CHAPTER ONE

INTRODUCTION

1.1. Background

Nepal has been considered as the land of natural beauty containing varying ecological feathers starting from the glaciers of the Mount Everest in the north to the multifold of high mountains and valleys in the middle to warm tropical forest and fertile plans in south. It is located south of Lassa, province of China and north of the states of utterpradsh and Bihar administratively. It is divided into 3 regions, 14 zones and 75 districts and 3 geographical regions namely the Mountains (Himali), Hilly, Tarai based on its topography. (Pant, 2004 :)

Approximately 2.9 billion people worldwide lack an adequate water supply and 4.2 billion people live without sanitation. Lack of a protected water supply and unsanitary housing condition are the primary reasons for the prevalence of fecal – related and water – borne diseases, which dominate morbidity and mortality in developing countries. (WAN, 2003). Over 12% of deaths in children under the age of 14 in Nepal are attributed to cholera or diarrhea, secondly to pneumonia for specific cause of death. (CBS, 2001). Like most rural areas of Nepal, the Nuwakot district in the northern region with severely under served in terms of water supply and sanitation needs. Water Supply is constructed poorly, and subject to bacterial and chemical contamination.

Nepal, being a rural country, has a most of people living in rural area covering 85% of total population. About 35% people living in the area are poor (NLSS 2003/04). The area has full of scarcity of basic social infrastructures like drinking water, electricity, road, sanitation, health and education.

The Dublin principles recognize that freshwater is an input to which every human has the right to claim an essential minimum amount – the amount necessary to sustain life and meet basic sanitation needs. For human survival, the absolute minimum daily water requirement is only about five liters per day, whereas the daily requirement for sanitation, bathing, and cooking needs, as well as for assuring survival, is about 50 liters per person (equivalent to about 20 m^3 per year (ADB, 2005). Despite many efforts made during the 1980s (the International Drinking Water and Sanitation Decade), even this minimal amount was not provided in 55 countries (representing close to 1 billion people) by 1990 (ADB, 2005). Not only are the poor more prone to the adverse impacts of unsafe drinking water and inadequate sanitation, but also ADB's field surveys also consistently show that the poor spend disproportionately more of their incomes on potable water than more privileged section of the community for whom piped water supplies are assured. For example, the poor in Manila pay as much as 10 percent of their household income for a meagre quantity of water while investments in human capital (education, health care, shelter, and protection from the effects of natural disasters) are also required to break the cycle of poverty. The policy imperative of this – for governments as well as for ADB-is quite clear (ADB, 2005)

Water is essential for life. We are all aware of its necessity for drinking, for producing food, for washing – in essence for maintaining our health and dignity. Water is also required for producing many industrial products, for generating power, and for moving people and goods – all of which are important for the functioning of a modern, developed society. In addition, water is essential for ensuring the integrity and sustainability of the earth's ecosystems. The UN environmental report states that global water shortage represents a full- scale emergency. The world water cycle seems unlikely to be able to adapt to the demands that will be made of it in the coming decades. (UNEP, 1999) Similarly, the WWF (World Wide Fund for Nature) emphasizes that 'fresh water is essential to human health, agriculture, industry and natural

ecosystems, but is now running scarce in many regions of the world. (WWF, 1998)

Nepal red cross society, Nepal water for health, Bidur municipality and District Development Committee, District drinking water offfice are implementing water and sanitation project in Bidur municipality. Bidur municipality office and District Development Committee, District Drinking Water Office is active in 11 wards. (BDWCCO, 2060/061)

This report concerns with Bidur municipality ward no. 4,8 and 9 only. The people of wards have to face problem of drinking water and sanitation from which these people have been getting difficulties in their life. Bidur Drinking Water Consumer Committee, District Drinking Water Office and Bidur Municipality in partnership have implemented Bidur Drinking Water and Sanitation program. (BDWCCO, 2060/061)

1.2. Project Introduction

Bidur Drinking Water and Sanitation Project is situated in Bidur Municipality ward no, 3,4,5,8 and 9. Before this project, people had to face problem of drinking water and sanitation. The women were engaged in water fetching activities through out the day from 4 o'clock in the morning. They went to well, kuwas, Trisuli River, and Trisuli Hydro Power Tunnel for drinking water. These drinking water sources are very dirty but they have no any other alternative sources of water. Due to dirty drinking water, they were facing the many diseases. People have not knowledge about household sanitation also. Then People were started this project with the help of Nepal Government and BDWCC (Bidur Drinking Water Consumer Committee) in 2044 B.S. and Completed in 2050 B.S. This project is providing safe drinking water through pipeline and aware the consumer about household sanitation by giving training and counseling.

The main objectives of this project is to provide the safe drinking water and aware the consumer household sanitation. The other objectives are:

a. To provide knowledge for manage the wastewater in income generation activities
b. To reduce health treatment cost of the consumer.

Now, this project is providing safe drinking water and sanitation activities. It provides sanitation training more than 10 times for 500 household and provides cash aid for 100 Dalit pariwar to make toilet. It provides knowledge and technical assistant for manage the kitchen garden in 200 household in that areas.

1.3. Statement of the problem

As majority of the population who are under poverty, are unaware about the importance of environmental, social and personal hygiene and sanitation, the water borne disease are still out of control. The drinking water has direct influence in our health condition; it has reciprocal relationship with our economic status. Safe water supply is vital for improving health of people as well as reduction poverty. By the end of ninth plan, it is estimated that there will be 28.4% of total population deprived of safe drinking water facility, a basic needs of life. (NPC, 2002)

An estimated 80% of disease and over one third of deaths in developing countries including Nepal, is related to the consumption of contaminated water and on average as much as one tenth of each productive time are sacrificed to water related diseases. (UNEP,2001)

The hill region has the largest percentage of total Out Patient Department (O.P.D.) visited to water born and water washed diseases the incidence of diarrhea among children bellow five years of age was 131 per 1000. (CBS, 2001)

Women are the main users and managers of water resources and influence family sanitary habits through with central role in family hygiene, childcare and food preparation. Women are the ones who fetch water. Women are responsible for the all sources and distribution points and working to construct them. Women also decide whether or not to use a specific water point, given its distance and accessibility. Women, however, are of the denied a role in development because of their household activities and because they have limited control over resources.

Despite constraints, programs in Nepal and elsewhere have shown that women could be more involved in initiating and managing their own water supply systems. (WB, 2005)

1.4. Objective of the study

The general objective of the study is to find out the impact of Drinking Water Supply in the study area.

The specific objectives are:

i) To find out the attitude of the local people to the project

ii) To analyze impact of project on personal health and hygienic sanitation activities

iii) To find out the economic opportunities of the project

iv) To make relevant recommendation

1.5. Significance of the study

Water pollution and sanitation are the most serious public health issue in Nepal. There is vital connection between water, sanitation and health. An adequate supply of drinking water and sanitation does not fulfill human health needs, as its quality is equally important. The quality of drinking water and sanitation is sometimes known from Health Bulletin. Few research works on water quality and sanitation have been carried out in B.M. but such type of work has not been conducted there even now.

The significance of this study are:

i) Helpful to policy maker to analyze status of drinking water and sanitation in that program.
ii) It can play an important role to raise awareness among the people of BM and other local body on status of drinking water and sanitation program and its management.
iii) Helpful to the local body and other related organization make annual plan and Budgetary plan.

1.6. Organization of the Study

The research conducted in Bidur Drinking Water Supply Project of Bidur Municipality in Nuwakot district. The community undertaken for the study is District Drinking Water Office. The communities face hardship for water. The sanitation and hygiene condition of the community was of serious concern due to lack of water and due to use of poor quality. The women were engaged in water fetching activities through out the day from 4 o'clock in the morning to day light permitted. Hence, this project is more relevant to conduct study. Level of awareness of the community's members needed to be improved by empowering them with knowledge, skill and leadership capacities in different aspects of their development requirement. The study of its nature and location is pioneer. In context to the very limited related literature available so far, this work will serve as a valuable references to the scholars wishing to research in community empowerment aspect in various other development programs inevitable to be initiated in the near future.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Conceptual Review

The water resources are shared by mass, but there are no standard legal practices and obligations or strict social norms to use water in pure and proper manner. The explosive growth in population has caused water adequacy and water quality problems to greater extent. Drinking water quality control effective measure depends upon regulatory standards and codes for water supply and treatment. This is to be incorporated preciously in the national constitution. (WHO 2000)

The National Planning Commission (NPC) coordinates overall national and sectoral planning, including annual development plans and budget estimates; the Ministry of Finance including annual development plans and budget resources. The Ministry of Housing and Physical planning has responsibilities formulating sector polices and plans. It chairs the National Water Supply and Sanitation Coordination Committee, whose mandate is to coordinate policy with the other ministries with sector responsibilities. The Ministry of Local Development *(MLD)* oversees local authorities and is responsible for the integrated rural development projects, many of which have rural water supply and sanitation components. Public health, hygiene education and promotion of on site sanitation, latrine subsidies are under the Ministry of Health *(MOH)*. The Ministry of Education *(MOE)* includes some health education in the school curriculum and non-formal educational classes. The Ministry of Water Resource is responsible for monitoring overall water use. The Social Welfare Council is responsible for registering, monitoring, coordinating the activities of international Non Governmental Organizations and Local Non Governmental Organizations that operate in more than one district or are in receipt of funds from the Kingdom of Nepal. Non

governmental organizations operating in a single district register in the Chief District Officer *(CDO) (WBSAR,1996)* .

