2012*

Simle Kusunde community has measured good sanitation condition in three perspectives such as environmental, household and personal after the water and sanitation project. The

primary impact of water and sanitation activities before 10 years and at present is observed with the indicators of environmental, household and personal sanitation as below.

### 6.1.1 Health and Environmental Sanitation

Environmental health is a branch of public health concerned with all aspects of the natural and built environment that may affect human health. Other phrases that concern or refer to the discipline of environmental health include environmental public health and environmental health and protection. The field of environmental health differs from environmental science that is concerned with environmental factors affecting human health whereas environmental science is concerned with the environment as it affects ecosystems.



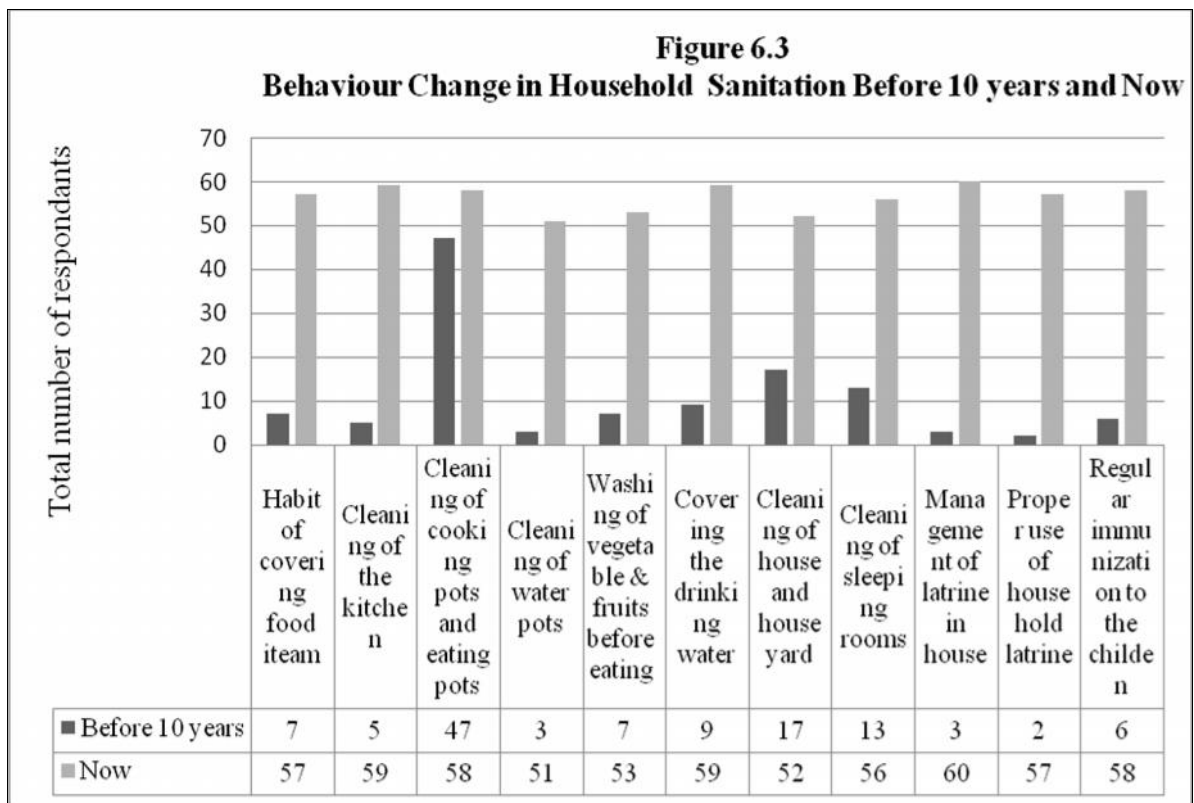
Source: Field Survey, 2012

Simle Kusunde community has a clean and appropriate environment at present. The Figure 6.2 has compared the environmental sanitation before 10 years and now. The dirty paths and household surrounding are clean and attractive at present. Waste container at different place of the community, helps in garbage management, dumping water around household has been drying, open defecation has been banned. Proper management of water and latrine in school is adequate. Air, environment and water source pollution have been decreased. From testing overall environmental sanitation indicators, community people have adopted

the adequate environmental sanitation which indicates the changing poor environmental habits to good environmental habit in community.

