SOCIAL IMPACT OF COMMUNITY DRINKING WATER PROGRAM

(A Case Study of Drinking Water and Sanitation Project in Putalibazar Municipality-9, Lamage, Syangja District)

A Project Work

Submitted to
Central Department of Rural Development
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RECOMMENDATION LETTER

This project work report entitled **Social Impact of Community Drinking Water Program: A Case Study of Putalibazar Municipality-9, Lamage, Syangja District** is prepared by Bishnu Giri under my supervision in the partial fulfillment of requirements for the Master's Degree of Arts in Rural Development. Thus, I have recommended this project work for approval.

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APPROVAL SHEET

This project report entitled **Social Impact of Community Drinking Water Program: A Case Study of Putalibazar Municipality-9, Lamage, Shyangja District** submitted to Central Department of Rural Development under the Faculty of Humanities and Social Sciences, Tribhuvan University in the prescribed format by Bishnu Giri has been approved by the evaluation committee.

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July, 2006.

Bishnu Giri

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ACRONYMS

ADB	Asian Development Bank
CBS	Central Bureau of Statistics
DDC	District Development Committee
DOHS	Department of Health and Sanitation
DWDSS	Department of Drinking Water Supply and Sewerage
DWSP	Drinking Water and Sanitation program
DWSS	Department of Water Supply and Sewerage
ENPHO	Environment and Public Health Organization
FGD	Focus Group Discussion
FINNIDA	Finish International Development Agency
GWS	Gorkha Welfare Scheme
HMG/N	His Majesty's Government, Nepal
IDA	International Development Agency
INGOs	International Non-Governmental Organizations
NGOs	Non Governmental Organizations
NPC/N	National Plan Commission, Nepal
NWSC	Nepal Water Supply Corporation
UN	United Nations
UNEP	United Nations Environment Program
UNICEF	United Nations Children's Fund
VDC	Village Development Committee
WHO	World Health Organization

CHAPTER-ONE

1. Introduction

1.1 Background of the Study

Water is one of the indispensable components of human life. Life without water can not be imagined. About two third (2/3)of the world's surface is covered by water. Despite being a landlocked country, Nepal is rich in water resources. Nepal is also rich in geographical diversities. The population of Nepal is 24797059 (CBS, 2005) and total surface area is 147181 sq. km.

Nepal is very small in the world but the potentiality of development is high. Although Nepal is rich in natural resources, but in this existing period, Nepal is engulfed in rampant poverty, rapid urbanization, unprecedented population growth, practice in traditional norms and values, unemployment, illiteracy. These problems are the main challenging factors in Nepal. Actually, Nepal falls under one of the dirtiest villages in the world. The judicious and economic use of the natural resources has not been taken place for the proper economic development of our country. Some of the positive inputs of Nepal are as follows: attractive and aesthetic tourism area, fundamental bio-diversity, high potentiality of hydropower, fertile plain terai, pleasant and favorable climate condition in hilly region for agriculture production and high potentiality of market in big gaint neighbors China and India. Similarly, diverse ethnic groups and their own cultural heritages are also the positive components of Nepal. Nepal is a least developed country where per-capita income is 269 $(CBS, 2004). About 85% of the total population resides in the rural villages. Majority of these rural people live below the poverty line. Due to the financial and social factor in rural community, the poverty could not be reduced. There is minimum rate of capital formation. Existence of primitive and traditional use of technology is still in rampant use in rural sector. The disadvantaged groups of people are severely attacked by extreme poverty. In rural scene, the rural

communities are deprived of fundamental needs and necessities. The poverty in Nepal is wide spread in every nook and corner.

Water is Nepal's largest known natural resources. The major sources of water are rainfall, glaciers, rivers and ground water. Of these, rivers are the most important running surface water in terms of water volume and potential development. There are over 6,000 rivers in Nepal with an estimated total length of more than 45,000 km. (CBS, 1995).

These rivers flow through the high mountains in the country and thus have turbulent and rapid flow and considerable self cleansing abilities through mechanical and oxidation processes. All large rivers are fed by snow melt from the Himalayas and hence they are perennial. The country has 660 lakes with stagnant surface water of more than one hector in area. Mean annual rainfall is about 1,700 mm, 75% of which occurs during the monsoon season from June through September. The average annual renewable water volume of the country is about 224 billion m3 (Yogacharya, 1998).

Over time, the country's requirement for water for drinking and personal hygiene, agriculture, religions activities, industrial production, hydropower generation and recreational activities such as navigation, rafting, swimming and fishing have increased. In addition, water is also required for domestic hygiene such as washing, bathing, cleaning and so on. An adequate supply of drinking water alone does not fulfill human health needs, as its quality is equally important (UNEP).

Water can play a vital role for the reduction of poverty by its proper and maximum use in Nepal. It is not possible to do any activities in the absence of water. Water is a component of life and death. So, the drinking water is the basic minimum need of all human beings and provision of convenient, safe, clean and adequate drinking water is the declared commitment of His Majesty's Government of Nepal. Water is more necessary for human being than other

living beings. About 60-70% of the blood is made up of water. The quality of water is always required to maintain to the human life and for drinking as well as for cooking, bathing and other domestic purpose. It is much more important than other development activities; especial focus/emphasis should be given to the pure and safe drinking water because without it our life cycle can not exist. If the locally available water resources are properly and economically utilized, it helps for the development of the nation.

About two billion people of the world lack drinking water. WHO estimates 2000 m^3 (5000 gallon) of good water per person per year for healthy life (Hari Datta and Binod Lekhak).

In 1980, the general assembly of UN had declared the period from 1981-1990 as the "International Drinking Water and Sanitation Decade." By the declaration, every individual should get safe and pure drinking water and basic minimum sanitation facilities to provide healthy life.

The 20^{th} century was the period of petroleum but the 21^{th} century will be the period of water. There are many alternatives for the fossil fuels but there is no alternative for water. It is forecasted by different scholars that water will be the main source for economic development and if the scarcity of water arises, it will thus increase the international conflicts. Although $2/3^{rd}$ (Two Third) of world's surface is covered by water, there is only 2.5 percent pure drinking water (Jevan Maseek, 2058).

Inadequate access to safe water supplies combined with poor environmental sanitation condition and personal hygiene practices, the major factors impeding the improvements of the health condition have given rise to diarrhea, dysentery, hepatitis and parasitic disease and have exacerbated anemia and malnutrition among children. These diseases frequently take on epidemic form causing sudden heavy demands of health service which have only limited resources to combat these outbreaks.

The water is available in nature in many ways. But the water available in nature may not be used directly for drinking purpose. In Nepal, about 70-75 percent of the diseases are caused by drinking water (ADB, 1986). Nepal has not harvested and managed the water resources due to its weak financial factor. Therefore, the rural community are not facilitated with safe and pure drinking water. Planned development of water supply and sanitation was started since the forth plan (1970-1975). The national coverage of water supply system was only about 4 percent in 1970. A separate institution, the Department of Drinking Water Supply and Sewerage (DDWSS) was established during that period. At the end of Ninth Five Year Plan, 71.6% of the total population had access to drinking water. According to tenth plan, it is estimated that there are still 28.4 percent of the population deprived of drinking water facility.

Due to the scattered settlement in hilly areas, the source of drinking water is in scarcity, therefore, the rural people have to walk with water keeping pots "Gagro" for about half an hour to fetch water. Actually planned drinking water supply in Nepal started from 1895 A.D. when the piped water supply system was constructed by the then Prime Minister Bir Shumser for the city of Kathmandu. The system is still useful and known by the name of Bir Dhara. Although some major projects were undertaken to sporadically cover prominent places by a public water supply system after construction of Bir Dhara, organized development planning for water supply coverage started only after the establishment of Department of Water Supply and Sewerage (DWSS) in 1972 A.D. DWSS is presently the largest agency, and the designated lead agency, in this sector. Nepal Water Supply Corporation (NWSC) was established in 1986. The Nepal Water Supply Corporation is responsible for water supply and sewerage facilities for some municipalities and metropolitans of the kingdom. Rest of the urban and rural water supply system still fall with in

jurisdiction of either DWSS or respective water user committees. (Shakya and Sharma, 1996).

In rural Nepal, there is no proper management distribution and no special attention provided for drinking water supply, which accelerated the jealousy, quarrel and conflict in the rural villages. There are ample of acts and regulations related to drinking water and various NGOs and INGOs have being playing a concrete role in this regard. Different five-year plans and annual plans have included programs and projects regarding drinking water and sanitation in the community. The 10th five year plan has also given special focus on drinking water and sanitation projects. This five year plan has aimed to provide pure and safe drinking water by 2007 A.D. (HMG, 2001). Different NGOs, INGOs, donor agencies and other agencies are also involved in drinking water and sanitation projects in Nepal. National Water Supply Sector (1988) and other planned programs and projects in drinking water and sanitation are actively in practice. The drinking water resources strategies 2001 further set new targets and proposed to provide the entire population with access to reasonable safe water by 2011/2012. It also targeted for established entering drinking water quality stand.

The 9th and 10th plan have mainly focused on the reduction of poverty. The tenth plan has encompassed more social issue. So, to fulfill the social issue of the society, top priority is given to the water and sanitation. Safe drinking water will significantly control water borne diseases and on the other, its substantially minimizes health expenses. With the facilities of drinking water and sanitation in rural community, the social problems be solved to some extent, helps to earn extra income, reduces health expenditure and finally uplifts the social status. Similarly, we can be assured that the poverty can be reduced.

In the study point of view, I have selected the site Putalibazar Municipality, Ward No.-9, Lamage, Scheme-I of Shyangja district, Gandaki

Zone on Drinking Water and Sanitation Project. A lot of efforts and works to provide drinking water facilities have been done since a long time in this site. But what ever the efforts made were not successful or only solved the problem of drinking water temporarily. The recent project "Rural Drinking Water and Sanitation Project" run by Gorkha Welfare Scheme (GWS) has been successfully working. GWS is an organization run by Ex-British Gorkha Army. GWS has been working in different rural communities for social welfare. This study will analyze and observe in micro level on Rural Drinking Water and Sanitation Project, Scheme-I Putalibazar Municipality-9, Lamage, Shyangja district.