Using the lens of social capital especially bridging of crosscutting ties that cut across social groups and between social groups and government provides new insights into policy design. Solidarity with in social groups creates ties (bonding social capital) that bring people and resources together. In unequal societies, ties that cut across groups (bridging social capital) are essential for social *cohesion* and for poverty reduction (Sharma, 1999).

2.2. Review of previous studies in Drinking Water Supply and Sanitation Programs

The current approach taken by almost all agencies working in the sector includes the principles of community management and use of NGO and other local resources in the process. It gives priority to simple projects. Sanitation programs are to be run as an inseparable part of drinking water. This fails to recognize the gap in coverage between water supply and sanitation of about 50%. As argued in the section on the sanitation policy there is a need for a major stand- alone program for sanitation (RWSSB, 2002).

Improvement in the sanitation situation can yield significant benefit related improvements in health and nutrition status, contributions of economic growth, and impacts on other aspects of human development as well as improved environmental protection. While many of these benefits are difficult to value in the economic terms, estimates for some of them suggest that the total annual benefits of improved sanitation is in the range of 4 to 10 billions NRs of 1.5 to 4 percent of the GDP (WAN 2000).

The valuation of time saved is based on the use of time saved found by the AIIPH study. That study found that 30% time saved was devoted to economic activities, 16% to household activities (child rearing, housekeeping etc) and the remainder to socializing, sleeping etc. The value of these activities has been estimated at 100% of the average rural wage for economic activities 50% for household activities and 25% for other activities. This is consistent with other demand studies and in transport studies. The average rural wage is estimated at NRs 40 per day. The value of time save in gravity system would thus come to NRs . 2660 per household per year and the value of the increased water consumed to NRs. 530 per year. Together these benefits would amount to about NRs 3196 on more than the median monthly income in the hills. The benefit for the other types of households would be lower, due to lower time saving. (WESAR, 1996)

Women must be empowered through participatory training, leadership and management seminars, and skills workshops to assume a greater involvement in the management of WSS project. Women's promotion is reflected in behavioral changes such as new insight into issues, increased time and opportunities for women's participation previously marred by customs and taboos, and greater influence in the family, school and other local institutions particularly regarding health behaviors. The focus for genders must now become the management of water as a scarce resource, training in fund raising, and local responsibility for such skills development as pipe laying, masonry, sinking wells and community based quality analysis projects of water. (Margaret M, 1997)

ADB aims to provide investment in equitable, cost effective and sustainable water supply and sanitation projects for the conservation and sustainable development of water resources (ADB, 2000).

Human development is the process of developing human capabilities to make and exercise choice towards a decent standard of the living. A human development approach implies that all groups in society will be involved and

will have the potential to influence, participate in and benefit from development actions and interventions (Vision 21, 2000). Laws and social practices limit women's participation in the economy, especially rights to property and access to credit. National poverty alleviation efforts will address women's difficulties through mainstreaming gender issues in the national socio-economic, political and governing process. Target women's program will supplement the above strategy (UNDP, 2000).

The rural water and sanitation project, it seems, reduced the relative prevalence of diarrhea diseases in all population. Although pneumonia does not directly relate to water and sanitation, the rate has decreased. It could be explained for malaria, which water based disease. The possible explanation for decrease is the health seeking behavior of the population. The project area population, knowledge, attitude and practice have increased during and after project implementation, which has led to health seeking practices (SYS- TEC, KAP Study, 2000).

The time saved is use for multiple uses: about 60 percent use in childcare 53 percent in income generating activities, 52 percent on sanitation works, 49 percent for family care and 29 percent for leisure.

There were groups that have become capable to approach local agencies, such as Agriculture Development Office. This, in some schemes, the WUC not only developed with relationship with Dairy Development Corporation (DDC) and has established milk collection centre. The centre is in process of being converted into a milk producer's Cooperative. However, there were also groups that did not interact with line agencies and information and support from technical offices have not been sought (RWSS-II, 2002).

On benefit of project, 83.6 percent respondent said it improved health and sanitation status of the people and the community, 11.9 percent said it improved the environmental sanitation and 4.4 percent said other (increase in income, water availability etc.) (SYS-TEC, KAP study, 2000)

The software activities of the water supply and sanitation services, component will promote the role of women in five key areas, which includes:

a) Ensuring women's presence in the water user committee through promoting the selection of women representatives by women's group.
b) Focusing the projects software activities, particularly the community participation hygiene and sanitation and non-formal activities on women.
c) Encouraging the formation of the female tap stand groups responsible to select tap stand location, to collect monthly operation and maintenance worker.
d) Training in the operation and maintenance including water regulations, collection of user fees monitoring and reporting (WB SAR,2002).

For all living such as human beings, plant and animal, water is required for the survival. Water is very essential to the human being for drinking as well as for cleaning everyday from the morning to evening, water is required.

Safe and clean drinking water is not only a basic need of human being. It is considered as a part of human right. Nepal is a mountainous kingdom endowed with abundant water resources but the overwhelming majority of populations do not have assessed to potable water in the lack of proper water treatment facilities.

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

It is found that more than 40 governmental, national and international level NGOs are involved in providing drinking water in the rural areas of Nepal. However, the coverage modalities of this organization vary. Most of the NGOs are involved in the provision of water supply rather than doing studies in the sector.

National Planning Commission / NG in published the Tenth Plan documents emphasized the need for decentralization cost recovery , community participation and private sector involvement in drinking water and sanitation sector. The plan has been analyzing the broad issues of development of water supply in the rural areas. It has adopted an ambitious target of providing drinking water to all by the end of plan.

"Mid- term evaluation of drinking water and sanitation program" published by Centre for Research on Environment Health and Population Activities have evaluated the program conducted by Nepal Red Cross Society and Japanese Red Cross Society. The main objective of the midterm evaluation is to assess the impact of drinking water and sanitation program on the community in the project areas of the Terai and Hill districts. Impact of the program have been studied in terms of sanitary behavioral changes among the community members .The performance of DWSP activities in terms of hardware and software components, involvement of women and program sustainability have been analyzed in this evaluation.

Thapa (1998) undertook the study on rural water supply and sanitation program at khanigaon and Tallohile of Nuwakot district with an objective of finding the present status of drinking water and sanitation in the village. The study is confined to two village of Nuwakot district with 91 households.

According to the major findings of the study, the people of the remote areas of Nepal like Khanigaon and Tallohile should be provided with the basic needs like safe drinking water, education and health posts. In this regard, the role of rural water supply and sanitation project is quite significant in a country like Nepal. People's participation in decision-making process, implementation

phase and for the maintenance and sustainability of the water supply system is very important. The study shows that after the availability of the drinking water in the village lot of changes could be seen in the life of villages.

A study conducted by Sharma, entitled "The quality of drinking water in Katmandu" (1978) described that most of the urban water supply in Katmandu is contaminated although the water is treated and chlorinated at the treatment plants more data is required to assess the water supply condition in the whole of the urban Katmandu, so that defects can be remedied.

Sangita Sundas write a dissertation entitled "Drinking water problem in Katmandu" in the Department of Economic. It has concentrated on the problems of urban areas.

According to the study, water has been considered as a basic need for the survival of human beings. It is true that Nepal is a rich country of water resources, even though unfortunately Nepal is facing an acute drinking water problem. In the same way, water shortage is burning problem of Katmandu district. In absence of adequate water a lots of problem have been created. So if something is not done immediately it can be foreseen that the metropolitan city converting into dead city in future.

The World Bank on which several issues have been discussed with various experiments has published a paper on "water supply and sanitation". According to this paper, the first priority should be given to the availability of safe drinking water and sanitation facilities and control on the contagious water borne diseases to the people of rural areas. This paper has also focused the pricing criteria and it has stated that tariffs on the marginal consumption should reflect average incremental cost, i.e. the price, which would have to be charged for each incremental cubic meter to recover operating, and investment costs associated with producing and distributing it including the opportunity cost of capital.