### 6.1.2 Household Sanitation

Proper household sanitation is sign of civilization which indicates healthy household lives. Protection of cooked food, drinking water, using clean and germs free utensil and adequate use of household latrine help to improve health of people.

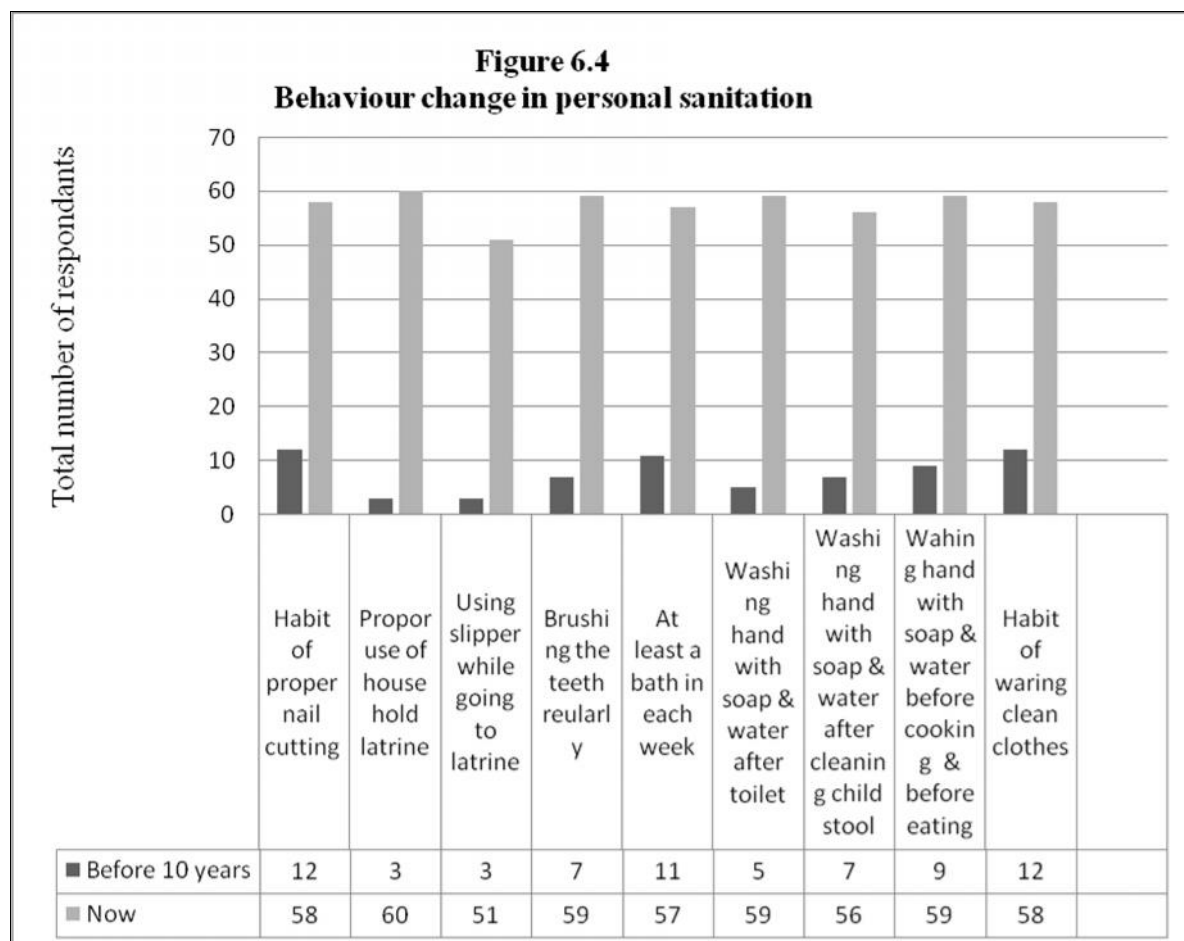


Source: Field Survey, 2012

After water and sanitation project at Simle Kusunde community, local people have responded in sanitation issues. They have changed in sanitation attitudes as they have before. They started hygienic behavior in their personal and household living. The Figure 6.3 describes changes in behavior among the community people in sanitation issues. The figure describes that the people in Simle Kusunde community change their household sanitation. The figure has compared household sanitation before 10 years and now. The trends of changing status on covering food item, cleaning all household utensils, proper use of household latrine and timely child immunization shows that they are adopting good sanitation measures.

### 6.1.3 Personal Sanitation

Personal cleanliness helps a person for his healthy lives which includes regular bathing, regular brushing teeth, cutting nails, proper hand washing, proper use of latrine and wearing clean clothes. After the water and sanitation project at Simle Kusunde community, people have been adopting the healthy habits and they are caring on personal hygiene.



*Source: Field Survey, 2012*

The Figure 6.4 has compared on personal sanitation behavior of local people before 10 years and at present. The local people have adopted their habits of cutting nails, using sleeper during the latrine, brushing teeth, proper hand washing and clean clothes wearing. It shows that they have started healthy personal hygiene at present which indicates their hygienic sanitation attitude has developed among the people of Simle Kusunde community.



### ***Case Study Two***

*An illiterate respondent of 37 years lives near by the Begnes lake of Simle Kusunde community. She lives with her husband and three sons in a small house as a nuclear family.*

*Before the water and sanitation project, she used to move early in the morning to fetch drinking water across the Bagnes Lake and spent many hours for a trip of drinking water. She told with tiredness in her face, “I do not have freedom to bring water from everywhere. I am called untouchable; I have to wait long time to fill the water for other. Sometime, I have to return back without water after waiting for long time.” She further added that personal, household and environmental sanitation have badly affected by scarcity of safe drinking water. Household and its surrounding were dirty. Open defecation seemed everywhere in path and household surrounding. We were compelled to drink dirty water from Begnas Lake. Because of dirty water we were suffering from diarrhea, dysentery, worms and skin diseases.*