1.2 Statement of the Problems

Due to lack of safe and pure drinking water, adverse situation of improper disposal of city wastages and an availability of toilet/latrines in rural communities, different water borne disease like diarrhea, jaundice, typhoid, etc. have been wide spread which cause great loss of human life, especially of children annually. Therefore, safe drinking water and Green and Clean environment are the major challenging issues of Nepal. To present the actual situation of drinking water supply and sanitation of rural people, various researchers, studies and efforts are required to identify the various causes and factors behind it. In this context the present study is related to exploration of Shyangja district, an analysis of the problem in a micro level. In the same way the study has focused on the social impacts in Putalibazar-9, Lamage, Shyangja district due to Drinking Water and Sanitation Project.

Majority of the population has not developed sufficient awareness of environmental, familial and personal hygiene. Therefore, it has not been possible to control water borne diseases to the desired extend. Sometimes these diseases appear as epidemic. Hence, sufficient expansion and development of

drinking water and sanitation, making people aware of sanitation and bringing improvement in the health of people have been a main challenging task.

The several social problems have been arising due to lack of safe and pure drinking water in community of Nepal. Similarly, distribution of water without concerning the location, ethnic groups, religion and caste cause social quarrel and conflict in the rural villages of Nepal. There is prevalence of caste discrimination and religion discrimination. The projects run by NGOs /INGOs and other agency in rural sector have created social problem because they do not consider the social norms and values of the concerned area during implementation of the project.

In the present context there is a challenging problem between safe drinking water and water borne diseases. Due to unsafe drinking water and sanitation, human health has been declining and disbalancing the human status in the society. The problems of ecological disbalancing have arisen in a place due to the supply of water from other place.

Therefore, it is important to evaluate properly, study the impact and consequences of the particular study area. Otherwise, there will be drying of paddy field, which may consequently lead to outrageous cutting of water pipes by farmers which finally lead to social problem. Similarly, draining of water from the source will affect the aesthetic value, drying of spring, stream, water falls which also create social problem.

It is not only sufficient to complete the project operated in the rural areas but must be soundly and sustainably fitted in the community. Otherwise, the program operating in the society will have negative impacts. Most of the programs in Nepal have been run according to the foreign donor agencies' directions and their motives, which may adversely affect the social norms, values and beliefs. It is important to train and provide skills to the local people in maintaining, repairing, operating the project. Without this, program becomes

unsustainable and do not last longer. It has been found that the local programs and project have been in international stand level which may also affect the social, cultural aspect of the community.

1.3 Objectives of the Study

The general objectives of the study is to evaluate the impact in the located area on social aspect and specific objectives of the study are as follows:

1. To analyze the impact of project on rural people in social aspect.
2. To study the difference in living standard of the people before and after the programme.
3. To analyze the present status of water supply in the specified working area.

1.4 Significance of the Study

Water is recognized as one of the major basic requirements of the human life. Safe drinking water in an well organized manner to the present living people is today's need. Clean, pure and regular drinking water is today's people expectation because we believe that if water is safe and qualitative, we are free from several water-borne diseases and the life quality multiplies to several times. The projects running in the rural area should be sustainable and under the sole control of community has been the government policy. The growing population and industries have made the water more polluted than before. Due to lack of education and rapid growth of population, water resources have become so polluted that they are not suitable for drinking and affect the environment negatively. Drinking water should be clean, colourless and pleasant in taste and free from pathogenic bacteria. But by using polluted water, people are suffering from water borne disease like diarrhea, dysentery, skin disease, etc.

GWS is found to have been on the issues of planned water supply and facilities and maintaining its quality as per the time. On the similar concern, GWS has given a special interest and emphasis on bringing up the quality and standard of drinking water and sanitation in Lamage, Putalibazar-9, Syangja. Its implementation in a successful manner significantly advocates the people's participation which is indeed an important point to be considered. This is a positive message to the community. It is also quite necessary in the water supply and sanitation program. Only water supply is not effective if there is lack of knowledge about the sanitation and hygiene practices. So, the general sanitation problems are also addressed in the study.

All the important studies on drinking water and sanitation have been carried out majorly centered on water supply and its impact on health. No one has studied its social impact in Putalibazar-9, for the very reason, the social study of GWS-made and community runned drinking water has been tried out in this program, where education, health, sanitation, present problems, suggestions, will be specially traced out. So, the present study has its own significance in the relevant field. The impact assessment study may be an interesting area for the academicians and social researchers. Conceivably, this study may provide some concepts and visions to development workers as well as policy makers who are involved in community drinking program sectors in Nepal. The study is expected to be helpful in contributing to formulation of appropriate policy, procedures and approaches to rural water supply and sanitation program interventions in rural area of Nepal. In addition, there would be good help to the future programmes that may run with a pragmatic concern. Moreover, the findings gathered will also serve as a basic for the future similar study.

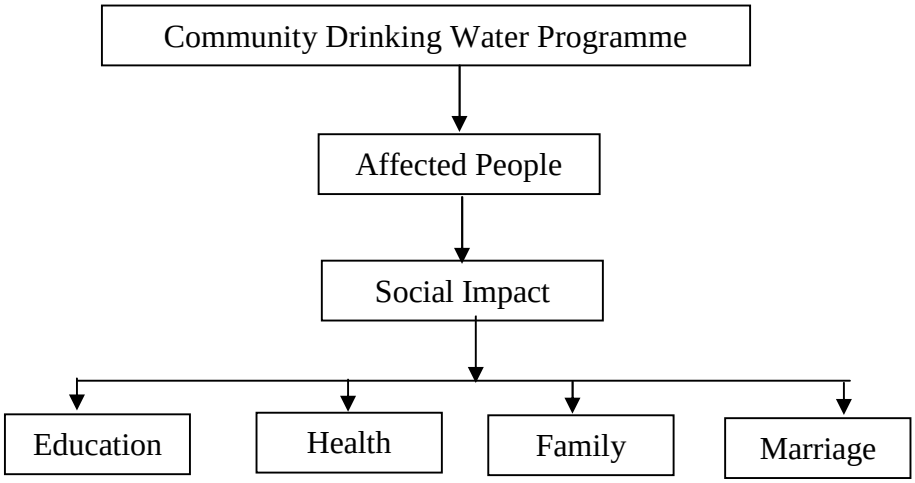
1.5 Limitation of the Study

Various demarcations are borne due to objectives, characters and duration of the study. Social studies camouflage to respective specified social system or surrounding or can even have impact on other social surroundings. This study as well has certain limitations. Here, Putalibazar Municipality-9, has been made the study area.

1. This study is centered on scheme-I of Putalibazar-9.
2. Time and finance is specially focused on this study.
3. This study is centered on primary data source.
4. This study includes only the house-holds that participated in drinking water and sanitation program.
5. This study is mainly focused on the social impact in the community.

1.6 Conceptual Framework

To study the social impact of the consumer of community drinking water in primary level. To study the form of education, health, family, marriage, etc. which has been listed in the chart below:



To study the social impact on the study area before drinking water program and after the program and to analyze and explain the social impact from various aspects.

CHAPTER TWO

2. Review of the Literature

From the time of universal creation, the utmost necessary liquid and the life basis for whole flora and fauna, human being and the whole living world is "water". There are alternatives for everything in the world but not for the water. According to World Water Statistics, only 2.5 percent of the whole water is clean where only 0.26 percent of the clean water is safe to drink. But still, 80 percent of the total population of the poor country like ours get victimized with several water borne diseases. It is because there lacks the drinking water safe to drink or water is not purified thoroughly so that people can drink. Every year 45 lakh children die of water borne diseases in the world. In Nepal, the statistics shows its number to 45 thousand. By using the non-alternative liquid, water in haphazard and non-systematic manner in the last years, today we have come across lots of problems regarding water and its supply. This problems, however, has been pushed a little further by community drinking water programmes. Nepal is now facing a sedate problem of water and sanitation because every individual does not have the proper and appropriate knowledge of their use. So, it has been very important for Nepal to control and subsidise the problem regarding water and sanitation.

Today, it has been necessary to study the social impacts of community based drinking water and sanitation campaign. In context of Nepal, while talking about community-runned drinking water, it seems to start with the establishment of 'DHUNGE DHARA', KUWA, etc. The daily social communication in then Nepalese community was Dhunge Dhara. About 20 percent of Lichhchhavi inscriptions are found to be in Dhunge-Dharas or their surroundings. Dhunge-dhara has been taken as the centre of Nepalese belief and an magnificient display of architecture.

The world "Fame" means taps, rest houses, shelter houses, ponds, reservoirs, etc built for people's service. According to Nepalese belief, to give life a meaningful path, everyone should keep their fame. A poem in "Ghasi" episode where Bhanu Bhakta regrets for not being able to keep his fame as done by 'Ghasi[1] by building wells is famous all over Nepal. The most prevalent word for water tap in Nepalese society is "Padhero".

The history of Dhunge-Dhara by one aspect is the history of social welfare of Nepalese. In Lichhchhavi dynasty, not only the thought of building taps but also of their maintenance arouse. The establishment of water supply system compulsorily follows with the establishment of pilgrimages, urban or settlement areas. The establishment of water supply system and its maintenance is a long way process from Lichhehhavi period until now. 'Sundhara', a Dhunge-dhara established by Tripura Sundari in 1885 B.S during the ancient Shah period is the famous marvellous gift of metal work. Though the Dhunge-dharas in hills and villages are simple in out look but they are turned to be architectural in Kathmandu valley. Such dharas are more used by Nepalese to wash faces or fetch water. Water is one of the "Five metals" (Pancha Tatyo) required to build life. Therefore, to systemize such an important life-basis is also the social need. A civilized society not only maintains the outer-look of water source but also develops a healthy environment to save them. The ancient Dhunge-Dharas are developed in the same scientific manners. They are also the means to control the land calamities. They are solely connected to the natural source of water which stops the water to drain the land surface and prevents the land calamities. The same is the reason of land calamities in the hilly region of Nepal (Jeevan Masik, 2058).