Nepal Red Cross society, (1996) on "Plan of Action: Drinking water and sanitation program " has discussed the action to enable people to breakaway from the vicious circle of poverty, to a better quality of life through various strategies. The first priority will be given to ensure maximum impacts on health through access to knowledge about personal, domestic and environmental hygiene with the involvement of women. The plan will work to increase maximum involvement and maintenance of water supply scheme and sanitation components .It will help community to obtain sufficient quantity of safe drinking water for personal, domestic and environmental hygiene purposes. Similarly, it will help to reduce incidences of disease caused by poor quality of water through measures to prevent contamination at source and to promote safe handling of storage practices for potable water. Moreover, it will help and enable communities, especially women, to interlink water, sanitation and health with other aspect like nutrition, food and fodder production and income generation for a better quality of life.

According to Nepal water Supply Corporation" water is life, save the water, add life , water flows out of taps , sprays out of fountains and gushes out of garden hoses. An element so abundant, people take it for granted. Until it becomes conspicuously absent."

"Water to a tired child is the simplest and most refreshing thirst quencher to a housewife, it is and indispensable partner in her household chores, to a farmer its steady supply assures him of a bountiful harvest."

CHAPTER THREE
RESEARCH METHODOLOGY

3.1. Research Design

This study was based on descriptive as well as analytical method. The research investigates the transformation of the community from normal unaware status to a capable and institutionalized empowering stage via intervention of a community Drinking water and Sanitation Program completing with in 36 months of duration. The information was analyzed as Before Project Intervention and After Project Intervention.

3.2. Nature and Source of Data

3.2.1. Tools and Techniques in Data Collection

Primary as well as secondary data were used in this study. The main information is from key informants. They are related with this project. The key informants are: the president of BDWSCC, Office assistant of BDWSCC, Chief of the District Drinking Water Office by taking interview with them. Primary data were collected from the field visit with the help of various techniques like interview schedule, cluster wise focus group discussion, Mass meeting and field observation, key informant interview, transect walk. Relevant secondary information was also sufficiently used in this study with view that such information may help to strengthen the significance of the study. Secondary data, information collected from CBS, District public health office, National planning commission, District Drinking water office, Bidur Municipality, websites and publication of offices that related to the study.

3.3. Sampling procedure

Only three wards were chosen from Bidur Municipality using purposive sampling. In addition, questionnaires were asked 20 consumer's household in each wards by systematic sampling.

3.4. Methods and technique of data Analysis

Descriptive statistical method used to analyze the data. Descriptive method like percentage, pie chart, tables, bar diagrams etc. were use to describe of respondents by social, economic aspects and affordability to water services.

3.5. Limitation and scope of the study

This study has the following scope and limitation.

i) It covers drinking water and sanitation of Bidur Municipality wards no. 4,8 and 9 only.
ii) This study covers Government drinking water supply and sanitation project BM only.
iii) The result and recommendation from this study may not be applicable for whole area of Nepal except the similar nature and environment.

CHAPTER FOUR

INTRODUCTION OF THE STUDY AREA

4.1 Geographical setting

Nuwakot district is located in the Northern part of Bagmati zone in central Development Region of Nepal. Geographically, its altitude varies from 518 m. to 4572 m. above the sea level. Extension of this district area ranges from 27˚ 48’ from 28˚ 06’ of North latitude and 84˚ 58’ from 85˚ 30' of east longitude. The area of this district is surrounding by neighbor districts Rasuwa in the north, Katmandu and Dhading in the south, Sindhupalchok Katmandu in the east and Dhading in the west. Total area of this district is 1,12,100 hectors. The climate is sub-tropical mid temperate cold and hot. In the northern area climate is cold but in district headquarter and southern part of the district there is hot climate. Bidur is the Headquarter of this district. Nuwakot district is divided into 61 Village Development Committee and one Municipality, Bidur. Bidur municipality is only one municipality of this district, which is located in Middle part of the district near Trisuli. BDWSP scheme is in ward no 3,4,5,8 and 9 of Bidur Municipality.

4.2. Natural Resources

The total area of the Nuwakot district is 1,12,100 hectors. Out of that agriculture area covers 42943 hectors, jungle area covers 40516 Charan area covers 18249, stone, rivers, sand & erosion area covers 7522 & others area covers 2870 hectors. Natural resources are vital to village economy. In the Bidur Municipality, the major natural resources are Land, Water & Forest. The land of the Municipality is of mixed Varity. In Bidur Municipality, there are three rivers. They are Trisuli, Tadi, and Samari. These rivers are used for drinking water, irrigation and hydropower project.

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4.3 Population

The population of district is 288478 of which 145747 is female. The Brahmins, Chhetris, Newars, Tamangs magars and occupational castes like kumal, Migar, Pariyar, Bishworkama and Sunar are the main cast and ethnic group, The settlement pattern of the district is highly scattered. Based on the indicators of Development report of ICIMOD 1997, Life expectancy of male is 58 years and female 55.6. Literacy rate is 51.4 percentage which Male 62.4 % and female 40.7 percentage.

Table 4.1 Male Female Population Distribution of Nuwakot District

s.n	Population Total	Female Population	Male population
	288478	145747	142731

Source: National Census Report 2005

4.4. Educational Status

The district's educational status is given below. 51 percentage of the total population is literate. 40.7 % female and 62.4 % male are literate.

Table 4.1 Male Female Population Distribution of Nuwakot District

Total Population	Total Literate		Female Literate (145747)		Male Literate (142731)		Remarks
	Population	%	Number	%	Number	%	
288478	148277	51.4	59319	40.7	89064	62.4	

Source: National Census Report 2005

4.5. Economic Status

The Municipality has linked with Palsang Lamu Rajmarga to Dhunche and purpose to make alternative road to link with China. The potential-

based micro-enterprises in Nuwakot district are poultry, livestock, food processing, fruit processing. Various forest-based micro-enterprises are bamboo craft, herb processing, and furniture. Minerals and service based micro enterprises are metal works, stone works, and pottery tailoring transport services. In the Bidur Municipality, there are no any big industries. Agriculture is the main livelihood activity of the peoples of the research area. The major crops are rice, wheat potato, etc.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1. Socio Economic Profile of the Respondent

5.1.1.Age composition of the Respondents

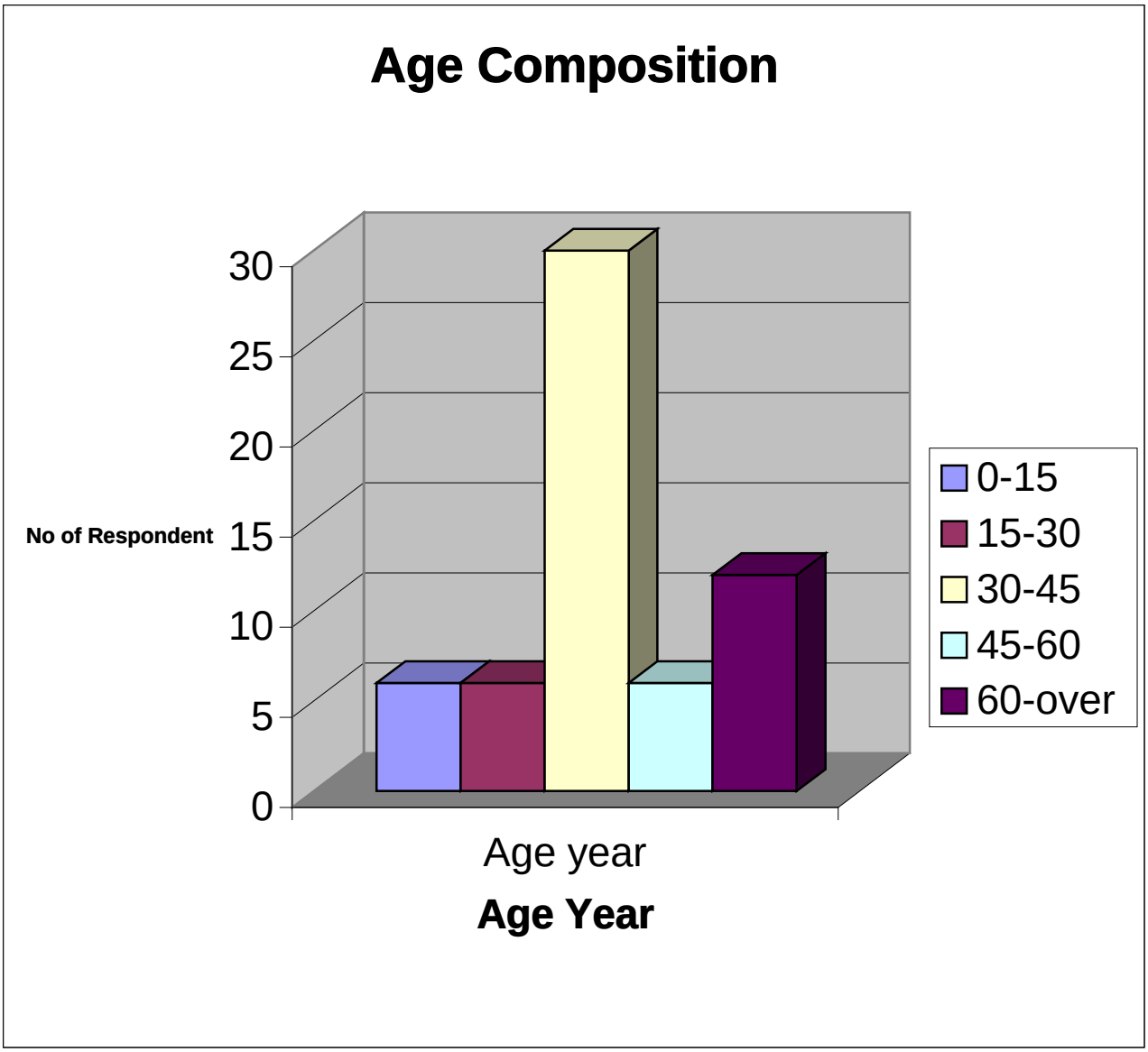
The Age composition of the Respondents is presented in the following table.