*After water and sanitation project implemented in our community, our problem of water fetching has been solved completely. We have water near our house. We have been using the saved time from water fetching, for income generating activities, children education, fishing and social works. Personal, household and environmental sanitation have been improved. Paths and household surrounding have been cleaned. We have declared open defecation free community.*

*I do not believe such dramatic changes on health, hygiene and sanitation in short period of time. Our life style has been changed by the availability of safe drinking water near to our houses.*

*This case study has been depicting the changes on health, hygiene and sanitation of community people. Water and sanitation project has supported in income generating activities and improved the sanitation status among the people of the community.*

## **CHAPTER SEVEN**

### **SUMMARY, MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **7.1 Summary**

This study had been conducted to explore and analyze on social impact of water supply and sanitation activities at Simle Kusunde community. The social changes and impact on health, hygiene and sanitation among the people had been explored and analyzed. At the end, several issues and assumption were raised and combinations of qualitative and quantitative methods were adopted for the research. Various water supply and sanitation activities have been completed but the questions of sustainability and impact study on it had become the matter of discussion. The success and failure of the project activities had been depended on it impact among the people. Therefore, the study had majorly focused on exploration of social impact and change on health, hygiene and sanitation after the water and sanitation activities. The major objective of the study was to explore and analyze impacts of Water and Sanitation Activities and changes of WASH over human lives. As per the research objectives, the trend of social change and impacts on personal, household and environmental sanitation were analyzed and explained comparing on the issues of social change trend and status of health, hygiene and sanitation before the project and after ten years of the project implementation. Further, organizational development socio-economic institutions and behavior change among the people, trend of occupational structure had also been explored extensively. The other task was income generating activities and household as well as community level decision making roles' pattern are examined and explained. The other major task was the social changes occur in the community and people involvement in social, economic and other institutions at community. The variables were related to the impacts of water and sanitation as well as social changes. This study had limited to 60 households of Simle Kusubde community and focused on social change and impact on health, hygiene & sanitation.