In Nepal, the water supply system through the modern pipe-lines started from the end of 19th century (1895 A.D.). At first, Water Supply Project Commission was set up which initiated the major work of water supply

establishing "Bir-Dhara". Later the first five-year plan (1951) got initiated and gave the continuity in an institutional manner. Before 1951, most water supply projects were designed to serve through public stand posts only with few exceptions. In order to meet the ever increasing demand of water supply and need for DWSS, presently MHPP was created in 1972. At present DWSS is the lead government agency in this sector with the responsibility of planning and management of water supply in 40 out of 58 municipalities and almost in the rural communities. NWSC, under MHPP a semi-autonomous organization responsible for water supply in 15 municipalities, DDCs, VDCs, INGOs, NGOs which are mainly involved in the implementation of small rural water supply scheme.

The most fundamental thing for human beings is drinking water. For poverty reduction, improvement of people's health and healthy environment, safe drinking water supply and clean environment are the most necessary requirements. Concerted effort globally during the DWSS (1981-1990) in which the community agreed premise was that "All people, whatever their stage of development and their social and economic conditions have the right to have access to drinking water in quantity and of the quality equal their basic needs" has given adequate impetus to the development of drinking water supply system sector in the world as a whole. Inspired by this statement and having been realized that the development of drinking water supply and sanitation sector bring in enhanced socio-economic benefits and health improvements, HMG/N has declared its commitment to provide safe drinking water to all by the year 2002.

At the project level, the program has participated in project preparation, appraised and review mission with IDA, ADB and FINNIDA and provide assistance in an institutional and technical aspects. The purposed IDA rural water and sanitation project emphasized implementation through a partnership

of the community, NGO, the private sector and government. The program has been instrumental in proposing pilot work through Japanese Government funding for the innovation project. At the request of UNICEF and FINNIDA, the technology promotion unit has worked to improve the capabilities of local hand pump manufactures (Water and Sanitation Program, Annual Report 1991, 1992, UN).

In Nepal's numerous schools, in the fields of drinking water and sanitation, Nepal Red-Cross Society has been seen to show the initiation. Not only that, it has also been seen to carry out the similar works in the rural communities. In various projects the government brought, there had been less people's participation, much corruption, unsustainable programmes, much benefits to elite groups only, therefore, the government has thought of initializing the program in community based manner in order to bring the sustainability in the programmes that it brings. In the present context, most of the programs running in the rural community are carried out by the community themselves. Various projects brought by various NGOs/ INGOs after their completion have been seen to be handed over to the community. Such hand-over projects have been run by the community evaluating their social impacts.

A book entitled "Water for sustainable development in the twenty first century" edited by Biswas, et al argues that water as prime needs of human is being deteriorated day by day. Due to the increasing global population and livestock's demand, more water demand on the one hand and on the other it shows the further gradual deterioration in the quality of drinking water. They further added; analysis indicate that the total global water consumption during the period 1900-2000 is likely to increase tenfold and this trend is likely to extend well in to the twenty-first century. As human population and activities increases, more and more waste products are contaminating available source of surface as well as ground water. Among them major contaminants are untreated

or partially treated sewage, agricultural chemical and industrial effluents. These are seriously affecting the quality of available source of water. Thus, water quality management is becoming increasingly an important concern all over the world (Biswas, et al, 1993).

Water supply and sanitation sector combats to great challenges in developing countries. The first challenge is to complete the "Old agenda" of providing household service. Although considerable progress has been made, much remains to be done. A billion people still lack access to the adequate supply of water and 1.7 billion do not have adequate sanitation facilities. So, fulfill substantially because of rapid urbanization, mismanagement of water resource and the low efficiency of many water supply organization. The second challenge is the "New agenda" of environmentally sustainable development. The situation is higher in developing then developed country and deteriorating rapid due to the fact that these countries have fewer financial resources and weaker institutional capability to project the environment. ("Water Supply, Sanitation and Environment Sustainability", World Bank, 1998)

Water pollution is the most serious public health issue in Nepal. There is vital connection between water and health. The rivers are the main places for disposal of urban solid waste, domestic effluents, and industrial effluents, which are responsible for polluting the water and causing water-borne diseases. Yet, government policy has given little emphasis to this issue (UNICEF, 1987).

Water supply was over 80 percent in 1998 (NWSC, 1999). However, the residual chlorine level in the drinking water lower than the WHO standard (ENPHO, 2000). This means the treatment of drinking water is not effective. Per capita water consumption in Nepal is also low compared to that of other developing countries. This means that both quality and quantity of water in country are substandary, and this is responsible for causing different types of

water-washed and water - borne diseases. Diseases caused by contaminated water are among the ten most prevalent diseases in Nepal (DOHS, 1998).

Nepal's rural and urban areas, various national and international, governmental and non- government agencies have been found to work on various issues of water and sanitation. Various NGOs, and INGOs have been found to mobilize the community themselves to implement on the same community the issues of water and sanitation. It can be believed that due to the participation of community in their own projects, there is an ease and sustainability in carrying them out.

CHAPTER THREE

3. Research Methodology

3.1 Selection of the Study Area

The site of this study is Putalibazar Municipality-9, Shyangja district where Scheme-I of Drinking Water and Sanitation Programme launched and supported by Gorkha Welfare Scheme (GWS) is taken as the study area. In the same study area, there is the total population of 2216 where the house hold population is 469 (CBS, 2001). In the field study, 30 households of Scheme-I benefited from the Drinking Water and Sanitation Programme were surveyed. On the basis of the primary data so collected, the project report was prepared. During the course of study, all ethnics, castes, rich, poor, etc. were tried to be included. In this area, majorly Brahmins, Cheetris, Sanyasis, Thakuris, Damais, Gainas, Kamis, Sarkis, etc. have their settlement. The major points because of which the given study area was selected are:

- The researcher himself is the permanent resident of the given study area.
- The researcher has familiarity with various castes and ethnics of the study area.
- The researcher has acquaintance with the life standards income, settlement and life style of the study area.
- The researcher has been fortunate enough to watch out the project very closely.

3.2 Research Design

Research design refers to the arrangement of condition and analysis of data in a manner that aims to combined relevance information to the research purpose. The present study is based on exploration as well as descriptive research design. Because it described the situation of the village and secondly it explored the impact of community-managed drinking water supply and sanitation scheme in the Putalibazar Municipality-9, Lamage, Scheme-I. This study is based on primary data. To get more information, the researcher has used secondary data also.

3.3 Source of Data

The study is based on both primary and secondary data. Primary data were collected through structured questionnaire from respondents in the field and secondary data were collected from related offices of drinking water.

3.4 Universe and Sample

There are 166 households with population of 1030 in project scheme-I launched in Lamage, Putalibazar Municipality-9, Syangja where only 30 households with population of 180 have been selected as the sample of study which is 19 percent of the total benefited population. The selection of the sample has been made by the Random Sample Method and the Interviews were made with the household heads and the related people.

3.5 Technique of Data Collection

To pick up the fact for study, participant observation, interview schedule and Focus Group Discussion (FGD) had been used where participant observation for collecting basis information, interview schedule for household head interview and focus group discussion with user's group persons and municipal officials to obtain the level of participation, present status and common view on supported program, secondary data were collected from users committed office and municipality office, related journal, articles, books and others. The tools of data collection were semi structure questionnaire for households interview and checklist for focus group discussion.

3.6 Data Processing and Analysis

Qualitative data were classified in to different homogenous group.

For quantitative data, percentage, tabulation were used for processing and analyzing.

3.7 Data Presentation

Collected and analyzed data are represented on the basis of observed and structure to fulfill and generalize the objective of the whole study.

CHAPTER IV

INTRODUCTION TO THE STUDY AREA

Nepal is a rich country in terms of water and other various resources. Nepal can be regarded as the sample country in terms of water resources. Though small, Nepal has enormous diversity in terms of ethnicity where their religious, occupational, cultural and social identities flourish. Nepal has been divided into mountains, hills and terai on the basis of altitudinal variation. Most of the area is covered by hills. Though hilly region has abundant source of water, proper management of water supply system couldn't have been done. The reason behind this case are the scattered form of settlements and the source of water lying down than the settlement areas. Though provided the proper drinking water system, it has been rather expensive and difficult to manage. In this project work, lamage, Putalibazar municipality-9 of Syangja district on the subject-"Social Impact of Community Drinking Water Program". The detail introduction to the study area has been given below:

4.1 Geographical Introduction

Nepal has been divided into 5 development regions, 14 zones and 75 districts. Syangja district is one of the six districts lying in Gandaki zone of Western Development Region. To the east of this district lies Tanahun and Nawalparasi districts, to the west lies Gulmi and Parbat districts, to the north lies Kaski district and to the south lies Palpa district. In this district lies two municipalities-Putalibazar Municipality and Walling municipality and 60 VDCs. Lamage-9 is one of the wards of Putalibazar municipality. This ward (Lamage-9) lies in the longitude between $83^0$4' – $83^0$6' E and in the latitudes between $28^0$6' – 9^0N. To the west of this ward lies ward No. 8 and ward No. 11, to the north lies Phaparthum VDC and ward No. 5. Similarly, to the east lies

Andhikhola and ward no. 1 and to the south lies ward No. 12. This ward is bordered by Andhikhola river from north to south. The area of this ward is 5 sq. km.

Standing on the north-west side of Syangja Bazar (headquarters of Syangja district) and on the right bank of famous river, Andhikhola, Lamage is a heart-attracting and a beautiful village. Facing towards the headquarters with a slope, Lamage has a wide part of field (Phat) on its front. In the field are only 10-12 houses whereas there is a crowdy settlement on the heights above the field. There are the facilities of electricity, graveled road, cable networks, phone, etc. in this ward.

4.2 Climate

The climate found in this study area is similar to the climate found in hilly region. It's not so cold in winter and not so hot in summer. This area is rich in hilly diversity and has various community forests and private forests and being in a height possess a mild blow of regular breeze. So, the climate in this area can be categorized as good one. The annual rainfall in this area is approximately 215 mm. whereas the temperature lies in the range between 0^0 minimum to 34^0 maximum.

