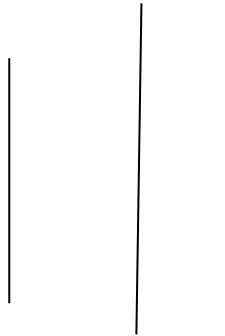


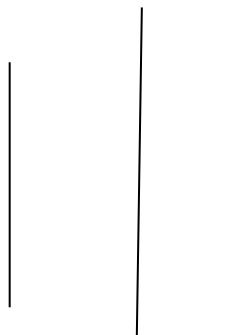
**IMPACT OF DRINKING WATER AND SANITATION
PROJECT ON LOCAL PEOPLE**

A Study of Pokhara Lekhnath Metropolitan Ward No. 30, Kaski District



A Thesis Submitted to

**Faculty of Humanities and Social Science Department of Rural Development,
Tribhuvan University, in Partial Fulfillment of the Requirements for the Degree
of the Master of Arts (MA) in Rural Development**



By

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March. 2018

LETTER OF RECOMMENDATION

This is to certify that **Mr. Bodha Narayan SHrestha** has completed this dissertation entitled "**Impact of Drinking Water and Sanitation Project on Local People: A Study of Pokhara Lekhnath Metropolitan**" under my supervision and guidance. I therefore, recommend this dissertation for the final approval and acceptance to the dissertation committee.

.....

Krishna Prasad Gyawali

Supervisor

LETTER OF APPROVAL

This dissertation entitled "**Impact of Drinking Water and Sanitation Project on Local People: A Study of Pokhara Lekhnath Metropolitan**" submitted by **Mr. Bodha Narayan Shrestha** to the Department of Rural Development, Saptagandaki Multiple Campus Faculty of Humanities and Social sciences, Tribhuvan University, in the partial fulfillment of the requirements for the Degree of Master of Arts in Rural development has been found satisfactory in scope and quality. Therefore, we accept this dissertation as a part of the mentioned degree.

Evaluation Committee

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ACKNOWLEDGEMENT

First of all, I would like to express my sincere gratitude to the Department of Rural Development for granting me permission to conduct the research entitled "Impact of Drinking Water and Sanitation Project on Local People, A Study of Pokhara Lekhnath Metropolitan." Now, it is in the form of dissertation in partial fulfillment of the requirement for the Master Degree in Rural Development. It has come to this stage with the help of different persons and institutions.

First and foremost, I would like to extend my heartfelt thanks to my dissertation supervisor, Mr. Krishna Prasad Gyawali an honorable Faculty Member of Department of Rural development for his kind co-operation, proper guidance and valuable suggestion during my research work without which it would not have been possible to complete this work. Similarly, I am grateful to Mr. Jagadishor Baral, Head of the Department for his precious encouragement, support and suggestions.

Similarly, I am thankful to all the inhabitants of Lekhnath and respected persons from Lekhnath Drinking Water Supply and Sanitation management committee for their honest cooperation provided in the field work of this research.

Lastly, I would like to express my sincere gratitude to my family members, especially to my mother and father and my wife for their kind support and continuous encouragement to complete this degree including this research work.

ABSTRACT

The major objective of this study is to explore the impacts of the project (STWSS) among the people of Pokhara Lekhnath Metropolitan after its establishment. To that end, research questions were raised and combinations of qualitative and quantitative methods were adopted. Based on the research objectives, the problems associated with the drinking water, health and sanitation facilities were analyzed and explained in detail. Further, the changes in their lifestyle have also been explored extensively. The study demands both exploratory as well as descriptive research design. Generally, the exploratory research design was used to show the various aspects of the problems of the study area before the project (STWSS) implementation, while the descriptive research design was used to describe the effects of the project (STWSS) on Lekhnath people. Observation, interview, key-informants interview, in depth- interview and focus group discussions were adopted to collect data. However, the primary data played a dominant role into drawing a valid conclusion. Some relevant and useful secondary data were also incorporated. Demographic information such as caste/ ethnicity, religion, occupation, education, age was reflected. Table, bar diagrams and pie charts were used to analyze the data.

This research proposes to investigate the role of drinking water supply and sanitation system in bringing the changes in the lives of local people of Pokhara Lekhnath Metropolitan. Before the project's construction, people faced problem as they had to allocate for time for collecting water and they had little attention on other activities. But, now the continuous engagement in construction and management of drinking water project has changed their lifestyle. People now started to involve in other development activities due to availability of water. Both male and female member were actively participating in the project's management and maintenance work. Now, people were satisfied with the project's establishment.

Per the study, 96.7 percent of the respondents had to use public tap before the project construction. Similarly, 98.4 percent of the respondents felt that the project construction has saved a large part of the time invested in fetching water. 77 percent of them express their view that the tendency of spreading water borne disease after the project construction is decreasing and 23 percent of them says it is decreasing rapidly. Likewise, 88.5 percent of the respondents have been able to use the saved time in other development activities.

LIST OF ABBREVIATIONS

ACAP:	Annapurna Conservation Area Project
CBOs:	Community-Based Organization
DDCs:	District Development Committees
DWSS:	Department of Water Supply and Sewerage
LDWSS:	Lekhnath Drinking Water Supply and Sanitation
LSTWSS:	Lekhnath Small Town Water Supply and Sanitation
NGO:	Non-Government Organization
NWSSP:	National Water Supply Sector Policy
STWSS:	Small Town Water Supply and Sanitation
SWOG:	Social Works Group
UNDP:	United Nations Development Programme
UNICEF:	United Nations Children's Fund
VDCs:	Village Development Committees
WHO:	World Health Organization

CHAPTER - I

INTRODUCTION

1.1 Background of the Study

Water is one of the basic needs of human beings. It is fundamental to the material basis of both life and livelihoods. Water serves a variety of purposes: it is used not only for irrigation the main fields crops, but also for domestic needs such as drinking, washing and bathing and for home gardens, livestock, trees, and other permanent vegetation. Other productive uses include aquaculture, transportation, and small rural enterprises such as brick making. The environmental benefit of water resources includes direct uses such as harvesting of aquatic plants and animals and the immeasurable benefit of biodiversity and maintaining natural ecosystems.

Water scarcity affects the rural household, economy and environment in multifarious ways, resulting in hardships such as the necessity of carrying heavy pots of water several kilometers everyday to meet household needs, the destitution of farmers and their families who lose their lands, or of the landless who lose their jobs because of lack of water for irrigation, the loss of wetlands and estuaries because of water-depletion upstream, and increasing health problem caused by water- borne diseases and pollution.

Demands for water supplies for agriculture households and industry have escalated dramatically in recent decades. Globally, 38 percent of people are living in countries under severe water stress. So, the availability of adequate water resources for future generation is not only a regional issue, but is also a subject of concern at global scale. In Nepal, we find that the very first pipe water supply was introduced in 1895 during the Rana Regmi. Even though, water was supplied through various sources in Nepal in different cities, it was only in 1972 that the Department of Drinking Water Supply and Sewerage was established.

Various types of urban and rural water supply and sanitation projects are now being implemented within the Government, private and NGO sectors. They are directly and indirectly linked with environmental health and sanitation status of rural and urban

people and water supply improvements. These projects are also household based and have proven to be very effective, not only for water storage during the dry season, but also for making water available close to the house during the wet season, and therefore improving hygiene and reducing women's workload (Sharma 2001).

As population, has steadily grown in many countries, particularly poorer nations, a correspondent effort to provide this population with safe access to potable water has not followed suit. More and more access to drinking water for all human beings has become a priority of sustainable development (Pradhan and Pradhan, 2006).