Table 5.1 Age Compositions

Age year	Number	Percentage	Remarks
0-15	6	10	
15-30	6	10	
30-45	30	50	
45-60	6	10	
60-over	12	20	
Total	60	100	

Source: Field Survey 2006

The tables 5.1, shows the age composition in details. Majority 50 percent respondents fall in the 30 to 45, 60 and above year's group followed by 20 percentages and 0 to 15, 15 to 30 and 45 to 60 years group followed by 10 percentage each group respectively . I also show this data in following bar diagram.


Age Composition
No of Respondent
30
25
20
15
10
5
0
0-15
15-30
30-45
45-60
60-over
Age year
Age Year

5.1.2.1 Cast / Ethnicity of respondents

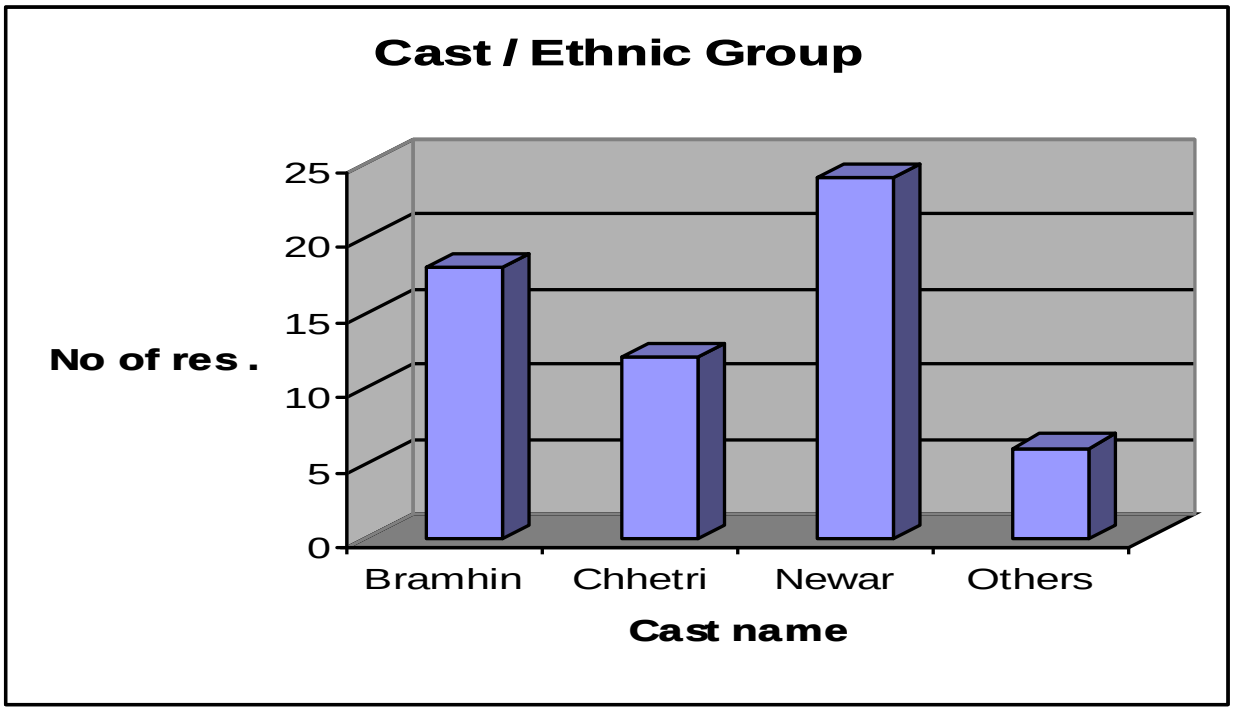
The caste / ethnic composition of the respondents is presented in the following table.

Table 5.2 Casts / Ethnicity Group of Respondents

s.n.	Bramhin	Chhetri	Newar	Others	Total
Number	18	12	24	6	60
Percentage	30	20	40	10	100

Source: Field Survey 2006

Table 5.2 shows the caste / ethnic group of respondent. There are 60 respondents and out of them 40 % are Newar, 30 % are Bramhin, 20 % chhetri and 10 % others. I also show this data in following bar diagram.



5.1.3 Family size of Respondent

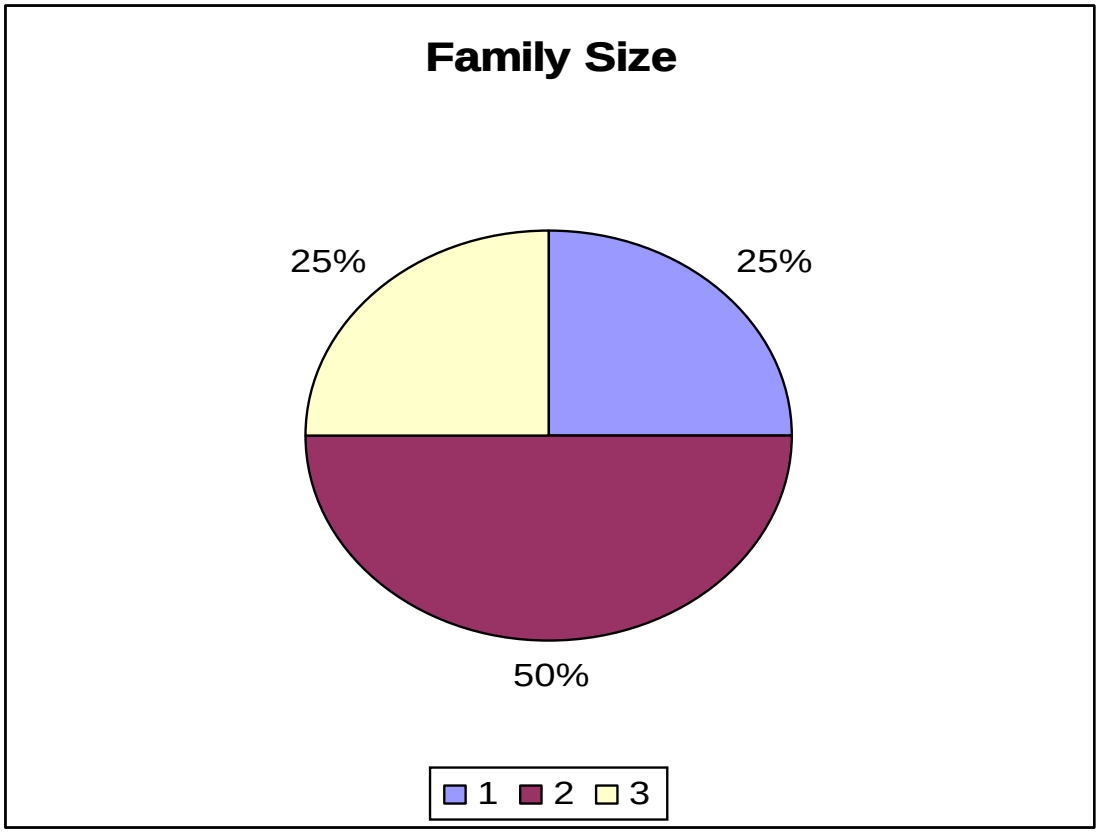
The Family size of the respondents is presented in the following table.

5.3. Family Size of Respondent

Category	Household	Percentage
1--4	15	25
4--6	30	50
6-over	15	25

Source: Field Survey 2006

The table 3 shows that the family size of the respondents Household are 50 % in 4-6 family size, 25 % in 1-4 and 25 % in 6 and above members family size .I also show above data in following Chart.