4.3 Natural Resources

The main natural resources in this region are water bodies and forests. Here, high-quality soil and climate can be found for the good yield of various crops and fruits. The forests have provided their support to the human beings form womb to tomb. Forests have been the main sources for house-building, cooking, grazing the cattle and other various household chores. In addition to it, forests have been used for yielding high-quality furniture. The accurate measurement of forest area hasn't been made as they are still in their natural

state. Different kinds of forests of private, community-based and governmental have been found.

The faunas found in the forests are Katus, Chilauni, Siris, Chap, Aap, Paiyo, Kafal, Chutro, Tuni, Belpatra, Kimbu, Baas, Nigalo, Saj, Simal, etc. There are various rivers flowing form heights to down. They are big with high volume in rainy season whereas small in non-rainy seasons. The rivers found in this region are Baidekhola, Jhirmas khola, Kumal khola, etc. All of these flow to mix with Andhikhola.

4.4 Population

This ward, which has ethnic and caste diversity, provides settlement to Brahmin, Chhetri, Thakuri, Sanyasi, Muslim, Magar, Newar, Damai, Kami, Sarki, Gaine etc. These all caste groups have been included in Scheme-I of this project. The total population of Putalibazar Municipality is 29667 where male population is 13558 and female population is 16109. The household population of this ward is 469 and the total population is 2216. The population of this municipality on wardal basis has been given below:

Table 1: The Wardal Population and the Household Population of Putalibazar Municipality

Ward No.	Household population	Male	Female	Total	Percent
1	1306	2578	2551	5129	17.29
2	282	607	931	1338	4.51
3	346	704	874	1578	5.31
4	518	948	1176	2124	7.16
5	255	500	550	1050	3.54
6	291	565	779	1344	4.53
7	400	804	984	1788	6.02
8	468	903	1180	2083	7.20
9	469	977	1239	2216	7.47
10	612	1350	1682	3032	10.22
11	637	1343	1619	2962	9.98
12	493	1080	1240	2320	7.82
13	598	1199	1504	2703	8.77
Total	6675	13558	16109	29667	100.00

Source: CBS, 2058.

As shown in the above table, highly populated area is ward No. 1 and least populated area is ward No.5. The reasons behind ward No.1 being highly-populated can be regarded as being the headquarter, urban settlement and settlement of governmental jobholders. Due to the very reasons ward No. 1 possess highest household population as well. Ward No. 5 also possess least household population. The reason behind the least population of human and household can be due to its smaller area.

Likewise, in this municipality, female population is greater than male population. This can be as many of the husbands go abroad and many do their jobs out of the district. The total population of Syangja district has been found as 317320 where male population is 143619 and that of female is 173701. Therefore, female's population defeats male's population by 30082.

In this Putalibazar Municipality the population on age-basis can be given as: 0-4 age –3053; 4-19 age – 11479; 20-59 age – 12596 and 60 above – 2539.

Table 2: Population of Putalibazar Municipality by Caste

S.N.	Caste	Number	Percent
1	Brahmin	10684	36.1
2	Chhetri	4875	16.45
3	Thakuri	931	3.14
4	Muslim	711	2.40
5	Tharu	24	0.09
6	Magar	2330	7.97
7	Gurung	2137	7.27
8	Gharti	1060	3.67
9	Kumal	338	1.24
10	Dalit	3973	13.40
11	Newar	1474	5.00
12	Sanyasi	692	2.43
13	Majhi	170	0.67
Total		29667	100.00

Source: CBS, 2058.

In this Municipality, the population of Dalit is 3973 and that of non-dalits is 25694.

In this ward under the program Scheme-I, the household population is 166 under which the benefited population is 1033. This program has been initiated with a plan of benefiting all the people until next 20 years which has been estimated to be 1257. In this study, 30 households which have the population of 180 have been taken as the center of study area.

4.5 Historical and Religious Places

Andhikhola flows through the middle of Putalibazar municipality and carries its own story. According to a famous Hindu epic, Ramayana; during the Treata Yug, King Dashrath killed the only son of the blind parents named Srawan Kumar suspecting a hunt during his hunting. Due to the very reason, the blind parents cursed King Dashrath and poured their tears so much that it flew to form a river named Andhikhola. This river has separated Syangja bazaar and Lamage. Some remnants in the form of "Kot" of then 22-24 hundreds states in the history of Nepal are still found here which lied under the kingdom of "satau" then. In certain occasions and ceremonies, special pujas and sacrifices are made in such kots. Just down this kot is a temple of "Chandi Mai" which is called as "Chandithan". This temple is famous all over the district. There is a mosque lying in the middle of Muslim settlement in this ward where in the ceremonies and on Friday they read "Nawaj" and perform "Hajj". At the top of Lamage's flat field (Phat) is a temple of Laxmi Narayan. There is a settlement of Gaine near the same temple who have contributed a lot in giving this place a identity through their songs and music. Somewhere in the middle of Lamage's flat field (phat) is a temple of Shivalaya where as grand fair occurs in main festivals.

4.6 Economic Condition of the Study Area

The major occupation of most people living here is agriculture. Almost all the agriculturists here are of small farmers type. This place lacks the establishment of modern factories and industries. The major crops found here rice, maize, wheat, potato, etc. whereas the major fruits are orange, lemon, nivea, guava, papaya, mango, pineapple, litchi, banana, etc. Vegetables are grown according to the season. According to a record found in Putalibazar, only 25 percent of total population seem to have adequate amount of food whereas 75 percent of them seem to have crisis of food. The reasons can be: traditional growing technologies, lack of irrigation and hybrid seeds, slopy land, less

fertility of soil, etc. Due to these reasons, the secondary occupations are services, animal husbandry, business, land-tilling labour, wages, etc.

The major source of income is also animal husbandry. The cattle reared are majorly cows, buffaloes, oxen, sheep, goats, hens, etc. The milk produced in this place is sold in Syangja bazaar and also in Pokhara through Milk Collection Center. Oxen are used for ploughing the land and also the use of tractors to plough the land has been increasing every year.

Similarly, a lot of people here are job-holders in governmental offices. Likewise many are in the Indian army whereas a lot receive pensions form the Indian and Nepalese army. Since a lot of people are literate in this area, many are found to be involved in governmental offices and teaching profession. Some are teachers in schools and campuses whereas some are private lawyers. Most of Damais, Sunams lying under Dalits have a better economic status whereas Kamis, Gaines, Sarkis perform the job of labour and also carryout their traditional jobs to run their life. Many youths have been forced to go abroad due to unemployment. Sometimes ago, people used to go India to earn some money but now-a-days this trend has been changed and people have started going Gulf countries like Iraq, Qatar, Malaysia, European countries, America, etc.

The water from Andhikhola has been used in irrigating 75 hectares of Lamage flat field (phat) through irrigation canals. This has helped a lot in upgrading the economic status of the people. In this ward, 30 percent of the Dalits are below the poverty line, 40 percent are medium-class whereas 30 percent of people are of high ranking.

4.7 The Role of Community in Running the Project

A. The responsibilities of the community before the implementation of the project being under the Drinking Water and Sanitation Committee:

1. As according to the agreement between Gorkha Welfare Scheme (GWS) agency and the committee, the responsible sector should collect the local building resources within the specified time.
2. The responsible sector should transport the collected resources from the nearest motor path to the working area.
3. The responsible sector should manage a proper store place for the transported resources on its own expenditure.

B. The responsibilities of the community during the implementation of the project being under the Drinking Water and Sanitation Committee:

1. As according to the agreement between Gorkha Welfare Scheme (GWS) agency and the committee, community participation is required in digging 3-feet deep pipe-line, filling it up and in joining the pipes as according to the map.
2. The responsible sector should provide the manpower in the right time as required by the agency, GWS.
3. The responsible sector should provide security and proper control over the building resources of the agency.
4. The responsible sector should keep the correct record of the manpower investment used by the community in the project and also of the local resources used and to prepare the estimated cost.

C. The responsibilities of the community regarding the maintaining and repairing activists:

1. To help the technicians during the project as per the suggestion of GWS and to present the participated manpower selected by the committee for training regularly.
2. To appoint at least 1 person (who as taken the training) for the maintenance and repairment and to manage his wages.
3. To evaluate the work of the appointed activist time to time and if not satisfactory, to appoint the new activist.
4. The repairing and maintaining activist should work as indicated in his working mandate.

D. Responsibilities of the community after the completion of the project:

1. To return the unused raw materials to GWS.
2. To save the water sources form landslides and being polluted.
3. To protect the project from being polluted and deteriorated.
4. Not to make the misuse of water.
5. To stop the haphazard joining of other pipes.
6. To remove the pipes joined without any right.
7. To evaluate regularly whether there is proper management, maintenance, repairment of the project or not.
8. To emphasize in brining a positive change in health and sanitation of the community.
9. To protect and make proper use of the maintenance and repairment utensils.

4.8 Summary of the Project

The project named scheme-I was started in 2058-09-05 (20-12-2001) and completed in 2059-02-29 (12-06-2002).

- The source of the project is Dhadkhola whereas its volumetric capacity is 64800 lit/day.

- The household population in this scheme-I is 166 whereas the benefited population is 1033. It has been estimated that after 20 years the benefited population will be 1257.
- The estimated cost made by Gorkha Welfare Scheme (GWS) is Rs. 187036.40 and towards non-official expenditure and Rs. 2037848.70 towards official expenditure. So, its total expenditure rises to 2010226.93 whereas the expenditure of management committee is Rs. 20843254.62. Therefore, the total expenditure of the project becomes Rs. 4094481.54.
- Community has a maintenance fund of Rs. 24290.62.
- Maintenance activists of 2 people and the cleanliness activists of 3 people.
- Main composition of drinking water project:
    i. Catchment dam-1
    ii. Gravel-bed filter –1
    iii. S.M. Reservoir tank (23 cub.m) - 1
    iv. S.M. Break pressure tank-4
    v. Tap stand – 53
    vi. Air valve –2
    vii. Wash out – 4
    viii. Total pipeline (meter) – 8477
        1. Transmission –2463m
        2. Distribution - 6014 m.
    ix. Kholsa crossing-1
    x. Thorne-wire bar – 6

The necessity of water in Lamage per day is 70140 liters whereas the capacity of source is maximum 224640 liter to minimum 81000 liter per day. The saved water per day is 64800 liters.