Nepal, being the second richest country of the world in fresh water resources people are depriving of safe drinking water. Various reports are showing that with the lack of safe drinking water many Nepalese people are facing waterborne disease. The Water Resources Act, Water Resource Regulation, Irrigation policy and Nepal Water supply and sanitation policy have all recognized important institution of water services users but their implementation has been remaining very weaker one. Until the end of eight Plans, 61 percent of the total population of Nepal has had access to drinking water facility but the quality of the service needs to be considerably increased. The document of the ninth plan has also presented the long-term perspective on drinking water and sanitation (for 20 years). Per this, the drinking water facility will be made available to all the people of Nepal by the end of ninth plan. And within next 20 years, the level of drinking water facility will be classified to enhance the quality of service. In the sub – sector of sanitation, appropriate sewerage systems with processing facilities will be constructed in all the densely populated urban areas in the next 20 years.

In all urban sectors, well planned management of wastes and development of appropriate waste disposal technology will be done. And, environmental sanitation will be improved in the rural areas by constructing “affordable” house latrines with the use of appropriate technology (depending upon the geographical location). Water resource is a part of natural resource and indigenous knowledge, skills is important for natural resource management. For conserving, managing, reproducing natural resource people apply their own way, method, mode of production according to their culture, procedures have been developing as a part of their culture and identity. So, it is suitable to say that natural resource management is then a part of culture.

In this context, the present research proposes to investigate the role of drinking water supply and sanitation system in bringing the changes in the lives of local people of Pokhara Lekhnath Metropolitan. It also focuses on people's way, method for the management of the water sources.

This proposed study has been conducted on Pokhara Lekhnath Metropolitan, Kaski district where water supply system (STWSS) was implemented by Ministry of water supply.

1.2 Statement of the Problem

Drinking water is a resource necessary in everyday life of an individual. To cater to the increasing demands of drinking water and sanitation facilities for faster growing towns and markets centers, Government of Nepal has initiated a community supported water supply and sanitation project with financial assistances from the Asian Development Bank (ADB). This project is called Small Town Water Supply and Sanitation Project

Water is basic to life and good quality water in sufficient quantities for drinking and sanitation is a critical determinant of the standard of rural and urban life. The quality as well as availability of water has a direct impact on the quality of life as well as livelihoods (Mollinga, 2000).

Access to safe drinking water supply and sanitation services is fundamental to improving public health and meeting national poverty reduction objectives. Lack of safe drinking water in many parts of the world is causing early death in human beings. So, the need to preserve water and use it appropriately is the major need of today. Because of this, Lekhnath Small Town Water Supply and Sanitation User Committee was established in Pokhara Lekhnath Metropolitan. In the past decades, the inhabitants had to face so terrible moments. The painful moments for the busy housewives rushing for fetching water from the tap provided by Red Cross Society tens of years ago, the unpurified water connected through pipes from the tanks which were not cleaned for long times, and people had to face water borne diseases such were the major problems the people in Lekhnath were facing.

But, after the establishment of this project Small Town Water Supply and Sanitation, people get the facility of drinking water services easily. Its concepts start first in 2001 and it establishes in 2005. This project was financed by Nepal Government (50%) and User's Committee (50%). After its implementation, people get healthy life by minimizing the existing water borne disease. This project ensures community to involve in water management, hygiene education and other sanitation activities. In other words, it brought great changes in their daily life that is directly linked with their socio-economic changes.

So, this study mainly answers to the problem associated with the drinking water, health and sanitation facilities. It explores the changing pattern of the Lekhnath people during and after the intervention of this project. To sum up, this study will be focused on finding out answers to the following question: -

Research question;

1. What necessitated the beginning of the drinking water project in Pokhara Lekhnath Metropolitan?
2. How was the previous condition before the implementation of the project?
3. Are there any changes after the construction of the project?
4. How did the user's group contributed in the construction of the project?

1.3 Objectives of the Study

The general objective of the study is to explore the major impacts of the project Small Town Water Supply and Sanitation among the people in the selected area, Pokhara Lekhnath Metropolitan, after its establishment. However, the specific objectives of the study are as follows.

1. To trace out the past condition before the implementation of the project (STWSS) in Pokhara Lekhnath Metropolitan.
2. To examine the contribution of water user's group in this project's establishment.
3. To analyze the role of the project (STWSS) in changing the people's daily life

1.4 Significance of the Study

This study is an academic study; thus, its immediate importance is the achievement of the Master's Degree in Rural Development. Based on several researches, it is noted that participatory approach is the most important approach for every development programs. No development program can be successful without this approach. So, generally to say, this study can provide the concepts about participatory approach. This study may be helpful to trace out the problems of drinking water in Lekhnath and it may also be helpful to know about the changing condition of the selected area after the project's implementation. It can also provide the knowledge of purification and sanitation of water. So, in conclusion, this study may be helpful to know about the effectiveness of the project (STWSS) towards the people after its establishment .This study can provide about the project's coverage area. So, the study can act as a reference for the implementation of future new projects in other places. In addition, it may be helpful for further research.

1.5 Limitation of the Study

This study is only for the partial fulfillment of Master's Degree in Rural development. Each and every study has some of its own kinds of limitation. This study is a micro level study because it is based on small sample of the limited area. The findings and conclusion may not be generalized. The subject matter of the study such as; changing pattern will be core. The study site is composed of multi- ethnic group people with different cultures, languages, social norms and values, etc which are difficult to understand and analysis in this study of short duration. Despite these limitations, the study has tried to meet the objectives and the topic of the study itself as far as possible.

1.6 Organization of the Study

This research study consists of altogether five chapters. Chapter one includes the background of the study, objective of the study, rational of the study and conceptual framework of empowerment of women through co-operatives. Chapter two includes literature review. Chapter three presents the research methodology adopted for the study in which various methods for data collection tools, technique and analysis are described.

Chapter four presents data analysis and presentation, which is the major part of the thesis.
Chapter five contains the study with summary, conclusion and recommendation.

CHAPTER - II

REVIEW OF LITERATURES

2.1 Conceptual review

2.1.1 Tragedy of the Commons

The concept of the Tragedy of the Commons is extremely important for understanding the degradation of our environment. The concepts were clearly expressed for the first time by Garret Hardin in his new famous article in Science in 1968, which is “widely accepted as a fundamental contribution to ecology, population, theory, economics and political sciences.” The basic idea of Hardin is - if a resource is held in common for use by all, then ultimately that resource will be destroyed. “Freedom in a common brings ruin to all”. Hardin draws attention to problems that cannot be solved by technical means. Hardin contends that this class of problems includes many of those raised by human population growth and the use of the earth’s natural resources. According to Hardin, to avoid the ultimate destruction, we must change our human values and ideas of morality. (Wikipedia the free encyclopedia)

Lekhnath inhabitants manage the water source by themselves, by making the well function committee. But, the problem of maximum increasing population has put the pressure on the water sources and it brings ruin to water sources. If water is used at a high rate than the reservoirs are replenished, then they must face a tragedy of the commons. To avoid this, they must change their value, system and morality.

2.1.2 Participatory Approach

The concept of participatory approach is important for any kinds of development programs and resource management. Simply, participation refers to the act of taking part in an activity or an event. Just like this, participatory management of resources means people’s involvement in decision making process, implementing programs, benefit sharing, monitoring and evaluating programs. The participation has become a hot subject in any programs related with natural resources. Participation being a boarder concept, compromises these characters like; institutional representation, distribution of benefits, cost sharing, pluralism, gender integration etc. Similarly, it focuses on affordability, scale of technology.