5.1.4 Educational status of the respondents

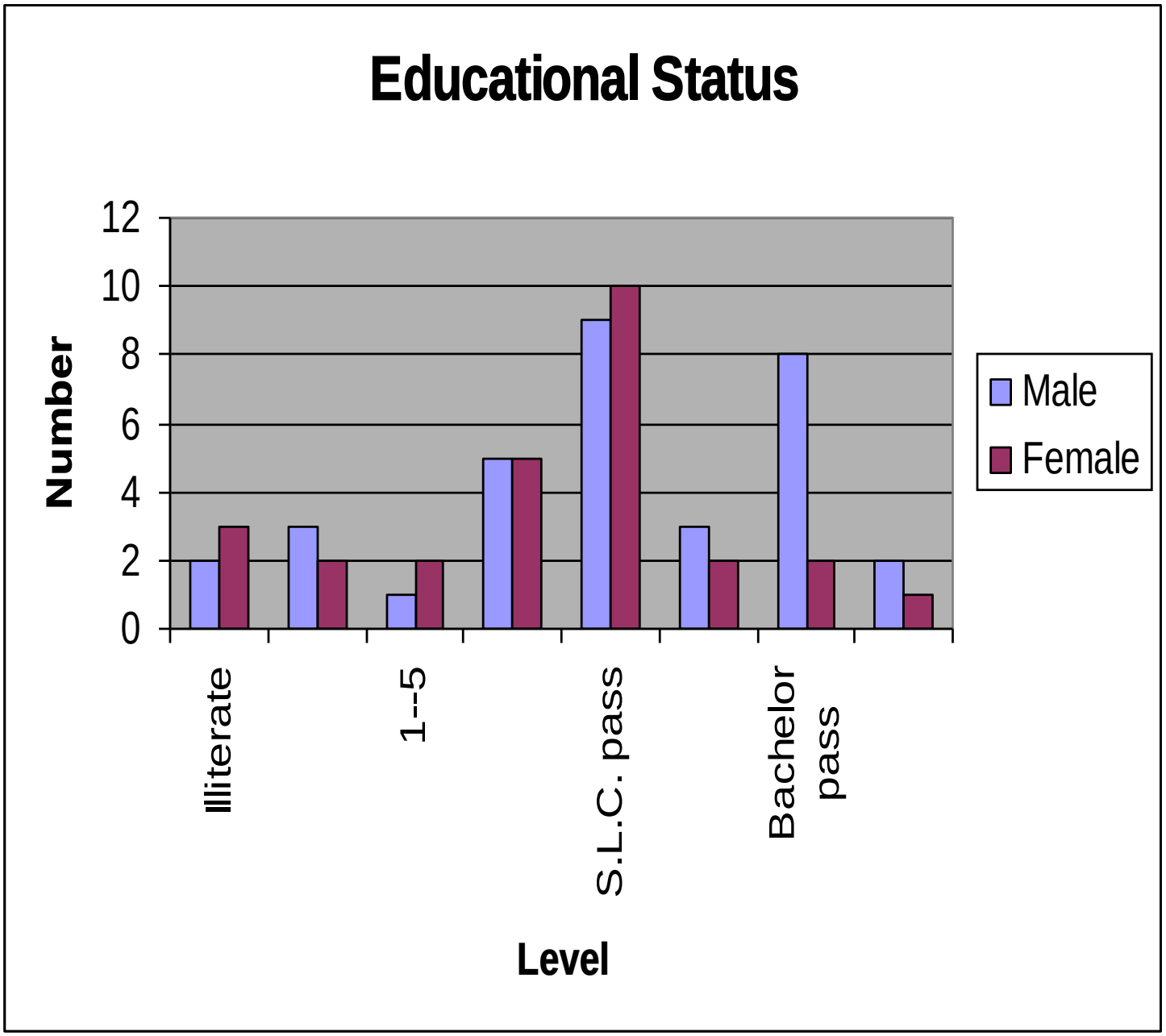
The Educational status of the respondents is presented in the following table.

Table 5.4. Educational Status of the Respondents

Educational Level	Male	Female	Remarks
Illiterate	2	3	
Literate	3	2	
1--5	1	2	
5--10	5	5	
S.L.C. pass	9	10	
Intermediate pass	3	2	
Bachelor pass	8	2	
Master and above pass	2	1	
Total	33	27	60

Source: Field Survey 2006

In the study area 60-sampled HH (Household) have 350 populations. 55 % male and 45 % female were the respondents. 6.06 % male and 11.11 % female found illiterate. 94.04 % male and 89.99% female found Literate and above level. Literacy is taken a study up to classes or to simply read and write in Nepali language. In total 8.33 %, respondents are illiterate. I also show this data in following bar diagram.



5.1.5. Economic status of the respondents

The community of the study area makes their livelihood by agriculture. The major crops grown in the community are rice, corn, wheat, and millet. Besides these people, also cultivate potato and mustard. Some beans and vegetables are grown in this area. The soil is fertile but the crops are dependent upon monsoon rain. Any irrigation or micro irrigation system can quickly enhance economy of these farmers. Some HH of the occupational castes continue their traditional occupation such as Tailoring, metalworking, shoe making etc. People are living their traditional profession day by day due to hardship to make living with such economic activities solely. Some people are involved in business,

government or Private Services. People are greatly seeking other means of earning for living. People with less land or no land have to depend also on wage labor. Such wage laboring are carpentry, porter and agricultural labor.

Table 5.5. Economic Status of the Respondents

Local economic indicators	No of HH	Percentage	Remarks
Households with food sufficiency less than 12 month by own land	10	17	
HH having cultivatable land less than 1 ropani	12	20	
HH mainly depend upon only agriculture	30	50	
HH with at least one person having job for additional income	8	13	
Total	60	100	

Source: Field Survey 2006

The table 5.5 presents the economic status of the respondents based on the developed indicators. The HH with food sufficiency less than 12 months are found 10 (17%) with in the respondents. HH mainly depended on agriculture found 30 (50%) and rest 20% HH having cultivatable land less than 1 Ropani. HH with person having job for support in income found 8 (13%).

The above finding shows that the majority of people are hardly sustaining their livelihood. The means of the production is agriculture land and after water supply, people should be able to produce cash crops or additional crops to raise income. The people with lack of land may go other income generating activities. There were less people having job

relates to education qualification and developing competencies. In all cases time save in the existing life pattern can play key role in poverty reduction here if utilized very productively. The Bidur Municipality and DDC through income generation program help in supporting livelihood to all HH of the sample respondent.

5.2. Health and Sanitation status of BDWSP

In this section, Health and sanitation status is observed under heading such as availability of safe drinking water, improvement in household sanitation, improvement in personal hygiene and sanitation and improvement in health. These aspects are observed in the relative term of status before intervention of the program as evaluated by the respondent. The study has focused health and sanitation status in relation to well being of a society.

5.2.1. Availability of safe water

Majority of rural people are deprived of safe drinking water, which is also prime condition for health and sanitation status improvement to the growing population. Table shows availability of safe water in before and after project intervention.

Table 5.2.1. Availability of Safe Water

Availability of safe water	Before Project		After Project	
HH using safe water number	No of HH	%	No of HH	%
	12	20	60	100

Source: Field Survey 2006

Safe drinking water was available to 20 % before project intervention. After project, safe water became available to all the sampled households (100%). This data signifies after project intervention people are getting sufficient safe water for drinking purpose.

5.2.2. Availability of adequate water quantity

Personal, domestic and environmental sanitation directly depend on quantity of water available for use. It is therefore important to provide safe as well as sufficient water quantity to improve their health and sanitation status.

Table 5.2..2 Availability of Adequate Water Quantity

Availability of adequate water quantity	Before Project		After Project	
	No of HH	%	No of HH	%
HH using adequate water quantity	18	30	60	100

Source: Field Survey 2006

The adequate water quantity available per day before project intervention was 30 %. After project, safe adequate water became available to all the sampled households (100%). This data signifies after project intervention people are getting sufficient water for drinking purpose.

5.2.3. Improvement in household sanitation

a. Status of cooking and washing utensils

Cleaning kitchen utensil is a routine multi time per day sanitary activity. A washing platform and drying plate form

is necessary in every HH to ensure proper cleaning and drying of the utensils to make it germ free.

Table 5.2.3.a. Status of Cooking and Washing Utensils

Cooking and washing utensils	Before project		After project	
	No of HH	%	No of HH	%
Clean	36	60	60	100
Dirty	24	40	0	0

Source: Field Survey 2006

In above table shows that only 60 % HH use clean water for cooking and washing utensils. After project intervention, 100 % HH used clean water for cooking and washing utensils.

b. Practice about use of stale meal

Use of steal meal causes stomach problems cholera in worst cases. A practice to reheat the food before use is useful for daylong period. Consuming cooked food kept for longer duration again may cause sickness.