CHAPTER 5

5. Data Analysis and Presentation of the Findings

Different subjects related to the social impact of Community-Drinking Water Project in Putalibazar municipality-9, Syangja have been tried to be included. There is an appreciable presence of various castes, dalits, etc. in this study area. Brahmins, Chhetris, Sanyasi, Newars, Ghartis, Damais, Kamis, Gaines, Sarkis etc. have their settlements. This area have various caste people living and hence have various traditions, beliefs, customs, values and norms. In this study, an evaluation on the social impact of the Community Drinking Water Project has been made.

5.1 Classification of Population

The composition of the population of any society affects the social activities and the leadership of that place. In some society, males are more than females whereas in some females are more. According to 2058 census, female population is more the male's. In order to know the population composition of a society and to evaluate its social impact, it is necessary to know the status of the population. The classification of population on the basis of sex in the given study area is given below:

Table 3: Classification on the Basis of Sex

S.No.	Sex	Number	Percent
1	Male	88	48.88
2	Female	92	51.12
Total		180	100.00

Source: Field Survey, 2006.

According to the above table, out of 166 households under this scheme, 180 of 30 households have been included in the study. As on the classification

table, out of 180, 88 or 48.88 percent are males whereas 92 or 51.12 percent are females. So, female are greater in number by 4 or 2.24 percent.

5.2 Caste-wise Distribution

Different castes are found in this area. Since in this study area all castes have their settlements, they all were included in the study. Since there is a caste diversity in this area, so necessary emphasizes should be given for development works. All castes population and percentage have been listed below:

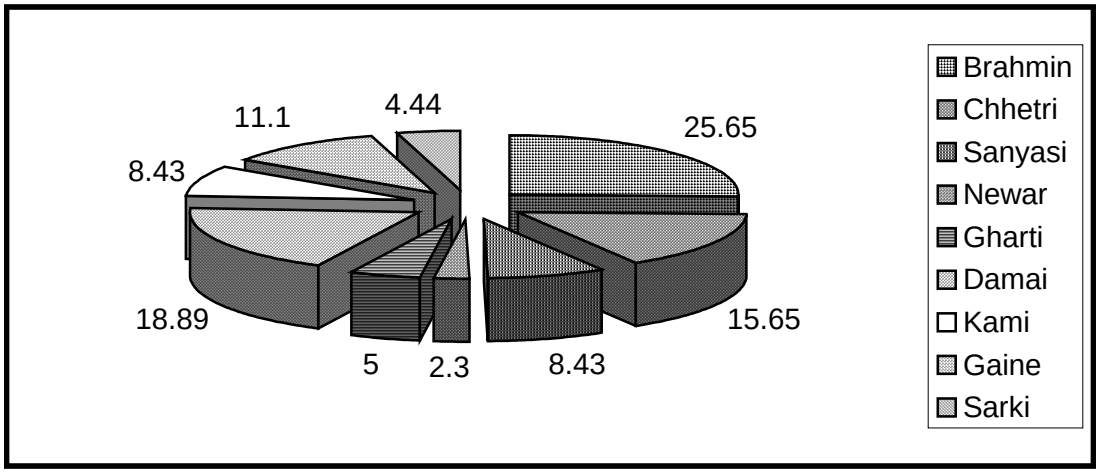
Table 4: Distribution of Population by Caste

S.N.	Caste/Ethnicity	Number	Percentage
1	Brahmin	46	25.65
2	Chhetri	28	15.65
3	Sanyasi	15	8.43
4	Newar	5	2.30
5	Gharti	9	5.00
6	Damai	34	18.89
7	Kami	15	8.43
8	Gaine	20	11.10
9	Sarki	8	4.44
Total		180	100.00

Source: Field Survey, 2006.

As according to the above table, this area can be regarded as the garden of various castes where Brahmins are 46 (25.65%) which is the highest. Likewise, Newar the least 5 (2.30%), Chhetri 28 (15.65%), Sanyasi 15 (8.43%), Damais are highest in number among Dalits which range to 34 (18.89%), Sarkis, the least among Dalits range to 8 (4.44%). Likewise, Kamis 12 (8.43%) and Gaines-2 (11.21%).

Figure 1: Distribution of Population by Caste



5.3 Impact on Education

E.F. Schumacher has rightfully remarked that "development does not start with goods, it starts with people and their educations, organization and discipline." So education plays vital role for the development of any area. Education enhance knowledge. Knowledge including skills, attitude and information, is one of the fundamental capabilities a person needs to make sense of one self and of the surrounding one lives in. Education helps to re-learn, re-assess, re-act and to one self and one's surrounding. Education contains a great social values because it is analogously fundamental to the functioning of society.

Education is very much essential tool for life. The educational status of this study area can be regarded good. The reasons can be, being a municipality, access to the private schools, establishment of many campuses, etc. On the basis of study, the population has been classified as literate and illiterate where male and female has also been differentiated.

Table 5 : Status of Literate and Illiterate

Status	Female	Percent	Male	Percent	Total	Percent
Literate	47	51.09	65	73.87	12	62.22
Illiterate	45	48.91	23	26.13	68	37.78
Total	92	100.00	88	100.00	180	100.00

Source: Field Survey, 2006.

According to the above table, the literacy rate of male is found to be higher than that of female. As shown by the above table 45 of females (48.91%) are illiterate where as 47 of them (51.09%) are literate. In case of male, out of 88, 65 of them (73.87%) are literate and 23 of them (26.13%) are illiterate. So, as a whole 112 out of 180 (62.22%) are literate whereas remaining 68 are illiterate.

Table 6: Classification of Literates on the Basis of their Qualification

Educational status	Number	Percentage
Under SLC	65	58.02
Intermediate	27	24.11
Bachelor	13	11.61
Master	7	6.26
Total	112	100.00

Source: Field Survey, 2006

According to the table shown, the number of people having higher educational status can be considered appreciable. According to the respondents, there is also an opportunity for the illiterates to gain education through informal education program. This program has been trying to upgrade the literacy rate and has given a positive sign towards the development of education. In the present context, 65 of them are under SLC, 27 of them have studied Intermediate, 13 have studied Bachelor and 7 have done their Master. According to the respondents, people studying Bachelor and Master are mostly males and only few females. Likewise, males and females both contribute equally in the number of under SLC and Intermediate.

After the implementation of this drinking water scheme, there has been remarkable improvement in the literacy status of people and primary schooling. In this study area, it is found that about 51.09 percent of female and 73.87 percent of male are literate. The impact of drinking water project over primary

and secondary schooling seems positive. Time saving is an important factor for this positive indication. Before the development of this scheme, children were busy in fetching water in small vessels and grazing cattle. So, they were not getting sufficient time for their educational activities. But, after the implementation of this scheme children have got sufficient time for their studies. Since this area is near Putalibazar hence there has been convenience to go to the city's schools and colleges. According to the teachers and intellects of the area, the educational status of the students from the area has been getting better day by day. Most of students who were irregular in school, are regularly attending school after the development of Scheme. People are encouraged to send their daughters to the school and their access to school education is highly increasing. In the duration of field survey it was asked to the guardians that what they have felt about the educational impact of this drinking water scheme. The below table gives the realization of the above mentioned things:

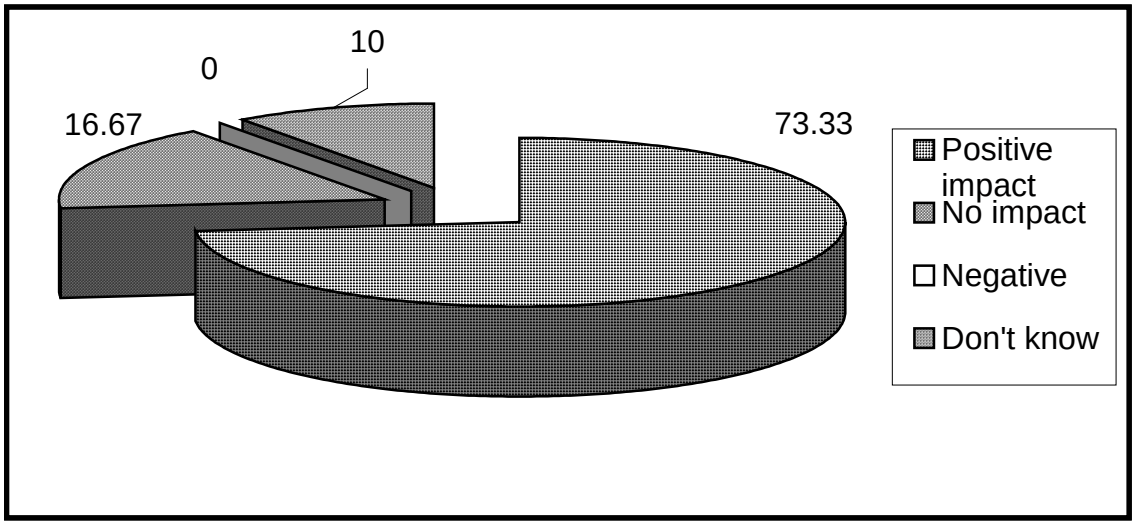
Table 7: Educational Impact of DWSP

Description	No. of household	Percent	Remarks
Positive impact	22	73.33	
No impact	5	16.67	
Negative	-	-	
Don't know	3	10.00	
Total	30	100.00	

Source: Field Survey, 2006.

The above mentioned table shows that the drinking water project has brought at about 75 percent of positive impact on education which is satisfactory. In this study, 5 households (16.67%) said that they have no impact of this project whereas 3 households (10%) said they didn't know. While studying the above table, in a nutshell it can be said that this program RDWSP has made a positive impact on educational sector.

Figure 2: Educational Impact of DWSP



5.4 Impact on Health

Good health is basically and intrinsically important to give a worth woman life. Poor health created dependence and diminishes self-respect and self-growing. Besides, access to nutrition and medical facilities, public health depends upon the level of access to safe drinking water and sanitary facilities. However, in many rural parts of our country, most of the people have not access to safe drinking water and sanitation facilities.