Sustainable development of water resources requires the full co-operation of water users. Today the word, 'participation' has become a key concern for people-centered development strategy. So, the true participation must encompass the involvement of all kinds of groups, caste, ethnicity, religion and economic levels of the community. According to this concept, the project (LSTWSS) is also developing in the leadership of the communities by raising the level of public awareness on environment sanitation and health and hygiene education. It gives more emphasis on the development and expansion of the technology that can be afforded by the local users /consumers. For the sustainable development of this project local unit, NGOs and private sector were optimally mobilized as partners by encouraging the participation of private sectors. For the implementation of this water supply projects, the most priority is given to the participation among the backward areas, classes, caste /ethnic groups and communities. For operation and maintenance of this project, the capacity of the user's communities is enhancing. This project also emphasizes on the equitable distribution of drinking water by mobilizing the popular participation. Women's participation is also enhanced in this project.

2.1.3 Introduction of Drinking Water and Sanitation: -

Drinking water is water that is intended to be ingested through drinking by humans. Water of sufficient quality to serve as drinking water is termed potable water whether it is used as such or not. Although many sources are utilized by humans, some contain disease vectors or pathogens and cause long-term health problems if they do not meet certain water quality guidelines. Water that is not harmful for human beings, it sometimes called safe water, water which is not contaminated to the extent of being unhealthy. The available supply of drinking water is an important criterion of carrying capacity, the population level that can be supported by planet Earth.

As of the year 2006 (and pre-existing for at least three decades), there is a substantial shortfall in availability of potable water in less developed countries, primarily arising from industrial contamination and pollution. As of the year 2000, 27 percent of the population of lesser developed countries did not have access to safe drinking water. Many nations have water quality regulations for water sold as drinking water, although these are often not strictly enforced outside of the developed world. The

World Health Organization sets international standards for drinking water. (Upreti, 1999)

Earth surface consists of 70% water. Water is available almost everywhere if proper methods are used to get it. As a country economy becomes stronger a larger percentage of its people tend to have access to drinking water and sanitation. Access to drinking water is measured by the number of people who have a reasonable means of getting an adequate amount of water that is safe for drinking, washing, and essential household activities reflects the health of a country's people and the country's capacity to collect, clean, and distribute water to consumers. According to the United Nations' World Health Organization (WHO) more than one billion people in low and middle-income countries lack access to safe water for drinking, personal hygiene and domestic use. These numbers represent more than 20 percent of the world's people. In addition, close to 3 billion people did not have access to adequate sanitation facilities. (Upreti, 1999).

The main reason for poor access to safe water is the inability to finance and to adequately maintain the necessary infrastructure. Overpopulation and scarcity of water resources are contributing factors. The lack of water and the lack of hygiene is one the biggest problems that many poor countries have encountered in progressing their way of life. The problem has reached such endemic proportions that 2.2 million deaths per annum occur from unsanitary water – ninety percent of these are children under the age of five. One program developed to help people gain access to safe drinking water is the Water Aid program. Working in 17 countries to help provide water, Water Aid is useful in helping the sanitation and hygiene education to some of the world's poorest people. (Upreti, 1999).

2.1.4 Drinking water and Sanitation in Nepal: -

Safe drinking water is one of the necessity of our life. It is also one of the indicators of Human Development. Lack of safe drinking water also leads to poverty. So, availability of safe drinking water to the people is as important as food, shelter and clothes to live a healthy life.

Drinking water is the most important basic need of the human being. It remains on the top priority in the agenda of rural development. The modern organizational/

governmental efforts to develop drinking water supply sector has not had long history as a systematic approach. The Ministry of Water Resources was originally held responsible for all the drinking water supply under its Department of Irrigation and Water Supply, which was established in 1966, and the department was performing its roles till 1971. And in 1972, under the umbrella of the Ministry of Water Resources, the responsibilities for irrigation and drinking water and were separated and the Department for Water Supply and Sewerage (DWSS) was created. (Upreti, 1999)

In the decade of 1970s, in the international area, two women, one British economist-Barbara Ward, and the other American anthropologist Margaret Mead individually initiated the activity for drinking water supply at the United Nations (UN) Conference on Human Settlement (HABITAT) in Vancouver, 1976. They emphasized for favorable policy formulation and approvals on water supply and sanitation. The following year, at the World Water Conference – Argentina was carried forward with the specific recommendation so that the UN created a ten-year program to focus on water and sanitation. The General Assembly of UN subsequently passed the resolution creating the International Drinking Water Supply and Sanitation Decade: 1980-1990. To express the commitment on the International Drinking Water and Sanitation Decade, Nepal Government stated its priority concern to have accessible piped drinking water supply by the end of sixth five-year plan. According to UNDP (2001), 80 percent of Nepalese people have access to improved water supply and sanitation coverage is only 27 percent. (Upreti, 1999).

In the ancient time, drinking water in the village or rural areas was planned by the rural people themselves. They themselves used to identify the sources and use the water. The distributions of water were made on the basis of mutual understanding. They used to maintain the source collectively and use it.

When the modern or organized planned development, activity started, the top down or centralized approach took over the traditional form of people's participation. But, such modern or centralized approach failed due to different reasons. The notion of people's participation in drinking water supply was initiated in 1980s and it was realized that the importance of people participation is must in successful distribution of safe drinking water. Rural Water Supply and Sanitation Support Program (RWSSSP) emphasizes the active participation of stakeholders at all levels to increase

their feeling of ownership. Users are considered as owners and manage of their scheme from the very beginning. They are trained on the job to organize and implement their scheme and to improve sanitation in the community. The users and user's committees are trained and supported in their activities by local NGOs, private firms and government line agencies. (Upreti, 1999)

2.1.5 Strategic Planning for Water Supply and Sanitation

With the financial assistance of Asian Development Bank, Co- water International, Canada and Metoon Consultants and P.P. Pradhan's Co. Nepal prepared a draft final report on the 'Strategic Planning Water Supply and Sanitation (SPWSS). It recommended three strategic thrusts for DWSS programming which include:

1. Achieving sustainability through community management (It requires firm commitment to decentralization and community- based programming. This means ensuring meaningful interaction with the community by extension workers who are skilled in participatory communications and committed to the community- based approach. It means not using contractors except in the most extreme circumstances and it means strong management support at both district and central levels).
2. Leadership and facilitation (The seven-year strategic plan has demonstrated that to achieve converge, all institutional resources must be mobilized and work together as partners in development. It asked DWSS to reorient itself in its leadership of the sector. Its objective should be to purposefully encourage other agencies' participation in sector development. DWSS has to support and facilitate DDCs/ VDCs/NGOs by providing technical advice, training and co-ordination) and
3. Decentralization (decentralization is embodied in legislation which requires local bodies (DDCs) plan their own water supply development in their districts. This includes project prioritization and selection which needs accurate district level baseline data and plans. DWSS should support the DDCs in fulfilling their mandate). (Upreti, 1999)

Drinking water and sanitation component has been mentioned in an integrated way in the document of Ninth Plan. The document of the Ninth Plan has also presented the long- term perspective on drinking water and sanitation (for 20 years). The Ninth Plan

has the main five objectives which have relationship to the social issues (to be considered for the development of water supply and sanitation):

1. To make the drinking water service available to all the Nepali people by the end of the Ninth Plan through the gradual development of drinking water facility and its standard;
2. To make the sanitation facility available to additional 30 percent population by creating awareness and developing appropriate sanitation facility in the urban and rural sectors;
3. To mobilize the user's committees, NGOs, and local government units in the planning process according to decentralization by strengthening the decentralized planning system;
4. To contribute maintain the healthy life by the eradicating the existing water-borne disease of the country by gradually developing the standard of the drinking water in rural and urban sector; and
5. To develop and expand the drinking water facility by involving the private sector and entrusting special responsibility to municipal corporations for the systematic management of drinking water facility in the urban sector. (Upreti, 1999)

2.1.6 National Policy for Drinking Water and Sanitation

1. Drinking water and sanitation sector will be developed in the leadership of the communities by raising the level of public awareness on environmental sanitation and health and hygiene education.
2. Emphasis will be laid on the development and expansion of the technology that can be afforded by the local users/consumers. For the sustainable development of water supply and sanitation, local units, NGOs and private sector will be optimally mobilized as partners by encouraging the participation of private sector. Priority will be given to implement the water supply projects on the basis of participatory among the backward areas, classes, caste/ethnic groups and communities.
3. The charge on the drinking water facility in urban area will be determined on the basis of the proportion of its construction cost and expenditure on operation and maintenance (cost to be indirectly borne by the consumers for sustainability).