Table 5.2.3.b. Practice of stale use

Use of stale meal	Before project		After project	
	No of HH	%	No of HH	%
HH using stale meal	36	60	18	30
HH non using stale meal	34	40	42	70
Total	60	100	60	100

Source: Field Survey 2006

Before project intervention HH using steal meal response was 60 % actually used stale meal. After project

intervention about use of steal meal 30 % HH have used of stale meal. After project, intervention there has been improvement. The people changed and activities to use stale meal decrease to 30 %.

c. HH using lid to cover food

Fluids, Fields, Fingers (Hand) and flies access to prepared food and use of such food by the people is the main causes of diseases. To prevent the food from the access of flies, a lid is used to cover the food.

Table 5.2.3.c. HH Using Lid to Cover Food

HH using lid to cover food	Before Project		After project	
	No of HH	%	No of HH	%
HH using lid to cover food	9	15	51	85

Source: Field Survey 2006

Before project, only 15% HH had used lid to cover food and after project intervention 85 % HHs have use lid to cover food. There has been improvement as 85 % are aware.

5.2.4. Improvement in personal hygiene and sanitation

a. Habits Respondents about washing hand after defection, Nail clipping, cloth washing and bathing

Unwashed hands are one of the major causes of disease transmissions. This is most observed option in human. Researcher has found out changes in attitude and practice about washing hands after defection, Nail clipping,

cloth washing, bathing etc. are the basic personal hygiene and sanitation activities are presented in the following table.

5.2.4.a**.** Personal Hygienic and Sanitation

Personal Hygienic and sanitation	Before project	After Project
Hand washing practice after defection	50 %	100 %
Nail clipping more than once a month	60 %	100 %
Cloth washing more than once a month	70 %	100 %
Bathing more than once a month	89 %	100 %

Source: Field Survey 2006

The above table shows that only 50 % people were aware of hand washing after defection. About 60 % were aware of nail clipping, 70% on washing cloths and 89 % on bathing. But after project intervention 100 % people are aware and have changed their behavior and practices. It is a good sign of health improvement.

b. Materials used for hand washing practice

The material used for washing hand is important with respect to hygiene and sanitation. Change in people's attitude and practice is presented in the following table.

5.2.4.b. Materials Used for Hand Washing Practice

Materials used for hand washing practice	Before Project	After project
Mud and water	40 %	5 %
Ash and water	30 %	30 %
Soap and water	10 %	65 %
Others and water	20 %	---

Source: Field Survey 2006

Before project intervention, 40 % people used mud and water, 30 % ash and water, 10 % soap and water and 20 % others materials for hand washing. After project, intervention regarding materials for washing hand a significant change was observed. Mainly people are using soap and ash for washing hands. It is a good sign.

5.2.5. Improvement in Health

a. Most Common diseases

Safe water is one of the pre conditions to be healthy and free of diseases. Previous studies has established that due to use of unsafe water people have suffer from water born diseases like diarrhea, dysentery, scabies, worms, typhoid, jaundice, cholera, polio and now hepatitis.

Table 5.2.5.a. Most Common Diseases

Disease	Affected member in percentage			
	Before project Rank		After project (Last year)	Rank
	%	No of Respondents	%	No of Respondents
Diarrhea	30	18	25	15
Skin	20	12	20	12
Eye	20	12	15	9
Worm	15	9	10	6
Jaundice	5	3	20	12
Others	10	6	20	12
Total	100	60	100	60

Source: Field Survey 2006

Before project intervention frequently, occurred diseases among respondents were Diarrhea 30 %, Skin 20 %, Eye 20 %, Worm 15%, jaundice 5%, Others 10 %.

After the provision of drinking water supply, occurrences of disease among the respondents were diarrhea 25 %, skin disease 20%, eye disease 15 % worm 10 %, and jaundice 20 % others 20 %.

b. Practice of treatment by the household

The method of treatment applied for different diseases is influence by the perceived cause of different diseases by common people. Their level of awareness about diseases and treatment method, cultural norms, beliefs, established traditional practices drive common people to choose alternate treatment methods. The appropriateness of their selection to correct treatment method reveals their awareness in health and hygienic matter and their financial capacity.

Table 5.2.5.b. Practice of Treatment by the Household

Practice of treatment by the household	Before project (in percentage)	After (project in percentage)
HH visit Health Institution	50	100
HH visit Traditional Healer	60	40
HH performing worship	40	30
Other practices	30	10

Source: Field Survey 2006

The above table shows that before project intervention 50 % HHs visited the health institution 50 %, 60 % visit to tradition healer, 40 % seeking treatment by performing worship, and other practices to cure disease 30 %. This situation is found changed in

after program intervention period where for treatment of different diseases people practiced visit to health institution by 100 %, alternately also visited traditional healers by 40 %, worship method used by 30%, and other practices reduced to 10 %. People awareness to visit health institution for proper treatment of disease is found reached to 100 % after program intervention.

5.2.6. Awareness of environmental management

This chapter analysis one of the major finding of the research work, women empowerment for environmental management. This section is related with the sector efforts in sanitary based environmental improvements. The millennium goal also addresses the environmental and sanitary concern. These aspects are found correlated by empowering communities is an analysis of the four major components categorized under community empowerment under this research.

a. Presence of compost pit

Compost pit concept found to implement as a project activity to manage solid waste. It was observed that most of the households were having traditional manure compost pit they started using it as compost pit. This was less and hygienic and of lower sanitary status. Community needed to focus mere in building a proper compost pit.

Table 5.2.6. a. Presence of Compost Pit

Compost pit to manage Animal waste	After	Before
Number of HH prepare traditional manure compost pit	10 %	90 %

Source: Field Survey 2006

Before project intervention the 10 % of the respondent managed traditional manure compost pit after intervention 90 % of the respondent managed traditional manure compost pit. The result of the above cases in the field observations thought the traditional manure pit is used as waste pit, is managed more properly.

b. Presence of solid waste pit

An improved solid waste pit is desirable in the community to manage solid waste. There is more common practice to use tradition manure pit to serve the purpose. In some cases in addition to HH manure pit a single solid waste pit for per cluster is also found practiced.

Table 5.2.6**.** b. Presence of Solid Waste Pit

Presence of solid waste pit	After	Before
Number of HH prepared improved solid waste pit	0%(0)	10% (4)

Source: Field Survey 2006

Before project intervention, the 0% of the respondent managed improved solid waste pit and after project intervention phase 10% of the respondent managed improve solid waste pit. The community is more attracted on improving the manure pit, like increasing its distance from house working properly to keep it cleaner, rather then making different types of pits for different types of waste.

c. Presence of kitchen Utensil Washing Platform

In a healthy sanitary and hygiene practice improved kitchen utensil washing platform is desired in each HH.

Table 5.2.6. c. Presence of Kitchen Utensil Washing Platform

Kitchen utensil washing platform	After	Before
Number of HH constructing improved kitchen utensils washing platform	30% (12)	50%(20)

Source: Field Survey 2006

Before project intervention, the 30% of the responded and after intervention phase 50% of the respondent had improved kitchen utensils washing platform. The results of the above case that group there is increase in construction improved kitchen utensil washing platform after program intervention.

d. Presence of kitchen drying platform

In a healthy sanitary and hygiene practice to kill the germs in the sun improved kitchen utensils drying platform in desired in each HH along With washing platform.

Table 5.2.6. d. Presence of Kitchen Drying Platform

Kitchen utensil Drying platform	After	Before
Number of HH constructing improved kitchen utensils Drying platform	30% (12)	50% (20)

Source: Field Survey 2006

Before project intervention, the 30% of the respondent and after intervention phase 50% of the respondent had improved kitchen utensils platform.

e. Place of Defecation

Open –air defecation is the norm in rural areas and common in towns. Ignorance about the relationship between

sanitation and health means that the full benefits are not gained from available facilities. Unmanaged defecation practice contaminates the water source and cause serious health hazards. The program covers a sanitary revolving loan fund distribution approach that targets to facilitate toilet construction in every HH within maximum four years.

Table 5.2.6. e. Place of Defecation

Place of Defecation	After	Before
Toilet	60% (24)	80%(32)
Open yard	40% (16)	30%(12)
Jungle	30% (12)	20% (8)
River stream	20% (8)	20% (8)
Other	10%(4)	10% (54)

Source: Field Survey 2006

Before project intervention only 60% of he respondent used toilet, and occasionally 40% used open yard 30% used jungle 20% used river stream and 10% other places for defecation. In the after intervention phase only 80% of he respondent used toilet and occasionally 30% used open yards, 20% used river steam and 10% other place for defecation. The result of the above case the construction and use to toilet have been increased and using other places for defecation is decreased. The fact that the toilet used in before program intervention phase were mostly temporary arrangements of shifting pits type or fly producing type uncovered pit latrines. These have been improved along with new latrine construction in the after intervention phase as remarked by the respondents.

f. Reason for Outside Defecation

The program covers a sanitary revolving loan fund distribution approach that to facilitate toilet construction in every HH within maxim four years.