The theories of social change, modernization and natural resource management had been applied in this research. The review of previous study on water and sanitation had created courses for systematic research. Household survey, observation, interview, case study and focus group discussions were adopted as part of techniques of sociological research so as to

collect data. However, the primary data played a dominant role into drawing a valid conclusion. Some relevant and useful secondary data were also incorporated to give a vivid picture of social changes and trend of behavior change on health, hygiene and sanitation. The comparison of social status and sanitation status among the people of the community before and after ten years of the project implementation were depicted. Household head and other members, community leader, women and intuitional members were the main sources of information. For secondary information, published and unpublished related literatures were used. The universe of the study was 60 households at Piple, Nagarchowk and Dhaulikuna in ward no.9 of Lekhnath municipality. Due to the small size of population, the census study had espoused. The pilot study conducted in 10 households at similar water supply and sanitation project had helped to refine the questionnaires in the schedule and to discover new aspects about social impacts and the changes before final questionnaires were prepared and administered.

The collected data had been analyzed using qualitative and quantitative tools and techniques. The quantifiable raw data from the field survey had processed and analyzed using appropriate tools. Few simple statistical tools such as frequency and percentage had been used. Likewise, tabulations and graphic presentation were also analyzed data. Qualitative data which was not quantifiable had manually managed and descriptively analyzed. Moreover, figures and diagrams had been used to present some qualitative data. An attempt had made to interpret the qualitative data with sociological approach. An effort had made to maintain and avoid data error by comparing them with different data collection from different sources.

## **7.2 Major Findings**

The study has explored and explained the finding of research comparing the impact on health, hygiene and sanitation among the people before and after Simle Kusunde water supply and sanitation project:

- ❖ In the Piple, Nagar Chowk and Dhaulikuna cluster of Simle Kusunde Community 94.32% of local people follows Hinduism while 5.68% are Buddhism
- ❖ The respondents' types of family have been found especially of two types' joint family and nuclear family. Out of total respondents, 66.66% live in a joint family while 33.34% live in nuclear family.

- ❖ The source of income among 24 households in Jalari family is fishing. They mostly involved in fishing activities where as the major source of income beside Jalari is agriculture. While Hotel business, small shop operation, foreign employment, employment in Nepal and wage labor are also other sources of income.
- ❖ To the response about the trend of waterborne diseases, most of the respondents have replied that it was higher rate before water and sanitation activities and is decreased dramatically at present.
- ❖ While testing with indicator of environmental sanitation, people of community have applied the safety measures changing their behavior on sanitation.
- ❖ The trends of household sanitation improvement have been pointed with the help of household sanitation indicators, most of the respondents said that they have applied the household sanitation measures.
- ❖ The trend of open defecation has decreased from 80% to 0% or open defecation free community after the water and sanitation project implementation.
- ❖ About hand washing, most of respondents have pointed that hand washing with ash and mud is now changed to soap and water.
- ❖ While testing personal sanitation indicator, people have applied adequate personal sanitation measures so that cutting nails, bathing, washing hands, brushing teeth and wearing clean clothes are commonly practised by local people.
- ❖ The saved time from water fetching has been used at preset for social works, animal husbandry, farming and looking after the child education. It is 33% for children education, 25% for farming, 22% for animal husbandry and 20% for social and community works.
- ❖ After the sanitation improvement, local people have adopted new means of income generating activities as hotel business, small shop operation, bee keeping and kitchen gardening in the community.
- ❖ About the saving of local people most of respondents have answered that they have started the monthly saving after the water and sanitation project implementation.
- ❖ The decision making role at family and the community has been changed from male to joint coordination with the male and female at present.
- ❖ People have started to get together and talk about sanitation issues at present and increased the involvement in community level organizations.