4. Priority of natural water use will be given for drinking water purpose (allocation basis). Reform will be made in the existing laws and administrative management to prevent the projects from being implemented due to the dispute in water use and water source and save the water from being contaminated.
5. Water supply projects in the rural area will be designed and implemented with the condition of the sharing of at least 10 percent cost (either participation through labor or cash contribution). Operation and maintenance fund will be established prior to the inception of construction by involving the representatives of the users' side from the planning stage for the operation and maintenance of the projects after their completion.
6. Special attention will be paid to mitigate adverse effects created by the development of water supply and sanitation in the area. Environmental impact assessment will be carried out for this purpose. (Upreti, 1999)

2.1.7 National Water Supply Sector Policy

The Department of Water Supply and Sewerage (DWSS) under the Ministry of Housing and Physical Planning prepared the 'National Water Supply Sector Policy (NWSSP) in 1995. The NWSSP has addressed several aspects of social issues for the sustainable development of water supply and sanitation. Its principal objectives are:

1. To make clean, accessible and sufficient drinking water to all the Nepali people in general and targeted disadvantaged communities in particular;
2. To reduce substantially the existing water- borne diseases and their patients; and
3. To help women and children be engaged in productive work by saving their time and labor being invested for fetching water and maintaining household sanitation.

To achieve these objectives, several policies have been set. It has the provision to provide drinking water to 100 percent population of the country from 95 percent population benefiting from the existing minimum service level (distribution of equitable benefits). Similarly, a system that encourages the local communities to identify, select plan, implement and manage water supply systems in their own leadership would be established. The capacity of local user communities would also be enhanced for the successful implementation and management. By enhancing the capacities of the local institution, the direct involvement of government in the

implementation of water supply and sanitation projects would gradually be reduced. Technically emphasis would be laid on the technology that can be afforded by the user communities and sustainably managed by them. Management would also be made for the optimum utilization of indigenous knowledge, skills and resources. Institutionally, partnership between and among Non-governmental organization (NGOs), CBOs and private sector working in water supply and sanitation would be developed and promoted. Legally, a system would be established to resolve the conflict regarding water utilization systematically. Economically, indigenous resource, skills and labor would be optimally utilized through social mobilization. (Upreti, 1999)

Emphasis would be laid on private sector participation in the construction and maintenance of large scale and capital-intensive projects. For operation and maintenance, the capacity of the users' communities would be enhanced. Municipalities would be made more responsible for the operation and maintenance of water supply system by delegating them more powers. The strategies of NWSSP also emphasizes on the equitable distribution of drinking water by mobilizing the popular participation. The water supply and sanitation projects would be developed in accordance with decentralized planning process and the basis of development would be demand-led or demand-driven. They also have the provision to follow every step to minimize adverse effects on environment by carrying out initial environment examination and environmental impact assessment. Institutionally, the central units of DWSS would be made responsible for policy formulation, technical support, monitoring and evaluation and local units would be handed over the responsibility of implementation. The strategies of water supply also focus on the "common resources". Women's participation would be enhanced in the management of water sector project. (Upreti, 1999)

2.1.8 Sanitation Policy

In July, 1994, "National Sanitation Policy and Guideline for Planning and Implementation Programme" was prepared. The policy recognizes that "access to water" and sanitation is not simply a technical issue. It is crucial component of social and economic development. Sustainable and socially acceptable services can be extended by using appropriate technologies adopting community management and enhancing human resource. It defines sanitation as "all activities which improve and

sustain hygiene to raise the quality of life and the health of an individual”. The policy directive itself has addressed the social issues because it states that mobilization of community is one of the ways to achieve the success in improving sanitation. It also directs efforts to ensure community involvement women’s involvement in water management, hygiene education and other sanitation promotion activities as well as encourage the participation of non-governmental organization and volunteers as partners in development. The strategies of the policy with social implication are “community participation,” “distribution of benefits”, “women involvement”, “co-ordination/ integration”, and “institutional arrangement”. (Upreti,1999).

The Interim Constitution of Nepal-2007 states “Clean Environment, Water and Sanitation” and “Basic Health Care” as basic rights for its citizens.

The National Sanitation and Hygiene Master Plan (SHMP) was endorsed by the cabinet (including seven ministries and the National Planning Commission (NPC), and launched formally by the President. The Government has allotted a separate budget line for sanitation from 2010/11 and gradually building capacity of WASHCC and allocation of funds from different windows (education, local bodies and as well. Peoples own contribution and local body leadership is the main success factor for such great results on sanitation movement. The total sanitation budget in the sector is approximately 13%. This is one pf the major milestone document that massively increasing sanitation progress throughout the country.

2.2 Empirical Review

Safe drinking water is one of the basic needs of our life. It is also one of the indicators of Human Development. Lack of safe drinking water also leads to poverty and diseases. So, availability of safe drinking water for the people is as important as food, shelter and cloths to live a healthy life. Various institutions, research school, sociologists, economists, geographers have undertaken several research workers, conversing the impact of drinking water project in Nepal.

Governmental and non-governmental agencies involved in water resources. The necessity of drinking water in water scarce areas of Nepal have been recently recognized and several agencies are engaged in this endeavor with the support of

different promoters. Previously, sanitation was not given much importance in water supply schemes, however, at present, both these aspects are considered together during schemes planning, design and implementation.

So many case studies have been grouped to study about the impacts of drinking water project. A case study of R. Bohara (1997) on Daugha VDC, Gulmi, based on drinking water and sanitation, has pointed out several beneficiaries of drinking water project. A case study of Achut Luitel (1998) on Bajung VDC of Parbat district shows the multidisciplinary dimension of water resource development i.e. economic and social development. Neupane (2009) has also studied the impact of drinking water project. His study was based on rural women of Syanja. He concludes that the project has brought great changes in the livelihood of rural women as well as all the people of that study area.

Many rural mountain households in the HKH (Hindu Kush Himalayas) do not have access to adequate supplies of safe water yet. The use of polythene pipes and cement-lined storage systems, however, is increasing and these new materials and systems have alleviated the problems of water scarcity. (Banskota and Chalise, 2000)

UNDP- World Bank, (1996) presents ideas, methods and experiences concerning gender issues in policy level on water and sanitation sector. The sources book includes various case studies of Nepal, Pakistan, Brazil, and India. It gives emphasis on participation also. Sustainable development of water resource requires the full co-operation of water users. So, generally to say, participation plays vital role in any kinds of development programmes or resource management. Equitable distribution of drinking water can be successful by mobilizing the popular participation. As the value of participation involves equity, equality, social justice and liberty, it provides the community requisite social capital in decision- making governance, and evaluation as well as access to the resource located in the state and market. (Bongartz and Dahal, 1996).