Table 5.2.6. f. Reason for Outside Defecation

Reason for outside Defection	After	Before
Cannot afford to build toilet	60% (24)	0% (0)
Importance not known	50% (20)	0% (0)
Like open yard defection	30% (12)	0% (0)
No land for construction	0% (0)	0% (0)

Source: Field Survey 2006

Before project intervention responded about reason for outside defection as cannot afford to build toilet 60% importance not known 50%, like open yard defecation 30% no land for construction 0%. In the after projects intervention research stage all the respondent HH had latrines 60% permanent and 40% temporary type.In the above case can be observed that 100% started to use latrines.

g. Environmental Natural Drainage planning and Improvement

In a water supply and sanitation scheme the concept of the community Drainage Management plan has co-relation with water quality as well as the sanitation part of the local system. The management of the entire Drainage system of any community is essential even before implementation of the water supply scheme in the village. Strom water

management is also component of Natural drainage planning.

Table 5.2.6.g. Environmental Natural Drainage Planning and Improvement

Environmental Natural Drainage planning	After	Before
HH preparing Wastewater natural drainage arrangements	20% (8)	90% (36)
HH preparing local storm water natural drainage arrangements	20% (8)	70% (28)
HH preparing environmental source protection plan and drainage	0% (0)	70% (28)

Source: Field Survey 2006

Before project intervention responded 20% involved in waste water natural drainage arrangement which increased to 90% in the after intervention phase. Similarly 20% of people engaged in storm water management increased to 70%. In the environmental source protection from before project intervention from 0% to increase of 70% is recorded in the research. The result of the above case the drainage arrangements are of natural drainage type locally managed that needs timely maintenance after rainy season.

h. Use of Waste Water

Use of waste is an important aspect as unmanaged wastewater in sanitary health and scheme sustainability risks. Managed use of this water in the kitchen garden brings economic benefit and food habit improvement.

Table 5.2.6. h. Use of Waste Water

Use of Waste Water	After	Before
Often in kitchen garden	0% (0)	100% (40)
Nearby pit	60% (24)	10% (4)
Unmanaged Drain	90% (36)	0% (0)
To managed Drain	0% (0)	10% (4)

Source: Field Survey 2006

Before project intervention, about use of wastewater respondent 20% used in kitchen garden, 69% near by pit, 90% unmanaged drain and 0% to manage drain. Intervention phase about use of wastewater the situation was responded as 100% using in the kitchen garden, 10% found shed into near by pit, 0% in the unmanaged drain and 10 % in the managed drain. This state mostly wastewater is taken care for kitchen garden activities in the community. This state mostly wastewater is taken care for kitchen garden activities in both the community after project intervention.

I. Types of fuel used

Type of fuel used in the community signifies about cleanliness of kitchen environment, air pollution, economical options at environmental costs and other features.

Table 5.2.6.i. Types of Fuel Used

Types of fuel used	After	Before
Fire Wood	90% (36)	90% (36)
Kerosene	20% (8)	50% (20)
Dung	10% (4)	0% (0)
Biogas	10% (4)	40% (16)
Other	0% (0)	0% (0)

Source: Field Survey 2006

Before project intervention about type of fuel used by the people, they responded 905 used in firewood, 20% kerosene, 10% dung 10% biogas and 0% any other type of fuel. The after intervention phase weight age of dependency upon each source in changed to use of firewood 90%, kerosene 50%, dung 0% and biogas 405 other 0%. The alternative of firewood is found by increasing use of kerosene and biogas in the community, which are more environmental friendly and less air polluting.

5.3. Consumer attitude towards the project

Consumer's attitude towards the project is presented in the following table.

5.3. Consumer Attitude Towards the Project

Attitude	No of Res.	% of Res.
BDWCC members are not managed the water supply and sanitation program	24	40
Sometimes dirty water comes in a tap	18	30
BDWCC's members are biased on the distribution of new tap	15	25

Source: Field Survey 2006

The above table shows that 30% of respondents were not satisfied with the project. They complained about drinking water quality. They said most of the time there comes dirty water. 70% of the respondents were not complained the quality of the water.

40 % of the respondents were not satisfied with the management of water supply and sanitation. 60% were satisfied with the management of the project. Therefore we can say that most of the respondents were satisfied with the management of the project.

But management must understand the complain of the project. 25% of the respondents complained about biasness of the distribution of the new taps and 75% of the respondents are not complained about the distribution of the new taps. It shows that most of the respondents are satisfied with the project management.

5.4. Improvement in economic condition after the Project

Before this project, respondents did not plant vegetables. They only used by buying. After this project, many consumers utilized wastewater in the kitchen garden; they planted vegetables with the help of wastewater. They produced vegetables like cucumber, potato, cauliflower, chilies etc. they used these vegetables in daily life and sold the remaining vegetables. The income of the respondents, which sells in market through the kitchen garden, is presented in the following table.

Table 5.4. Improvement in Economic Condition

Income yearly	No of Respondent	% of the respondent
2000-5000	30	50
5000-8000	15	25
8000-10000	12	20
10000 above	3	5
Total	60	100

Source: Field Survey 2006

The above table shows that 50% of the respondents earned Rs. 2000-5000 in a year by selling the vegetables. 25% of the respondents earned Rs 5000-8000, 20% earned Rs 8000-10000 and 5 % of the respondent earned Rs 10,000 and above by selling vegetables.

It shows that all the respondents earn money by selling vegetables and improve their economic condition and life standard.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1. Summary

To have a comprehensive holistic view of community – based solution through women empowerment approach of water sector the research was conducted in RWSSFDB schemes in Nuwakot district. The result of 36 month active implementation working was tasted in Bidur scheme. Here from the total 60 HHs were taken as sample HH based on simple random purposive sampling.

After project intervention the case group 100% responded having access to safe drinking water and availability of water quantity is increased. Status of cooking and washing utensil, Use of stale meal, HH using lead to cover food, washing hand after defection, nail clipping, cloth washing bathing, materials use for hand washing, change in food habit is increased in attitude and practices. Most common diseases frequency of occurrence is decreased. The research data reveal that people awareness to visit health institution for proper treatment of disease is found increasing. Yearly money spent on treatment by HH is increased visit to the health post due to awareness has also increased in general medical expenditure costs. There is awareness on improving traditional pits and new improved pits are being built slowly. The result shows that practice to build improved solid waste pit is just initiated by the program intervention. Communities are taking option to improve the manure pit rather for solid waste management problem. The research shows that communities are aware and started to construct improved kitchen dishwashing platform. The research shows that after water program intervention, people have become more aware to abandon out side defecation practices in the community. The drainage planning and

management status investigation in the community showed that status of natural drainage for wastewater, storm water and environmental source protection work is considerably being improved in the case. The finding shows that in the case after intervention the drainage being managed. The water program raised people s concern on the status of sanitary condition of water collection point. The findings shows that there is growing trend in animal shed constructing in a safe distance in the communities but as in case of wailed animal problem people need to construct permanent type of costly shed which is immediately not possible for them . The program intervention changed peoples attitude and there practice village cleaning.

Community is more empowered with skill to suitably handle and tackle social issues and conflict to restore in the society. After intervention, peoples are prepared to restore useful social norms and value, relate with health hygiene etc within our culture. Women position in decision –making and leadership is increase d. An investigation on in the program financial transparency fully adopted by WUC and NGO that improved mutual Trust revealed in the community. Skills and awareness Level of WUC\WUG improved by involving them in the community Development related Trainings.

The research shows that after implementation of the water and sanitation program, women group are comprised as active Tap stand group .The board has mandatory provision to include at least two women members in 6-7 male members committee. This is for to ensure women interests and gender balance. In the community the WUC women member involvement and active role is observed after program intervention. Women's Income Generation Group is working properly. Water program sensitized users on the economic dimension of use of saved time to reduce.

Poverty, The case group the use of time saves to reduce poverty is positively responded in after program intervention stage .The case shows that the cultivation status of rotational or cash crops for additional income is same in before and after program status. Due to intervention, people have extra time properly take care of farming activities them before. On wide replication of cultivation cash crops using time save people are found stills less aware. Availability of water increased fodder and time save found helped to raise livestock, care small community. Lacks of road access people are aware about rural entrepreneurship. Now as positive indication but due to local situation not practically any changed reports occurred in the after intervention phase upon to the time of collection of research data. The times save has opened option for earning income by involving in wage labor work, when available. It was found that use of time and awareness helped to take of child hence likely medical cost. The time saved used in nourishment and providing proper attention to childcare with health and sanitation learning helped to reduce medical cost as frequency of illness dropped. It is found that FB newsletter is a limited and occasional circulation. This was reported contribution of water program on the learning to increase rural economic activities in the saved time. The finding of the above case signifies the RWSSFBD radio program and FB newsletter are useful for community. A WTSS women group per member per month is saving RS10.00 kitchen gardening activities and new cash crops raised WTSS loan used for agricultural activities for poultry farming, goat raising .In the saving credit activity interest loan used in returned by 100% Women awareness rose to take initiatives for linkage for economic activities positively marked. The result shows that in the above case there have been raise awareness level to use any linkage opportunities obtained suitable economic activities for the villager. It is observed that skill development training and orientation for income generation under the water program is

increased. The case shows that group majority of the community have benefited from skill development training for IG activities.