### **7.3 Conclusion**

This research study has explored, analyzed and compared the social changes and impacts on health, hygiene and sanitation among the people of Simle Kusunde water supply and sanitation project. It has clearly addressed the safety measures on personal, household and environmental sanitation applied by people. Income generation activities are functioning at community in cooperation and coordination among male and female. The increasing trends of social organization, cooperation between social structure and behavior change in health, hygiene and sanitation show that social change and impact in the lives of people and their sanitation. The decreasing trend of waterborne diseases expressed the impact on sanitation. Formation of social and economic organizations and increasing trend of local people in social and community development works are other major changes at community brought by the water and sanitation project. Leadership development at community and saving credit operation has played vital role for local development. The implementation of water supply and sanitation project has become the cause of improvement in the organizational activities at Simle Kusunde community which has created the advantage on health, hygiene and sanitation of local people. The saved time from water fetching has been used for social works, children schooling, animal husbandry and farming which has helped for increasing household income. Hygienic personal, household and environmental sanitation has developed community harmony. It has showed cleanliness on personal, household and environment which has helped in adaptation of healthy and hygienic habits among the local people at community. The trend of newly adopted hotel business helped for tourism at community.

The concept of natural resource management has shown best way of safe water resource management for their healthy and hygienic life in the study area which can fit into increasingly emphasized grassroots level for domestic and community level decision – making, participatory development and fair equity distribution. Here, in the Simle Kusunde community, traditional uses of water from pond, lake and stream, have been replaced by safe water from water taps near their surrounding. They have adequate planning of water management, biodiversity conservation and the future sustainability of industries like agriculture, mining, tourism, fisheries, and forestry. It helps to save time for water fetching. Local people have been utilizing their spare time for social works, animal husbandry, farming and children education. They are improving their health, hygiene and sanitation

using safe drinking water, proper use of latrine. They are applying personal, household and environmental sanitation measures. The major traditional income generation activities like fishing, goat keeping and agriculture have been changed to bee keeping, small shop operation, hotel business and kitchen gardening along with agriculture.

The concept of modernization has affected the Simle Kusunde community from traditionalism to modernity in a decade. They have updated traditional methods of water fetching. Application of new means of occupation, institutionalization of community activities as a product of human resource and action has showed the changes at community. The theory of social change has an alteration of social order, change in the thought process in humans, access a paradigmatic change in socio-economic structure and driven by cultural, religious, economic, scientific or technological forces which the people of Simle Kusunde community has been in alteration of occupation, extension of socio- economic organizations, change in role of decision making, change in health, hygiene and sanitation, adaptation income generation activities and change in status of awareness.

#### **7.4 Recommendation**

The sustainability of water and sanitation activities depends on ownership feeling, institutional development, awareness of local user and their participation in future endower. The maintenance fund management from community and linkage to governmental and nongovernmental line agencies is another important factor for sustainability. The experiences gained from the field study and the deduction of the research study, the following recommendations have been forwarded:

- ❖ The Water User Committee should collect monthly saving from water consumers for the maintenance fund and it should be made transparent to water benefited groups.
- ❖ The Water User Committee should organize annual assembly inviting all the consumers and should plan for yearly health hygiene and sanitation activities to continue participation of benefited people.
- ❖ The completed water supply and sanitation scheme should be linked with district level governmental and nongovernmental organizations as the part of their activities for sustainability with aequite coordination and cooperation among the community level organizations.