ACAP also make the policy of Water Resource. The policy objectives are to provide clean drinking water to the community as well as to improve sanitation in the area. In providing access to drinking water, ACAP focuses on gravity water sources and

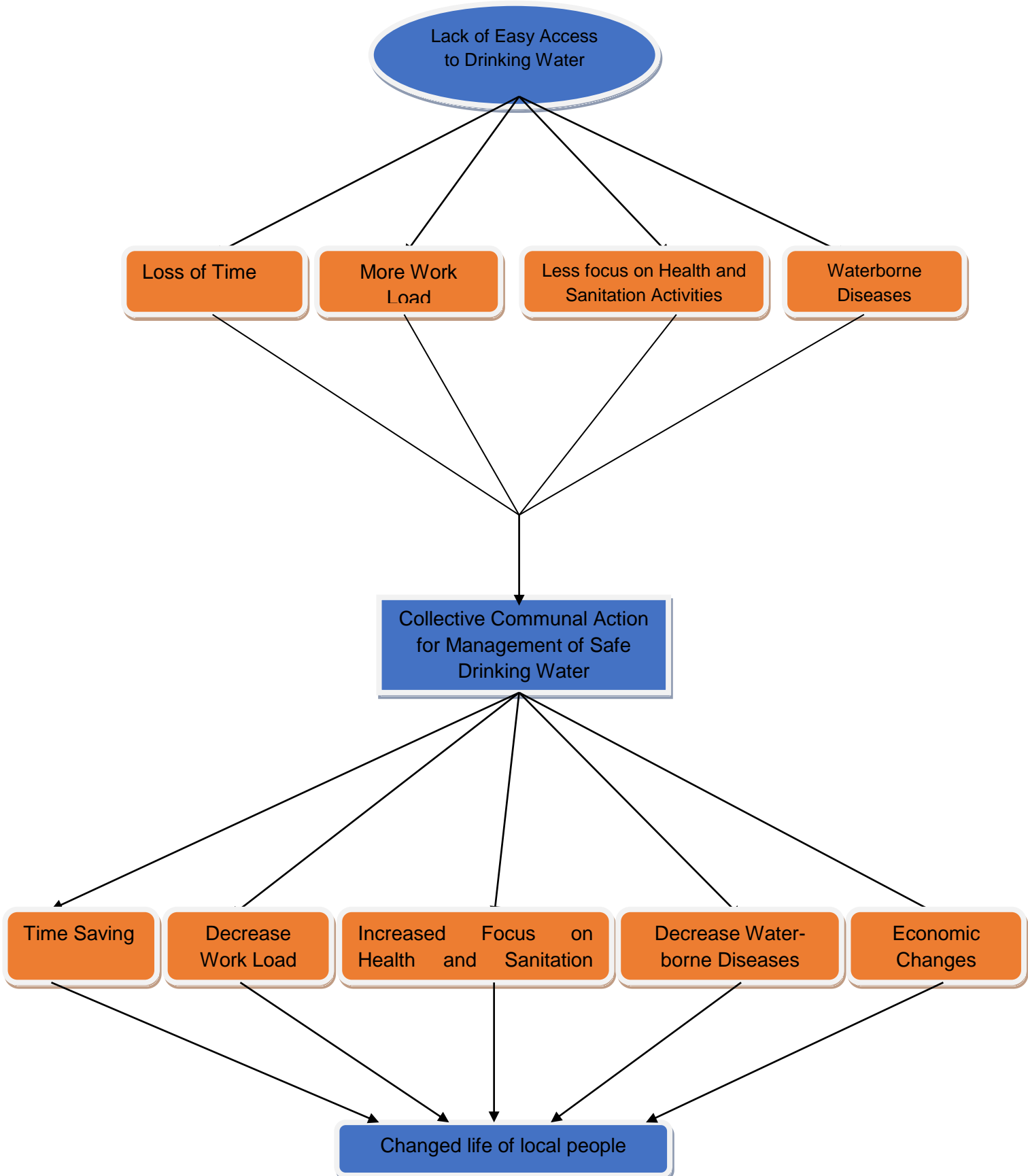
policy is to build on, strengthen and/or revive traditional systems. This policy is oriented towards the development of drinking water schemes along with health and sanitation programmes. (Thapa and Karki, 2003).

Water, particularly safe drinking water, is a scarce good in many parts of the country. Most settlements and households do not have access to piped water. In such instances, fetching water from a distant source daily consumes considerable time and energy particularly of girls and women, who generally perform this task. This is particularly true of the hill and mountain region (Nepal Human Development Report, 1998). The Department of water supply and sewerage's data base shows that 94 percent of households use an improved drinking water source (DWSS 2016), exceeding the 2015 target of 73 percent. Access to a sanitation facility is also much higher in urban areas than in rural areas. (Nepal Millennium Development Goals, Progress Report, 2010) According to the WHO/ UNICEF Joint Monitoring Programme for water supply and sanitation (JMP), 37% of the developing world's population 2.5 billion people lack improved sanitation facilities and over 780 million people still use unsafe drinking water sources. (www.unicef.org/wash)

2.3 Conceptual Framework of the Study

Scarcity of safe drinking water directly affects to the everyday activities of the people. It may cause more workload on family members, their personal health, sanitation, life expectancy, limits productive economic activities etc. And that is why people started mutually for the easy access of safe drinking water. They formed user group and started to work mutually for the management of drinking water supply. Because of the successful initiation of user group for drinking water supply, community experience more time to involve in productive works, health and sanitation facilities increased, waterborne diseases decrease, and society and community may experience economic changes.

FIGURE 2.3
Conceptual Framework of the Study



The above conceptual framework makes it clear that lack of easier access to drinking water had been a curse for people in Pokhara Lekhnath Metropolitan. They faced problems as they had to allocate more time for collecting water and they had little attention on other activities. But, their collective awareness and participation ensured the construction of drinking water project. Their continuous engagement in construction and management of drinking water project has saved their time, decreased work load, also improved in health and sanitation activities. Now, we can see great changes in the life of local people.

CHAPTER - III

RESEARCH METHODOLOGY

3.1 Research Design

The nature of the study demands both exploratory as well as descriptive research design. It aims to examine the impacts of the project after its implementation in Pokhara Lekhnath Metropolitan. It also studies about people's attitudes, view about the project. It aims to examine the problems and changing condition in drinking water facilities. Generally, the exploratory research design was used to show the various aspects of the problems of the study area before the project (STWSS) implementation, while the descriptive research design was used to describe the effects of the project (STWSS) on Lekhnath people.

3.2 Selection of Study Area

This project (STWSS) covers all the wards of Pokhara Lekhnath Metropolitan flat land (below Reservoir Tank of Lapsi Dada) except ward no 10, but the study was conducted on Pokhara Lekhnath Metropolitan, ward no 3 of kaski district. This study aims to examine the changing pattern of Lekhnath's people in drinking water, health and sanitation. In this place, people had to bear painful condition for water. They have to adjust with unpurified water. The inhabitants were less conscious about pure water, health and sanitation knowledge. But, when the project was implemented, then it brought great changes in their health and sanitation and drinking water facilities as well as in socio-economic life. Because of these reason, this area was selected.

3.3 Universe and Sampling

The total of 688t water user households constituted the study universe of the selected area. Out of the total households, 61 households were selected by simple random sampling.

3.4 Nature and Sources of Data

Both qualitative and quantitative data information are used in this study. Data are collected from primary and secondary sources but data involved in this study are primarily collected from primary sources.

3.5 Data Collection Techniques Used

3.5.1 Questionnaire Schedule

A questionnaire schedule was designed for the collection of information from primary sources. Both open and close ended question were included in the questionnaire schedule. The questionnaire schedule was pre-tested and errors in questionnaire were corrected. This interview was conducted with water users group and with water users as well.

3.5.2 Observation Technique

During this research, observation techniques were adopted to collect data and information. In this research, various kinds of changes were observed. Like this, user's group activeness on water related cases were also observed.

3.5.3 Key Informants Interview

For the purpose of this study Water User Committee members, project chairperson and other water users were considered as key persons for the reliability of the collected data. Key informants were interviewed using questionnaire to collect primary information. To supplement data from the key informant, survey information was also collected by group discussions.