In developing countries, there are majority of rural people, living without safe drinking water. In these countries, water borne diseases are among the major causes of sickness of death. Obviously, safe drinking water supply is the single most important activity that could be undertaken to improve the health of rural people.

As a developing country, in Nepal also drinking water is the main cause of several diseases. Mostly, diarrhea, stomach trouble, skin disease and eye diseases are directly related to unsafe water.

The provision of safe water does help to improve rural people health. It is found that water borne disease are the common causes of sickness and death in rural parts of our country.

Before the implementation of the project, the condition of water borne diseases was recurring. The main diseases that occurred were worms, dysentery, diarrhoea, stomach ache, fever, pneumonia, skin diseases, eye diseases, etc. The reason behind this was polluted drinking water which was harmful to health. The condition of this area before the implementation of the project was worse. There used to be scarcity of water in parties and ceremonies and if not scarce wasn't clean. Therefore, there were also some serious cases with health. To cure such water-borne diseases, most of them hadn't access to the modern health facilities. The modern health treatments were expensive and there were also beliefs in traditional trends of treatment and is till now. A positive change in health can be found now after the implementation of this project.

Table 8: Common diseases Seen before and After the Implementation of DWSP

Diseases	Before			After		
	No	Yes	Unknown	No	Yes	Unknown
Diarrhoea	16	10	4	28	1	1
Stomach troubles	14	13	3	27	-	3
Skin diseases	9	18	3	30	-	-
Eye diseases	20	8	2	28	-	2
Worms	10	18	2	25	3	2
Pneuomonia	12	13	5	22	3	5
Fever	13	10	7	24	2	4

Source: Field survey, 2006.

In the above table the condition of diseases before and after the implementation of project has been shown. The vulnerability to the diseases was more before the implementation of diseases whereas after its implementation due to the effect of same water this has gone down.

Before the implementation of the project, there were more cases of skin diseases whereas after its implementation, the condition of this disease has been

found good. Likewise, positive impacts can be found on the condition of other various diseases like diarrhoea, stomach troubles, eye diseases, worms, pneumonia, fever after the implementation of the project than before.

Figure 3: Common diseases seen before the implementation of DWSP

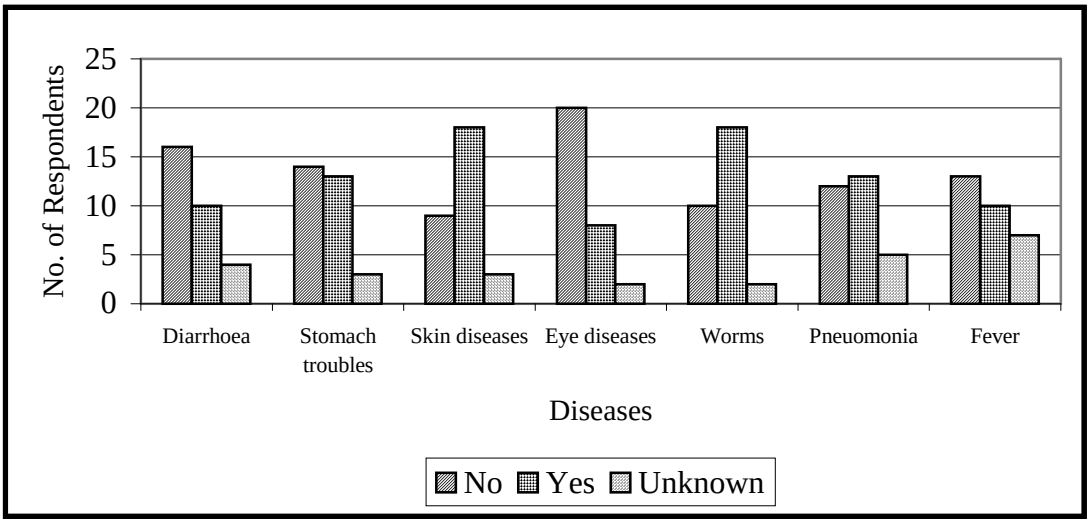
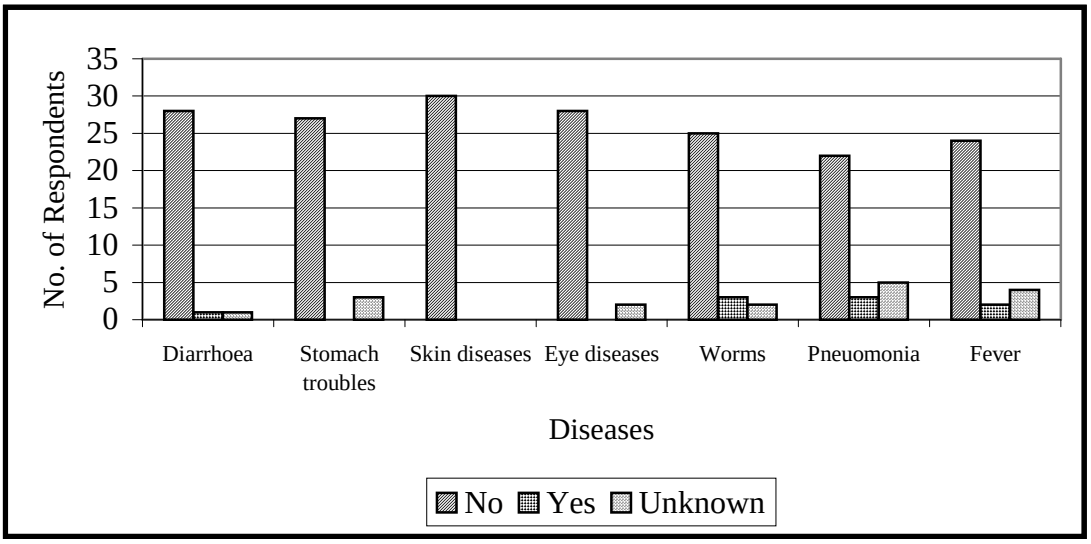


Figure 3: Common diseases Seen After the Implementation of DWSP



5.5 Impact on Environmental Sanitation

Drinking Water Scheme and environmental sanitation are related and crucial subjects for sustainable development. In fact, water plays most effective and vital role for environmental protection. Environmental pollution or problem denotes all the types of adverse effects which fall upon it. Among the various environmental pollution, water pollution is a major issue over the world.

Water pollution which is directly related to the environmental sanitation is a burning issue for environmental protection. Polluted water adversely affects the environmental sanitation and people's health. So, safe water is highly valued for the protection of public health and sanitation. On the other hand, water as a basic for the life of all flora and fauna, is a scarce socio-economic goods for sustainable development.

In this study area, majority of the households have been benefited from the scheme with access to safe drinking water. Safety construction was a primary condition for the project implementation use. In relation to sanitation, more than 95 percent of households are using safety latrines, whereas before the implementation of this scheme, most of the people had used streams, agricultural land and forest areas for defecation. The open defecations had largely been the causes for sanitation pollution and contamination of water resources. But, after the implementation of this scheme, environmental sanitation is improving and people are healthier than before. Most of the people including children have diversified adequate environmental knowledge and skills related to the environmental conservation. They are also aware about the negative effects of poor environmental sanitation on their lives.

5.6 Impact on Cleanliness

After the completion of project and with its implementation, water consumption rate of the area people has increased. Now-a-days they have been habitual in consuming a lot more water. There has been a great increase in the positive effects like bathing, washing, cleaning pots and pans, cleanliness of the babies, etc. Due to the adequate use of water, toilets and houses have also been found clean. According to the respondents, they had to go far away to wash their clothes, bath, etc. as they hadn't water source nearby and sometimes even couldn't get enough water hence they couldn't have maintained their cleanliness. But now-a-days they have been benefitted with a change. Now-a-days children have been seen going to school neat and tidy. Likewise, farmers and service-holders have been found to stress on their cleanliness after the work. Respondents say their utensils to keep the water are also clean now-a-days. Its impacts have been shown in the table below:

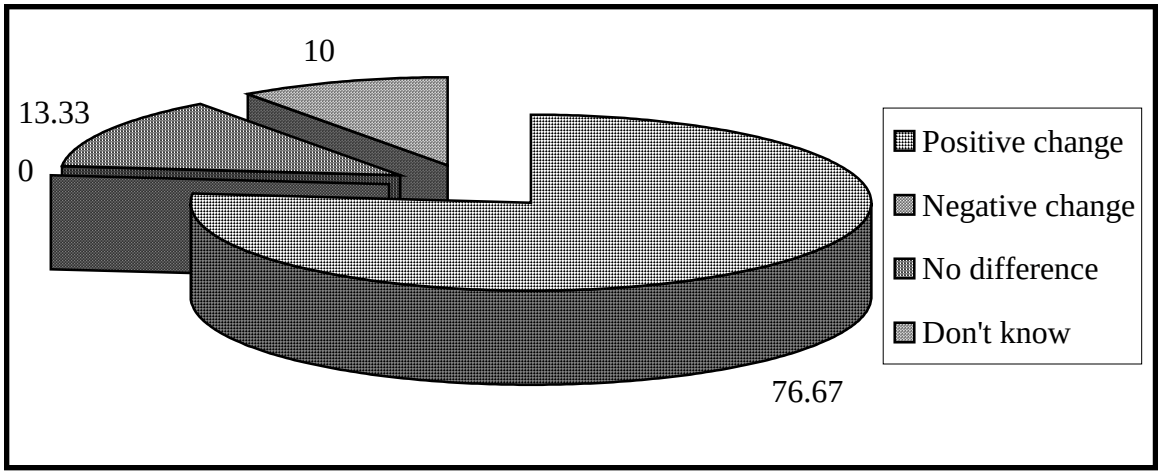
Table 9: Changing Attitude in Cleanliness

Description	No. of households	Percent	Remarks
Positive change	23	76.67	
Negative change	-	-	
No difference	4	13.33	
Don't know	3	10.00	
Total	30	100.00	

Source: Field Survey, 2006.