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## Appendix – “A”

### Household Survey:

#### 1. General Information

Household No:-

<b>Name :</b>	<b>Address:</b> Lekhnath – 9, Simle
<b>Age:</b>	<b>Occupation:</b> Job, Farming, Business, Labor
<b>Cast / Ethnicity :</b> Branin, chetteri , Kami, Sarki, damin, Gurung	
<b>Education:</b> Illiterate , Literate, SLC, IA, BA,MA or similar	
<b>Marital status :</b> Married/ unmarried	<b>Family Member:-</b> 1-3, 4-6, or more
<b>Main Source of income :</b> Wage labor, foreign income, Farming, Business,	
<b>Family type :</b> Nuclear , Joints and other	<b>Religion:</b> Hindu , Buddhist    Christian , Islam

#### 2.0 Demographic information

- Total no of household in the community:-
- Total population in the community:-
- Community settlements pattern: -
  - A. scattered    B. Even spread    C. clustered
- Ethnic composition, settlements and no of hh:-

#### 3.0 Question for household survey

S.N.	Particular ( Question)	Response ( Answer)	Skip
1.	Source of water used by people before last 10 years	1. Spring      2. Well      3. Lake 4. Tap          5. Other	
2	Source of water used by people at present	1. Spring      2. Well      3. Lake 4. Tap          5. Other	
3	Time needed for one trip water collection before last 10 year	1. 20-30 min                      2. 30-60 min 3. 1-1.5 hr                              4. More than 1.5 hr	
4.	Time needed for one trip water collection at present	1. 5-10 min                      2. 10-20 min 3. 20-30 min                      4. more than 30 min	
5	Save time that was use to bring the water	1. Social works      2. Animal husbandry 3. Farming      4. looking after children education	

S.N.	Particular ( Question)	Response ( Answer)	Skip
	before	5. All of above      6. Other	
6	Quality of water used by the people before last 10 years	1. Chun mixed water    2. Iron mixed water 3. Colorful water      4. Dirty water 5. Test less and clean water	
7	Quality of water used by the people at present	1. Chun mixed water    2. Iron mixed water 3. Colorful water      4. Dirty water 5. Test less and clean water	
8	Waterborne diseases seen among the children before last 10 years	1. Typhoid fever      2. Diarrhea 3. Worms                4. Cholera 5. Dysentery            6. Pneumonia 7. Hepatitis A         8. Polio	
9	Water born diseases seen among the children at present	1. Typhoid fever      2. Diarrhea 3. Worms                4. Cholera 5. Dysentery            6. Pneumonia 7. Hepatitis A         8. Polio	
10	Defecation adopted by the people before last 10 years	1. Open ground        2. Back of house 3. Street and path    4. Latrine 5. Other	
11	Defecation adopted by the people at present	1. Open ground        2. Back of house 3. Street and path    4. Latrine 5. Other	
12	Hand washing practice done by the people before last 10 years	1. Never wash        2. After latrine 3. Before meal        4. Before feeding child 5. After working      6. After washing child stool 7. After touching dirty things	
13	Hand washing practice done by the people at present	1. Never wash        2. After latrine 3. Before meal        4. Before feeding child 5. After working      6. After washing child stool 7. After touching dirty things	

S.N.	Particular ( Question)	Response ( Answer)	Skip
14	Type of thing used by the people while washing hand before last 10 year	1. Mud and water      2. Ash and water 3. Soap and water    4. Only water 5. Dung and water	
15	Type of thing used by the people while washing hand at present	1. Mud and water      2. Ash and water 3. Soap and water    4. Only water 5. Dung and water	
16	Bathing habit of people before last 10 year	1. Daily                  2. Once in a week 3. Twice in a week    4. Three time in week 5. Once in two week   5. Once in a month	
17	Bathing habit of people at present	1. Daily                  2. Once in a week 3. Twice in a week    4. Three time in week 5. Once in two week   5. Once in a month	
18	Habit of brushing teeth among the people before last 10 year	1. Once in a day      2. Twice in a day 3. Once in week      4. Once in two week 5. Once in a month	
19	Habit of brushing teeth among the people at present	1. Once in a day      2. Twice in a day 3. Once in week      4. Once in two week 5. Once in a month	
20	Habit of cutting nail among the people before last 10 year	1. Did not cut nail    2. Regularly in a weekend 3. Cut nail in two week 4. Once in a month 5. Other	
21	Habit of cutting nail among the people at present	1. Did not cut nail 2. Regularly in a weekend 3. Cut nail in two week    4. Once in a month 5. Other	
22	Habit of hygienic food eating by the people before last 10	1. Covering of cooked food 2. Use fresh and clean food 3. Washing of fruit and vegetable before	