3.5.4 Focus Group Discussion

Focus group discussion was carried out to explore the problems and changing pattern of drinking water and sanitation facilities. It was conducted with water users group- both male and female members. For this selected member were informed in advance. To guide discussion a checklist was used.

3.5.5 In-depth Interview

The in-depth interview was carried out with youth, older people, women, local leaders. During this process, the information about the problems and changing pattern of drinking water and sanitation facilities were drawn in such a way that it raises reliability and validity of information and findings.

3.6 Secondary Data Collection

Secondary data was also collected and consulted from reports of the various local institutional, INGOs, NGOs, District drinking water office, journal, articles, government policy document and other published materials.

3.7 Data Analysis and Presentation

The data was logically interpreted along with simple tables, charts, graphs. Mainly, Statistical Package for Social Science (SPSS) was used to analyze the information. Collected information were analyzed by using simple statistical tools like percentage, mean, standard deviation and it was presented with tables and pie-charts.

CHAPTER - IV

ANALYSIS AND INTERPRETATION OF FIELD SURVEY AND DATA

4.1 Physical Setting of the Study Area

Pokhara Lekhnath Metropolitan is one of the most densely populated areas in the mid-hills of Nepal. The household survey carried out in 2011 by SWOG within its proposed project area in Pokhara Lekhnath Metropolitan showed a population of 38,012 with 7, 017 households resulting in an average family size of 5.4 persons per household in the project area of the surveyed wards of Pokhara Lekhnath Metropolitan.

4.2 Cultural settings

Pokhara Lekhnath Metropolitan has mixed types of castes from caste/ethnicity point of view. People of Brahmin, Chhetri, Gurung, Magar, Newar, B.K., etc community are living in the different wards. Brahmin is the major populated caste of this study area (Ward No. 3) because 37.7 percent of population is them. Similarly, Chhetri 23 percent, Gurung 6.6, Magar 6.6, Newar 4.9, B.k. 11.5 and others 9.8 percent population are living in the study area ward.

This area is a Hindu dominant area. About 86.9 percent people are Hindu. Similarly, 6.6 percent people are Buddhism and 3.3 are Hinduism-Buddhism.1.6 is Islam while 1.6 percent is from other religion. People of this area celebrate all types of Hindu religion festivals. In every “Ekadasi Parva” and major Sanskranti they go to visit temple. They celebrate small festivals more happily. The holy places of this area are local temples which were constructed by local people of different areas (wards). They also celebrate Dashain festival. In this festival, people receive Tika and Prasad from their elder relatives. They also go to visit temple and to receive Tika and Prasad from the temple by Pandit. Durga Mandir is famous in this area. So, this temple is the center point of doing all types of religious activities.

4.3 Socio-Demographic Profile of the Respondents

In the study area (Ward no.3) of Pokhara Lekhnath Metropolitan, male population is 55.7percent and female population is 44.3 percent. The socio-demographic profile of respondents is given below in detail.

4.3.1 Caste and Ethnicity of the Respondents

The selected study ward of Pokhara Lekhnath Metropolitan consists of 688 households. This population is a mixture of Brahmin, Chhetri, Gurung, Magar, Newar, B.k. etc. The caste and ethnicity distribution of the respondents is shown in the table 4.1

Table 4.1: Caste and Ethnicity of the Respondents

<i>S.N.</i>	Caste/Ethnicity	No. of Households	Percent
1.	Brahmin	23	37.7
2.	Chhetri	14	23.0
3.	Gurung, Magar and Newar	11	18.1
4.	Bishwokarma	7	11.5
5.	Others	6	9.8
	Total	61	100.0

Source: Field Survey, 2018

As the table 4.1 shows, 33.7 percent of the respondents were Brahmins. Likewise, 23 percent Chhetri, 6.6 percent, Magar, Gurung and Newar 18.1 percent (Gurung, 6.6 percent, Magar, 4.9 percent Newar, 11.5 percent) Bishwakarma and others 9.8 percent. From this, Brahmins are dominant in the study area. Sometimes, this dominancy is found to be characterizing some severe cases of caste-opposition and caste based discrimination. Pokhara Lekhnath Metropolitan already had an evidenced in such cases in the past.

4.3.2 Religion of the Respondents

The project's study ward (area) is mainly inhabited by Hindu people. The following table 4.2 shows the religious composition of the respondents.

Table 4.2: Religion of the Respondents

<i>S.N.</i>	Religion	No. of Households	Percent
1.	Hindu	53	86.9

2.	Buddhism	4	6.6
3.	Hinduism-Buddhism	2	3.3
4.	Islam	1	1.6
5.	Others	1	1.6
	Total	61	100.0

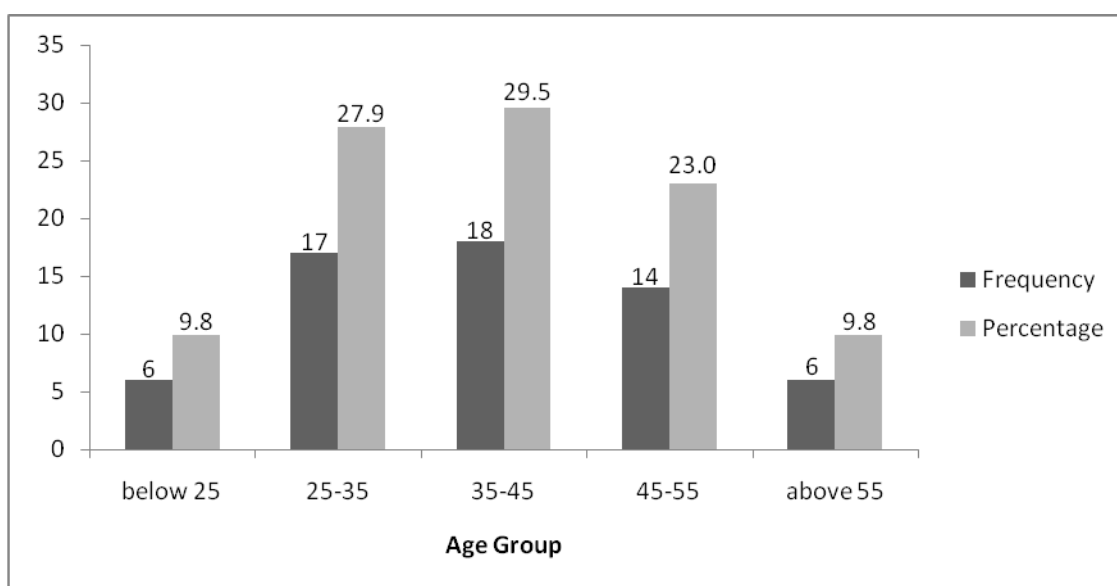
Source: Field Survey, 2018

The data in the table 4.2 reveal that 86.9 percent of the respondents of this study area were Hindu. Similarly, 6.6 percent people were Buddhism, 3.3 percent people were Hinduism-Buddhism. 1.6 percent people were Islam 1.6 percent people were in others. This shows the prevalence of Hindus as dominant religious community in the study area. In fact, this more or less characterizes the religious composition of the whole Pokhara Lekhnath Metropolitan.

4.3.3 Age of the Household Members of the Respondents

The respondents of this research were both male and female below the age of 55 and above 25 in which 55.7 percent of the respondents were male member and 44.3 percent of them were female member. This research is analyzing the impacts of Drinking Water and Sanitation Project on local people's life. The figure 4.1 projects the age of the household members.

Figure 4.1: Age Group of the Respondents



Source: Field Survey, 2018

As shown in the figure 4.1, out of the total respondent's 29.5 percent were belonged to the age group 35-35. Similarly, 27.9 percent of them belonged to the age group 25-35. 23 percent were belonged to the age group 45-55. The respondents below 25 were 9.8 percent and the respondents above 55 were also 9.8 percent.