6.2. Conclusion

There is time save of 6.22 hours\ HH\day. However, this time save is not being utilized in income generating activities properly due to the lack of proper knowledge about income generating skills.

People may improve health by taking vegetables as nutrition from their own kitchen garden. This shows proper use of wastewater and productive use of time save in rural context as extra vegetables were found sold in near by market.

There is increased in visit to the health institution by 50%. In the rural context these awareness are improvement but bring additional cost to individuals.

Water management and equitable distribution is enriched through solving series of conflicts such conflicts solving skill reported improved 70% in the community.

The financial transparency leadership of women and establishment of good social norms and skills awareness level improvement found vital in developing social harmony in communities.

It is found out that the nearer access to water bring time save which leads to access to land (agriculture activity), to community forest and to greater technical learning. However, it is also found out that people are not appropriately aware improved accesses and take in benefit.

There is any questioning that water and sanitation program can play role in sensitizing the entire community in gender aspects and in the role of women empowerment.

This also found helpful to establish women in the leadership role hence leading the women in ownership and as water system manager.

It is found that like women as well are involved in economic activities. However, women do not have their personal savings, which is used by discretion.

The WTSS found functioning well in the research but the progress is more because of self-initiatives. An external linkage for formal credit has not been developed until the date of field study.

Other sanitary units like kitchen utensil, washing plate from and kitchen utensil drying platform have been found constructed in limited HH.

The toilet marking is found effective. However, the research shows that after constructed toilets also people are outside in work, field and enjoy habit of occasional defecting outside.

The research shows the drainage conditions have been improved but it still needs further improvement. RSWSSFDBN.

Newsletter and radio program found linking program with the communities to voice their policy feedback however, the limited circulation of newsletter and wide gap in program duration of radio observed.

In conclusion RWSSFED water and sanitation program has empowered the women within the there major aspects. The program launched by RWSSFDB has brought change in several aspects of women life. The program has helped the women to transform as dynamic community based organization.

6.3. Recommendation

It is recommended that the following action could be taken in order to develop decentralized community empowerment approach for community level implementation operation and management of the drinking water and sanitation.

a. It is recommended that skill based technical transition on various possible income generating activities should be provided.

b. It is recommended that market facility for selling vegetable should be strengthened.

c. It is recommended income generation component in water and sanitation programs should be designed reaching even the poorest of the poor.

d. It is recommended that to retain social harmony for efficient management these programs must focus on skill and leadership building trainings to individuals.

e. It is recommended to incorporate and highlight in water and sanitation programs.

f. It is recommended to that taking account of all the personal, HH and social role of women must be designed to ultimately establish women as water manager.

g. It is recommended that water and sanitation program must have these components to establish women's personal saving income generation.

h. It is recommended to provide more focus on this program.

i. It is recommended to promote social civic norms within program to make people more responsible.

j. It is recommended to incorporate separate Drainage part with Bioengineering in the system design.

k. It is recommended to send copy of Newsletter to all the WUC and regularize the radio program in future.

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Questionnaire Models

Name of Project: Bidur Drinking water supply project

Established date:

Consumer committee name and member:

Name of Respondent:

1. Name of household head :
2. Personal detail:
    I. Caste /Ethnicity Group :
    II. Family member :
    III. Age Group

Age Year	Number	Remarks
Under 15		
15-30		
30-45		
45-60		
60- above		

    IV. Educational Status

Educational Level	Male	Female	Total
Illiterate			
Literate			
1-5			
5-10			
S.L.C. pass			
Intermediate pass			
Bachelor pass and above			

3. Economic status :
    i. Land and agricultural Production:

Types of land	Area (Ropany)		Crops Production		Income from Agriculture		Sufficient Yes / No		Remarks
Khet									
Bari									
pakho									

II. Occupational Status:

S.N	Types	Number	Remarks
1	Service		
	Government		
	Private		
2	Agriculture		
3	Business		
4	Others		
5	None		

III. Yearly income status:

s.n.	Types	Amount	Remarks
1	Agriculture		
2	Service		
3	Business		
4	Others		

4. What was the source of your drinking water before the supply of this project?
   a. Well b. Pond c. stream d. Kulo e. River
5. How long did it take you to fetch drinking water?

Before this Project	After this Project	Time saved

6. Do you have safe drinking water ?

Before		After	
Yes	No	Yes	No

If no, why ?

7. How much water does you need?

Purpose	Before		After		Remarks
	Needs (lts)	Supply (lts)	Needs(lts)	Supply(lts)	
Drinking					
Cooking					
Washing					
Cattle					
Kitchen garden					
Others					

8. Do you have adequate water?

Before		After	
Yes	No	Yes	No

9. How is the saved time utilized after drinking water supply is launched?
   a. Cattle / livestock farming
   b. Agriculture / kitchen garden
   c. Cottage industries / handicraft
   d. Trade / business
   e. Others (Social activities)
10. What types of tap do you have? Private / Public
11. How much do you pay for drinking water per month?

12. Do you use to Lab Test (coli form Bacteria test) on taps water?
    Yes / No
13. How long time is tap opened in a day?

14. What kind of water do you use for cooking and washing utensils in your house?

Before		After	
Clean	Dirty	Clean	Dirty

15. Do you have habit to use steal meal in your house?

Before		After	
Yes	No	Yes	No

16. Do you have habit to use lid to cover food?

Before		After	
Yes	No	Yes	No

17. Do you have Toilet in your house?

Before		After	
Yes	No	Yes	No

18. If No, where do you go for defection?

Place	After	Before
Open Yard		
Jungle		
River stream		
Others		

19. What are the reasons for outside defection?

Reasons	After	Before
Cannot afford to built toilet		
Lack of Knowledge		
Like open yard defection		
No land for construction		
Lack of water		
Others		

20. If you have toilet, what kind of toilet do you have?

Before		After	
Permanent	Temporary	Permanent	Temporary

21. Do you wash your hands after defecation?

Before		After	
Yes	No	Yes	No

22. What materials do you use for hand washing?

Materials	Before	After
mud		
ash		
soap		
water		
others		

23. When do you clip your nail?

Time	Before	After
After 5 days		
After 10 days		
After 20 days		
After 30 days		

24. When do you wash your cloth?

Time	Before	After
After 5 days		
After 10 days		
After 20 days		
After 30 days		

25. Normally, when do you bath?

Time	Before	After
Daily		
2-5 days		
5-10 days		
10-15 days		
15-20		
20 and above		

26. What are the main food items in your lunch and dinner?

Before	After
a. Rice, dal, dhedo, gundruk	a. Rice, dal, dhedo, gundruk
b. Rice, dal, dhedo, vegetables	b. Rice, dal, dhedo, vegetables
c. Rice, dal, dhedo, vegetables, pickles	c. Rice, dal, dhedo, vegetables, pickles
c. Rice, dal, vegetables, pickles, salad	c. Rice, dal, vegetables, pickles, salad
d. Others	d. Others

27. Where do you go incase of sickness?

Before	After
a. Health institution	a. Health institution
b. Traditional Healer	b. Traditional Healer
c. Performing worship	c. Performing worship
d. Others	d. Others

28. How many family members are affected from given diseases in a year?

Disease	Affected member	
	Before project	After project (last year)
Diarrhea		
Skin		
Eye		
Worm		
Jan dish		
Others		

29. How much money do you spent for treatment of your family members in a year?

Before Rs	After Rs

30. How much times do you require to reach health institution?

Time	Before	After
less than half hour		
one hour		
1-2 hour		
2-3 hour		

31. How do you use of wastewater?

Before	After
Kitchen garden	Kitchen garden
Nearby pit	Nearby pit
Unmanaged Drain (street, footpath etc)	Unmanaged Drain (street, footpath etc)
Managed Drain	Managed Drain

32. Do you want to tell something about the project?

33. Do you want to tell something about Project staff and related person?

34. What do you want from the project?

35. What are the suggestions about project managed?

Observation Schedules

1. Types of houses
2. sanitation condition
3. Attitude towards the project
4. level of awareness
5. conflict on water management
6. condition of water sources
7. solid waste management