As a result, out of 30 household, 76.67 percent of respondents have shown positive change in cleanliness after the implementation of this Water Scheme. Nearly 13.33 percent replies no change in their cleanliness but no one replies about the negative change. 10 percent of people replies that they don’t’ know about the changing trend in cleanliness. After all, the result shows that drinking water scheme has a good impact on cleanliness.

Figure 4 : Changing Attitude in Cleanliness



5.7 Impact on Women's Status

Gender inequality stand as the main barrier in the development of women. Women haven't been able to be included in the mainstream of development due to the very reason. This remains as a major problem in this study area as well as other rural regions. The social status of women is lower than that of men in our Nepalese society. Before the implementation of the project, most of the women in this study had been found busy in their own household chores. Their participation in various economical activities was minimal. They were more engaged in their busy household chores so had very few participation in the public places. But the situation is not more the same.

The female population in the study area is about 52 percent whereas that of male's is 48 percent. Direct positive impacts can be seen among the women and the children of the study area after the implementation of the project because before that to fetch water they had to reach far away insufficient traditional sources. This condition has changed after the implementation of the project and they can fetch water from their nearby taps and have saved their time to do other activities. This has reduced the pressure on their works. In this saved time, they could do other social works and engage themselves in a income-generating activities. This has supported them to upgrade their social

status and maintaining better and firm social foundation. This has been shown in the below table:

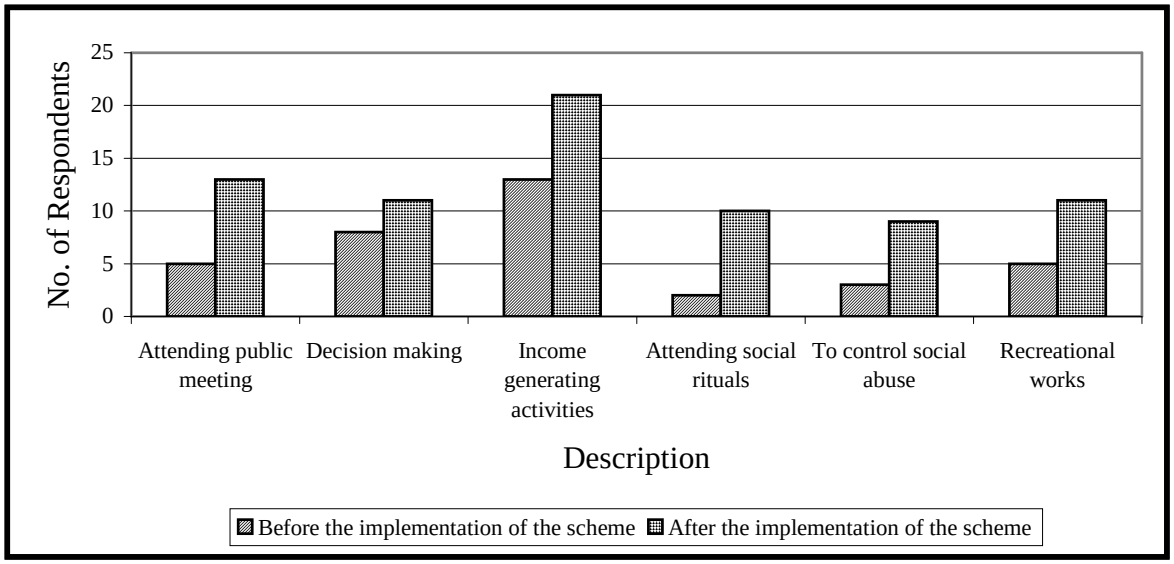
Table 10: Women's Involvement in Various Activities

Description	Before the implementation of the scheme	After the implementation of the scheme	Increased by	Increase percent	Remarks
Attending public meeting	5	13	8	160	
Decision making	8	11	3	37.5	
Income generating activities	13	21	8	61.54	
Attending social rituals	2	10	8	400	
To control social abuse	3	9	6	200	
Recreational works	5	11	6	120	
Total	36	75	39	108.34	

Source: Field Survey, 2006.

According to the above table, the involvement of women in social activities and other related subjects has increased by appreciable number. The Drinking Water Scheme has encouraged the women's involvement in various social and economic activities, like attending public meeting, decision making, attending social rituals, social abuses controlling and income generating activities. Due to the women's unity and their strong provisions, social abuses (gambling, smoking, alcohol drinking etc.) have been controlled remarkably. Except these types of social activities women have also conducted various income generating activities (IGA) like livestock management, cash crop farming, poultry farming, beekeeping etc. So the impact of drinking water scheme (DWS) over women status seems highly positive.

Figure. 5: Women's Involvement in Various Activities



5.8 Utilization of the Surplus Time

Time is that truth that helps to create a lot of things. Time if utilized in right way can create positive impacts and if utilized in unnecessary and non-generative fields can bring negative impacts. Time when used in income-generating activities can bring an economical success due to which the quality of life can be upgraded fulfilling the needs and desires. In our society, time has been misused in non-income generating and other such fields. Due to the very reason, poverty, illiteracy, unemployment, etc. have got their places to rise. In our Nepalese rural society, women are given the responsibility to fetch and manage the water no matter how far may the source be. There is still the compulsion for women to carry their pot in their basket and to fetch water from the far away source. This has consumed their lot time or even one whole morning. This has affected other various sectors.

Before the implementation of the project, there was the condition to go far away to fetch water. There weren't it any sources nearby the house. During the non-rainy seasons, the sources nearby dry hence they had to go even more further to fetch water. In about 45 percent of sample houses of the study area, they had to spend about 45 minutes to fetch a pot of drinking water. But after

the implementation of Drinking Water Scheme, the situation has changed. People are feeling relief and today collection of water is not a domestic burden, rather it is an easy work. Water taps are in close distance to the resident and people no longer consider fetching water as a special domestic work. As consequences, saving time in water collection could now be utilised for income generating activities. Clearly, this Drinking Water Scheme has positive impact on local economy.

The reduction of distance to the source of drinking water is a major cause of time saving by which people are benefited in economic activities. The saved time is now utilized in various socio-economic fields. To make easy in data calculation about saved time utilization, it is found that the greater number of sampled families are using their saved time in income generating activities.

Table 11: Surplus Time Utilization Pattern After the implementation of DWSP

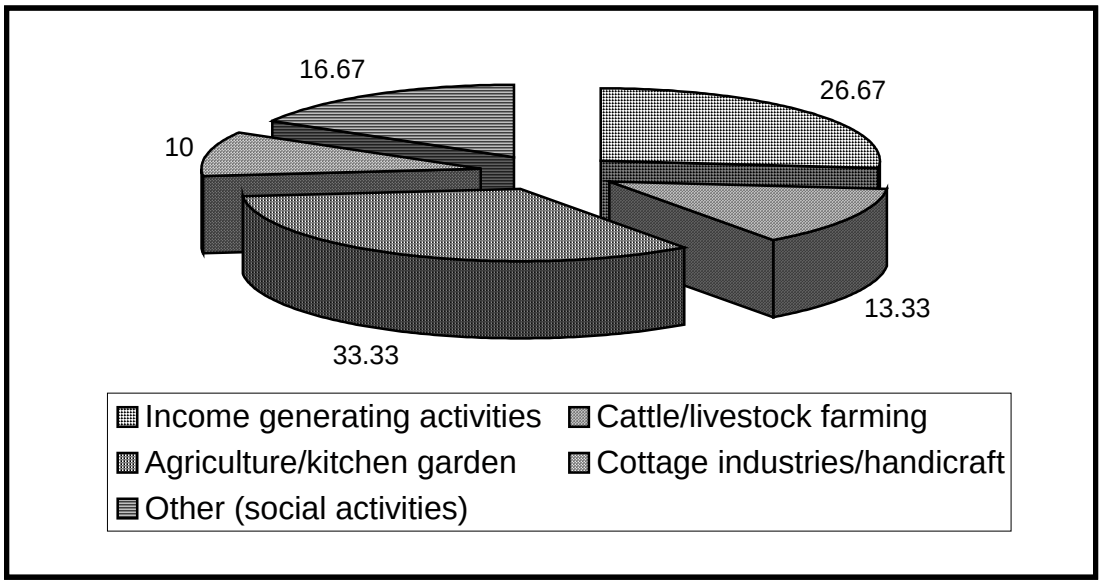
Description	No. of respondent	Percent	Remarks
Income generating activities	8	26.67	
Cattle/livestock farming	4	13.33	
Agriculture/kitchen garden	10	33.33	
Cottage industries/handicraft	3	10.00	
Other (social activities)	5	16.67	
Total	30	100.00	

Source: Field Survey, 2006.

In the above table, the surplus time remained after the implementation of the project has been utilized in different sectors have been shown. The number of people engaged in income-generating activities was found to be 8 which comes to be 26.67 percent of total respondents. Likewise, 4 (13.33%) were found to be engaged in cattle or livestock farming in their surplus time. Similarly, 10 (33.33%) were found to be engaged in agriculture or kitchen garden which ranks the highest as this is an important sector in rural areas.

Likewise, people engaged in cottage industries/handicraft and other social activities were respectively 3 (10%) and 5 (16.67%). So, after the implementation of the project, the benefits on other fields have increased and there has been their positive impacts.

Figure 6: Surplus Time Utilization Pattern after the Implementation of DWSP



5.9 Present Status of Water Supply

Every project is not okay only after its implementation. Its output should reach to each and every one equally and the project should run suistainably. If not so, there comes the negative impacts on the community. The management of water supply system in the study area has been found satisfactory after the implementation of the project. Normally not more than 2 minutes is consumed in reaching the tap. No discrimination has been made in the distribution of water in the name of casteism.

The volume of water coming through the tap has been maintained on the basis of number of members in the family. In this study area, since there is adequate amount of water in the source, the distribution of water is all day long (24 hours). When there are any complaints regarding the taps or the distribution system, if the cases are small, they are handled by the appointed trained person

and if the cases are big, the committee informs GWS which then comes to solve the problem. During the non-rainy seasons, since the source is small the main valve is closed during the night but the distribution is similar during the day. In order to maintain cleanliness around the water sources, "Aama Samuya" sometimes run sanitation campaigns.