4.3.4 Education of the Respondents

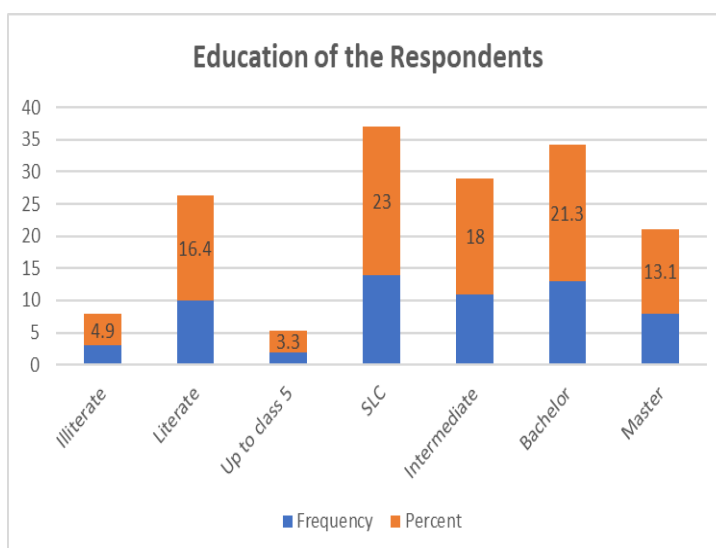
The literacy rate of the study area is good. This area is academically well because of the availability of many private and government school. Such government school which is Laxmi Higher Secondary School which was established in 2015 B.S. Laxmi Aadarsha Secondary School established in 2025 B.S. is also playing remarkable role to make the people educated in local area.

Table 4.3: Educational Status of the Respondents

Education	Frequency	Percent
Illiterate	3	4.9
Literate	10	16.4
Up to class 5	2	3.3
SLC	14	23.0
Intermediate	11	18.0
Bachelor	13	21.3
Master	8	13.1
Total	61	100.0

Source: Field Survey, 2018

As we see in the above table 4.3, 4.9 percent of them were illiterate, 16.4 percent were literate and 3.3 percent were up to class 5. Likewise, 23 percent of them were having educational qualification of S.L.C. passed. 18 percent were Inter-mediate passed.

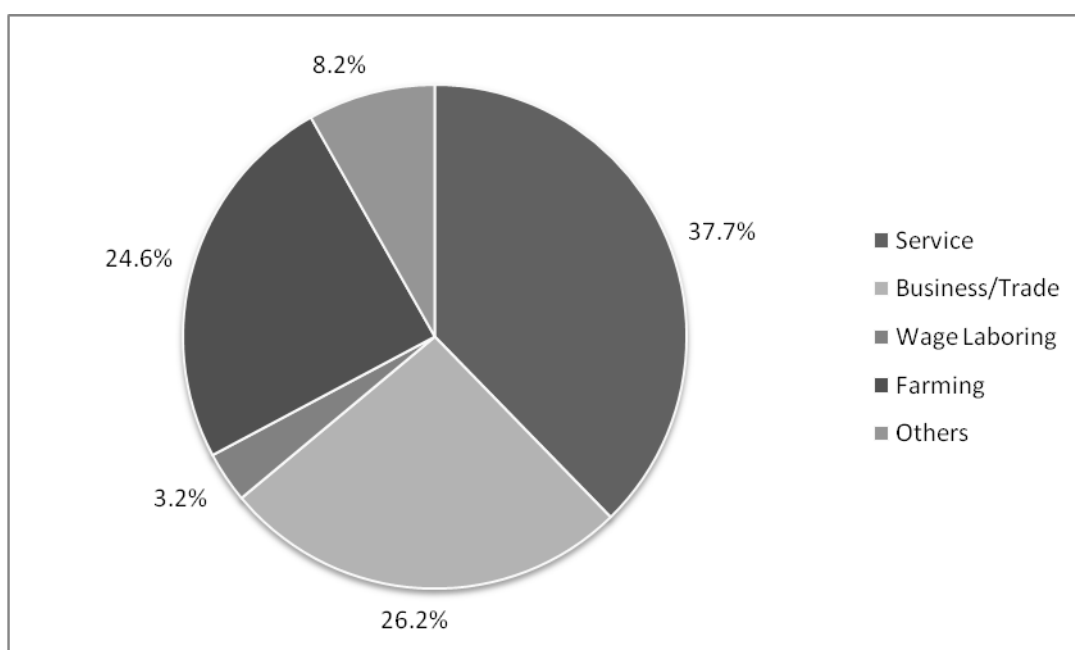


Similarly, 21.3 percent of them were Bachelor passed and 13.1 percent were master passed.

4.3.5 Occupation of the Respondents

Regarding the occupation and income source, the respondents of this study have given diversified type of opinions which have been shown in the figure 4.2

Figure 4.2: Occupations of the respondents



Source: Field Survey, 2018

As shown in the above figure 4.2, about 37.7 percent people were involved in service. Likewise, 26.2 percent people were involved in Business/Trade, 24.6 were in farming sector, 3.3 were in wage laboring and 8.2 percent people were found in other sector.

4.3.6 Source of Water before LDWSS

It has already been explained about the water source of Pokhara Lekhnath Metropolitan, Ward No. 3, where this project (LDWSS) establishes in 2005. The researcher wished to understand the source from which local people used to get water before LDWSS. The result of this activity has been illustrated in Table 4.4.

Table 4.4: Source of Water of the Respondents before LDWSS

Source of Water	Frequency	Percent
Public tap	59	96.7
River	1	1.6
Private tap	1	1.6
Total	61	100.0

Source: Field Survey, 2018

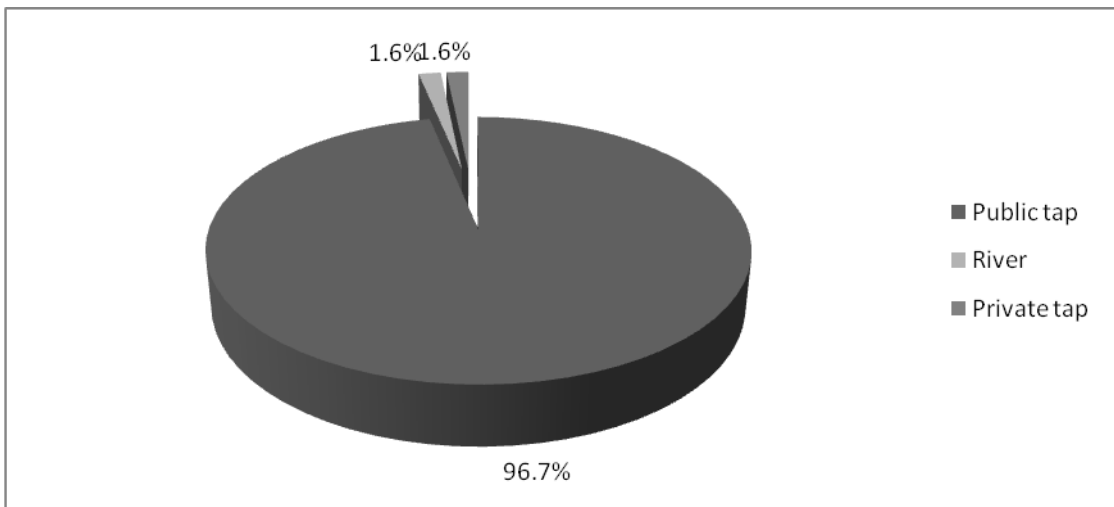
According to the table 4.4, for 96.7 percent of the respondents, public tap was the dominant source of water. Besides, this they used to collect water from river and private tap. To sum up, the main water sources of this area before the LDWSS were public tap, river and private tap. People of this area were facing hard problem to fulfill their daily water needs.