S.N.	Particular ( Question)	Response ( Answer)	Skip
	year	<p>eating</p> <ol style="list-style-type: none"> <li>4. Using of clean pots for cooking food</li> <li>5. Feeding of balance diet to children</li> <li>6. Using fresh and clean water</li> </ol>	
23	Habit of hygienic food eating at present	<ol style="list-style-type: none"> <li>1. Covering of cooked food</li> <li>2. Use fresh and clean food</li> <li>3. Washing of fruit and vegetable before eating</li> <li>4. Using of clean pots for cooking food</li> <li>5. Feeding of balance diet to children</li> <li>6. Using fresh and clean water</li> </ol>	
24	Habit of household sanitation adopted by the people before last 10 year	<ol style="list-style-type: none"> <li>1. Cleaning of kitchen</li> <li>2. Using clean water pots</li> <li>3. Cleaning of household surrounding</li> <li>4. Cleaning of sleeping room</li> <li>5. Using latrine</li> <li>6. Other</li> </ol>	
25	Habit of household sanitation adopted by the people at present	<ol style="list-style-type: none"> <li>1. Cleaning of kitchen</li> <li>2. Using clean water pots</li> <li>3. Cleaning of household surrounding</li> <li>4. Cleaning of sleeping room</li> <li>5. Using latrine</li> <li>6. Other</li> </ol>	
26	Environmental sanitation adopted by the people before last 10 years	<ol style="list-style-type: none"> <li>1. Management of waste container</li> <li>2. Cleaning of path, community surrounding and public places</li> <li>3. Management of public latrine</li> <li>4. Management of public taps</li> <li>5. Other</li> </ol>	
27	Environmental sanitation adopted by the people at present	<ol style="list-style-type: none"> <li>1. Management of waste container</li> <li>2. Cleaning of path, community surrounding and public places</li> </ol>	

S.N.	Particular ( Question)	Response ( Answer)	Skip
		3. Management of public latrine 4. Management of public latrine 5. Other	
28	Income generating activities adopted by the people before last 10 years	1. Kitchen gardening      2. Goat keeping 3. Bee keeping                4. Buffalo keeping 5. Other	
29	Income generating activities adopted by the people at present	1. Kitchen gardening      2. Goat keeping 3. Bee keeping                4. Buffalo keeping 5. Other	
30	Decision making role among the people in community before last 10 year	1. Male                              2. Female 3. Joint coordination with male and female 4. Community leader    5. Other	
31	Decision making role among the people in community at present	1. Male                              2. Female 3. Joint coordination with male and female 4. Community leader    5. Other	
32	Monthly saving adopted by the people before last 10 year	1. Yes                                2. No 3. Yes, Rs 1- 20                4. Yes, Rs 21-50 5. Yes Rs 51 -100              6. Other	
33	Monthly saving adopted by the people at present	1. Yes                                2. No 3. Yes, Rs 1- 20                4. Yes, Rs 21-50 5. Yes Rs 51 -100              6. Other	
34	Purpose of monthly saving	1. Kitchen grading              2. Bee Keeping 3. Goat keeping                  4. Shop management 5. Household use                6. Other	
35	Major community level activities before last 10 year	1. Group formation among the women 2. Income generating activities 3. Development activities 4. Educational activities 5. Access to other CBOs, GOs and NGOs 6. Other	

S.N.	Particular ( Question)	Response ( Answer)	Skip
36	Major community level activities at present	1. Group formation among the women 2. Income generating activities 3. Development activities 4. Educational activities 5. Access to other CBOs, GOs and NGOs 6. Other	

**Open Question**

4.0 What are social changes in your community seen after the project?

- 1.
- 2.
- 3.