CHAPTER SIX

6. Summary, Conclusion and Recommendations

6.1 Summary

Water is the most necessary life-basis liquid for whole flora and fauna. Though Nepal has a lot potentiality in field of water resources, its adequate use hasn't been made. Nepal has a lot more possibility in reducing the poverty through the use of water resources in different fields.

In the past, most of the water projects were run by the government but weren't sustainable. But in the later periods, projects have been run by the community through people participation. Donor agencies have also now-a-days given priority to such projects. One of such projects is the Drinking Water and Sanitation project run in this study area which is supported by GWS.

The social impacts seen after the implementation of the project have been included in this study. After its implementation, there has been positive impacts on different social-aspects.

This project has brought impact on different fields. There has been a great positive effect in the field of education. Now-a-days, children concentrate on their studies that to fetch water. Various disease have been found to have minimal spread. Skin diseases, Eye diseases, Diarrhea, Stomach troubles, Warms, Pneumonia, Fever, etc have come down rapidly after the implementation of the project.

There has also been its positive impacts on the fields of environmental sanitation and individual cleanliness. Likewise, there has been positive changes in women's status. They have been involved in various activities like attending pubic meetings, decision making, income-generating activities, attending social rituals, controlling social abuse and other recreational activities after the project's implementation.

Similarly, they have been utilizing their saved time (that used to be required in fetching water) in income-generating activities, cattle livestock farming and other social activities.

6.2 Conclusion

The 20th century was the period of petroleum but the 21st century will be the period of water. There are many alternatives for the fossils fuels but there is no alternative for water. it is forecasted by different scholars that water will be the main sources for economic development and its scarcity arises, it will thus increase the international conflicts.

In developing country like Nepal, the proper management of source and resources couldn't have been made through are abundant. In most rural areas of Nepal, there still withstands hunger, disease, illiteracy, tradition normal and values, blind faith etc. Though abundant, natural resources. haven't been adequately sued. There still is scarcity of drinking ate despite abundant water resources.

There has been great qualitative improvement in various fields after the implementation of the project. Different aspects like health, education, women's status, individual cleanliness, environmental cleanliness, etc possess great positive changes after the initiation of the project. These things have helped a lot in bringing up the economical and social status of the study area. Besides this, the project has brought its positive effects on women and children strikingly. Before the initiation of project the work of water carrying was differentiated for women and children. Now-a-days children regularly attend the school whereas women are involved in various social and income generating activities. So, there has been good utilization of the surplue time. This has helped in minimizing the poverty as well.

The people of this study area have been found to have the feeling of 'My' and love for the project. This can be because they had their appreciable

involvement during the project work. They were also found to be positive towards the helping-agency GWS. Therefore, this project can be claimed as a successful one and its social impacts can be considered positive and worthy enough.

6.3 Recommendations

In order to run the project regularly and sustainabily, it drawbacks and weaknesses should be removed or there should be some improvements. In order to improve various problems seen, to make change on various aspects and to combat various obstacles arised, some following recommendations have been made. Which can certainly help the project in being more sustainable and efficient:

- Afforestation seems to be necessary in order to maintain regular water in the source. Likewise, necessary conservation is required to avoid dirty water through the tap caused by the minimize of outer running water into the source. In order to do this various action like dam building, crossing the outer running water from the sides, etc.
- Some of the pipes brought form the source have to go very high and than very low which causes the rapid pressure change. Due to this, many pipes have got damaged time and again. So, it has been seen wise to change the line of the pipe in some places.
- During the non-rainy seasons, since the source of water is small, special attention should be given in closing the value during the height and supplying regularly during the day. In addition problems regarding the supply of water have been seen by the activities like opening the taps in non-using times, delay in the maintenance works, etc. These should be solved.

- Awareness program about the utilization of save time in income-generating activities should be conducted in order to upgrade their life-style.
- The excess water should be rightly managed by using it vegetable-gardens growing fruits and other similarly activities.
- The drinking water committee seems to be more active and sufficient. Meetings should be made time and again which should majority focus on cleanliness, toilet management, etc.
- The helping agency, GWS should monitor the project time and again and solve the problems arised in its efficient management. As well, GWS should response immediately to the request and informations made by the committee.
- The management committee and GWS should enlighten the consumers with the knowledge of evaluating the change on different aspects after the implementation of the project. In addition, they should also inform the consumers about the positive impacts that the project can bring in future in their different aspects.
- The monthly fund collected by the committee should be regular. Likewise, the fund's account maintained by the committee should be clear, positive and practical and should be brought into the knowledge of the consumers.

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QUESTIONNAIRE

Dear respondents,

I am a student of master level of Rural Development. I'm going to conduct a study on "Social impact of Community Drinking Water Program in Putahbazar Municipality-9, Shyangja district". Please help me providing information that you know about it. Your answers will remain confidential and used only in this purpose.

1) Name:
2) Caste:
3) Sex: Male ( ) Female ( )
4) Age:
5) Education: Illiterate ( ), Under S.L.C. ( )
   S.L.C. ( ), Certificate ( )
   Diploma ( ) and Degree ( )
6) Religion: Hindu ( ), Buddhist ( ) and Others ( )
7) Tole ( )
8) What were the sources of water before the initiation of this project?
9) How much distance did you have to cover to get drinking water before this project?
   a) Less than 10 minutes b) 10-30 minutes
   c) 30-60 minutes d) More than one hour
10) Are you satisfied with the present condition of water supply?
   a) Yes b) No
   * If yes, Why?
   a) Safe water b) Sufficient amount of water
   c) Time Saved d) Listed above
   * If no, Why?
   a) Costly b) Irregular supply

c) Lack of quality d) Listed above

11) How many hours do you get water supply per day?

a) Less than one hour b) 5-10 hours

c) 10-15 hours d) more than 15 hours

12) Is the distribution of water supply equal among rich and poor?/upper cast and low cast?

a) Yes b) No

13) What is the status of your children's study after the establishment of community drinking water?

a) Good b) Bad

c) Better d) As it was

14) Is there any kind of conflict arising among users?

a) Yes b) No

15) Do you think the committee's fund is misused?

a) Yes b) No

16) How do you solve those technical problems?

a) Yourself

b) Complain to the project Technician

c) Hire private Technician

d) Others

17) Has the project been self-sufficient?

a) Yes b) No

18) How is the surplus time utilized after new drinking water project?

a) Income generation activities

b) Cattle/Livestock farming

c) Agriculture/Kitchen garden

d) Cottage industries/handicraft

e) Other (Social activities)

19) Changes experienced in household sanitation habits after water supply system facility?

a) Cleaner than before

b) Satisfactory

c) No difference at all

d) Poor

20) Do you use the tap water in toilet clean?

a) Sometimes b) Daily

c) Never

21) What was your environment before the drinking water and sanitation project?

a) Clean b) Dirty

22) How is your environment now?

a) Clean b) More Clean

d) Dirty d) More Dirty

23) What are the benefits in you community or household?

a) Is the life better than before?

Yes/No, if No 'Reason'

b) Are quantity and quality of supplied water adequate? Yes/No

c) Decreases in diarrhea - Yes/No/Unknown

d) Decrease in eye — disease Yes/No/Unknown

e) Decrease in Skin-disease - Yes/No/Unknown

f) Children become able to go schools - Yes/No/Unknown

g) Utilization wasted in the kitchen garden - Yes/No/Unknown

24) In which field are you using your saved time after the implementation of program?

a) Agriculture b) Domestic work

c) Livestock Management d) Cash crop farming

e) Business Labour f) No time saved

g) Don't know

25) Are you satisfied with the distribution of water taps?

a) Yes b) No c) Don't know

26) Do you think the service provided under this program are adequate?

a) Adequate b) Inadequate

c) Don't know

27) In your opinion, what is the most important improvement after the implementation of this program?

a) Social b) Economic

c) Both b) Don't know

28) Do you know any positive impact of program on local community?

29) Do you have any suggestion above the overall program and its sustainability?

EXECUTIVE SUMMARY

Though Nepal carries a lot of potentiality in water resources, their adequate use for benefits hasn't been made. There are critical problems regarding drinking water in Nepal due to which it is facing the problem of spread of diseases as well as having the social impacts.

In this project report, the social impact brought by a community drinking water program run in Lamage, Putalibazar Municipalit-9, Syangja has been studied under which emphasis have been given on education, health, family, marriage and their effects on living standard, status of water supply, etc. have been focused. In this study, sample selection method has been used under which only 30 households of total 166 have been taken as the sample of study and the data obtained form the interviews with the household heads, various intellects, etc. have been analyzed and presented in the explanatory way.

The major findings of the study are as follows:

- *The locality has the settlements of various castes and ethnics. Only few Newars live here whereas Sarkis among the Dalit have very low population. No discrimination among any castes has been found in the distribution of the drinking water.*
- *The population in 30 households, taken as the sample of study, is 180 so the household size comes to be 6. Among 180, 88 (48.88%) are female whereas 92 (51.12%) are male.*
- *Towards education, 112 (62.22%) are literate whereas 68 (37.78%) are illiterate. Among 112 literates, 65 (73.87%) are male whereas 47 (51.09%) are female. The number of school-goers has increased after the implementation of the project and the project has brought positive impact on education.*

- *The project has brought positive impact in the field of health as well. Various water-borne diseases like diarrhoea, stomach troubles, skin diseases, eye diseases, worms, pneumonia, fever, etc. have come down rapidly after its implementation.*
- *Towards environment and cleanliness, due to the provision of toilet and adequate supply of water, the houses, verandahs, cooking utensils, etc. and the environment of the study area have been found neat and clean.*
- *Various progresses have been seen in the condition of women after the implementation of the project. Their participation in attending public meeting, discussion-making, income-generating activities, attending social rituals, controlling social abuses, recreational works, etc. has increased rapidly. The right use of their saved time by involving in various fields have helped them alleviate their poverty and bring-up the standard of their living.*
- *At present, the drinking water project is running regularly and efficiently. Generally, not even two minutes is lost in reaching the taps.*