5.0 What are the problems you have seen in the project? Can you provide your suggestion for the further improvement?

Problems

- 1.
- 2.
- 3.

Recommendations

- 1.
- 2.
- 3.

## **Appendix - “B”**

### **Focus Group Discussion**

#### **2. Information from focus group discussion**

- A. How is drinking facility after Simle Kusunde water supply and sanitation project? Is it regular? If not, what are the possibilities to make it regular?
- B. Have you collected maintenance fund regularly? If yes, how do you collect?
- C. What are the economic changes observed at community? Can you tell are of changes?
- D. What are effect of water supply project in health hygiene and sanitation at community?
- E. How is the trend of waterborne diseases caused by the lack of sanitation after the project implementation?
- F. Are your children regularly immunized? If yes, where do take your children for immunization?
- G. Which other organizations are coordinated for your water supply and sanitation project for sustainability?
- H. What are activities done at the community for sustainability of the project?
- I. Are women meeting regular? What are the areas for saving and credit mobilization? How much is invested for income generation?
- J. Are you collected invested amount as allocated time frame? If not, what is your planning to collect the dues?
- K. Are there any problem on drinking water and sanitation? If yes, what are the problems?
- L. What are future plan of your organization?
- M. What is your view for the role of other organization that helps you to make your project sustainable ?



## Appendix – “C”

### Household Survey Thorough Observation

#### 3. Model questionnaire for household survey

VDC/ Municipality: -

Ward No:-

Name of Observer:-

Observation date:-

Head of house:-

SN	A. Indicator of household sanitation		
1	Habit of covering food item	Yes	No
2	Cleaning of the kitchen	Yes	No
3	Using of smoke less oven	yes	No
4	Cleaning of cooking pots and eating pots	Yes	No
5	Cleaning of water pots	Yes	No
6	Washing of vegetable ad fruits before eating	Yes	No
7	Covering the drinking water	Cover	Not cover
8	Cleaning of house and house yard	Yes	No
9	Cleaning of kitchen	Regularly	Some time
10	Cleaning of sleeping rooms	Yes	No
11	Keeping cattle in side the house	Yes	No
12	Management of latrine in house	Yes	no
13	Proper use of household latrine	Yes	No
14	Regular immunization to the children	Yes	No
	<b>B. Indicators of personal sanitation</b>		
1	Habit of cutting nail	Yes	No
2	Habit of cumbing hair	Yes	No
3	Use of household latrine	Yes	No
4	Using slipper while going to latrine	Yes	No
5	Brushing the teeth reularly	Yes	No
6	At least a bath in each week	Yes	No
7	Washing hand with soap and water after toilet	Yes	No
8	Washing the hand with soap and water after cleaning the child stool	Yes	No

SN	<b>A. Indicator of household sanitation</b>		
9	Washing hand with soap and water before cooking and before eating	Yes	No
10	Habit of wearing clean clothes	Yes	No
	<b>C. Indicators of environmental sanitation</b>		
1	Waste disposal container or place	Yes	No
2	Open defecation in community	Yes	No
3	Cattle are opened at community	Yes	No
4	Dumping of water surrounding house	Yes	No
5	Protection of water sources	Yes	No
6	Not throwing waste at public place	Yes	No
7	Management of toilet at school	Yes	no
8	Management of water at school	Yes	No
9	Management of cleaning path household surrounding	Yes	No

**Appendix – “D”**  
**Photo Arcade**