The painful moments for the busy housewives rushing for fetching water from the tap provided by Red Cross Society ten years ago, the unpurified water connected through pipes from the tanks which were not cleaned for long times, and people had to face water borne diseases. Such were the major problems the people in Lekhnath were facing.

4.4 Source of Collecting Water before the LDWSS's Implementation (Construction)

As mentioned before, collecting water for the household use was quite difficult before the construction of the project in Pokhara Lekhnath Metropolitan. They had to spend a lot of time for fetching water from the tap. So, significant time was spent on it. Because of this they had to face so terrible moments. The following figure 5.1 shows the source of collecting water before the project construction.

Figure .1: Source of Collecting Water before LDWSS's implementation



Source: Field Survey, 2018

As we see on the above figure 5.1, a large portion of the respondents i.e. 96.7 percent had to use public tap for collecting water for drinking and other household uses. Besides this, other main source for the collection of drinking water was river i.e. 1.6 percent and private tap was also 1.6 percent of the respondents.

4.4.1 Time Spent for Collecting Water before the Project Construction (Implementation)

Since, people had to visit public tap for collecting water before the project implementation, naturally it required these people to allocate a longer time for fetching water. This was because they had to wait their turn to fetch water from the public tap. The given table shows more information on it.

Table .4.5

Times Spent for Collecting Water before the Project Implementation

Category	Frequency	Percent
Less than 10 minutes	43	70.5
More than 10 minutes	18	29.5
Total	61	100.0

Source: Field Survey, 2018

As the table 5.1 shows that 70.5 percent of the respondents had to spent 10 minutes or less for fetching water while 29.5 percent of the respondent had to spent more than 10 minutes for fetching water. This shows the problem of the people of Lekhnath before

the project construction in which they had to spend their important time to collect water. We can see these types of problems in many rural areas of our country.

4.5 ROLE OF LDWSS IN CHANGING PEOPLE'S DAILY LIFE

People of Lekhnath had to face so terrible moments in the past. But, once the LDWSS was build, some significant changes have occurred in their daily life. The major changes brought by the project in people’s daily life have been described as follows.

4.5.1 Easy Access to Water Sources

After LDWSS’s construction, people are quite happy due to easy supply of water. This has eased their daily water need works. The availability of water has saved their time allocated for managing water. The given table shows the time of these people to fetch water after the project’s construction.

Table .4.6: Times Spent for Collecting Water after the Project Construction

Category	Frequency	Percent
Less than 10 minutes	51	83.6
More than 10 minutes	10	16.4
Total	61	100.0

Source: Field Survey, 2018

As table 6.1 explains that 83.6 percent of the respondents have to spend 10 minutes or less to fetch water for domestic purpose and 16.4 percent of them need more than 10 minutes to fetch water. From this, it is clear that LDWSS project plays a significant role in changing people’s daily life. Now people are using their saved time in productive and creative activities.

4.5.2 Time Saving

Most of the people in Pokhara Lekhnath Metropolitan had to allocate a long time for fetching water from the public tap. They had to wait their turn to fetch water. But, now there has been relatively easier for people collecting water as they have now invest/allocate less time for collecting water after the project construction. The following data shows the people’s attitude towards time saving resulted due to LDWSS’s project construction.

Table .4.7: Times Saved due to Water System

Category	Frequency	Percent
Yes	60	98.4
No	1	1.6
Total	61	100.0

Source: Field Survey, 2018

From the above data, it is clear that 98.4 percent of the respondents felt that the project construction has saved a large part of the time invested in fetching water. They are now happy as they gradually started to spend their saved time in other productive works.

4.5.3 Significant Changes in Income Generation

One of the most significant contributions of this drinking water supply project on people's lives has been the duration of time saved that they had to allocate for fetching water. As a result, now they have been able to involve themselves in various creative activities like income generation. Because of the project's construction there are significant changes in income generation. Most of the people started to use saved time in agriculture works. From this, they are not only fulfilling their daily need of vegetable, but also they are making some economic gains by selling vegetables. The following table shows the data produced from this investigation.

Table .4.8

Significant Changes in Income Generation after the Project Construction

Category	Frequency	Percent
Yes, very much	22	36.1
Significant	22	36.1
Little	12	19.7
Indifferent	5	8.2
Total	61	100.0

Source: Field Survey, 2018

From the above table, it is clear that 36.1 percent of the respondents have been able to generate some income very nicely and other 36.1 percent were significant to generate

income. Likewise, 19.7 percent of the respondents have been able to generate income in little way and 8.2 percent of the respondents were indifferent to generate income.

4.5.4 Tendency of Spreading Water-borne Diseases after the Project

Construction

Safe drinking water is one of the basic necessities of our life. Lack of safe drinking water causes early death in human beings. Because of this, DWSS was established in Pokhara Lekhnath Metropolitan. In the past decades, people collect water from the public tap that is connected through pipes from the tanks which were not cleaned for long times and people had to face water-borne diseases. But, after the LDWSS Project's construction, some significant changes have been occurred in the tendency of spreading water-borne diseases. The given table 6.4 shows more on this.

Table .4 .9: Tendency of Spreading Water-Borne Diseases after the Project Construction

Category	Frequency	Percent
Decreasing rapidly	14	23.0
Decreasing	47	77.0
Total	61	100

Source: Field Survey, 2018

From the above table, it is clear that 77 percent of the respondents express their view that the tendency of spreading water borne disease after the project's construction is decreasing and 23 percent of them says that it is decreasing rapidly. Their opinion about the tendency of spreading water-borne diseases clearly shows changes in Pokhara Lekhnath Metropolitan.

4.5.5 Changes in Household Sanitation after the LDWSS Project's Construction

Lack of easier access to drinking water had been a curse for people in Pokhara Lekhnath Metropolitan. They forced problem as they had to allocate more time of collecting water. But, the construction of drinking water project has saved their time, decreased work load and also improved in health and sanitation activities. This project ensures community to involve in water management, hygiene education and other sanitation activities. In other words, it brought significant change in household

sanitation. The following table 6.5 shows some views of the respondents related to this issue.

Table .4.10: Changes in Household Sanitation after the Project Construction

Category	Frequency	Percent
Clearer than before	22	36.1
Satisfactory	35	57.4
No differences at all	4	6.6
Total	61	100.0

Source: Field Survey, 2018

As the table 6.5 clearly reveals that 57.4 percent of the respondents shows their view that there is satisfactory changes in household sanitation after the project's implementation and 36.1 percent of the respondents says that there is clearness than before in household sanitation after the project implementation and 6.6 percent of them says there is no difference at all.

4.5.6 Impact Observed in Overall Health hygiene and Sanitation of Household and Community after the Project's (LDWSS) Implementation (construction)

Since the project has brought water supply to an easily accessible place, people are starting to make more benefits from this. Not only for household sanitation and daily use, they also used water for community sanitation. After the project's implementation, people get healthy life by the eradicating the existing water borne diseases. This project ensures community to involve in water management, hygiene education and other sanitation activities. In other words, it brought great changes in their daily life. The given table shows some data regarding this matter.

Table 4.11: Impact Observed in Overall Health, Hygiene and Sanitation of Household and Community after the Projects Construction

Category	Frequency	Percent
Too positive	22	36.1
Positive	39	63.9
Total	61	100.0

Source: Field Survey, 2018

As the table 6.6 clearly reveals that, 63.9 percent of the respondents were positive towards the establishment of the project in Lekhnath. In other words, they were positive towards the project’s benefits. Likewise, 36.1 percent of the respondents were too positive towards the project. In other words, these people were positive to the benefits of the project and success to take benefits from the project. In general, positive impacts can be observed in overall health, hygiene and sanitation of household and community after the project implementation.

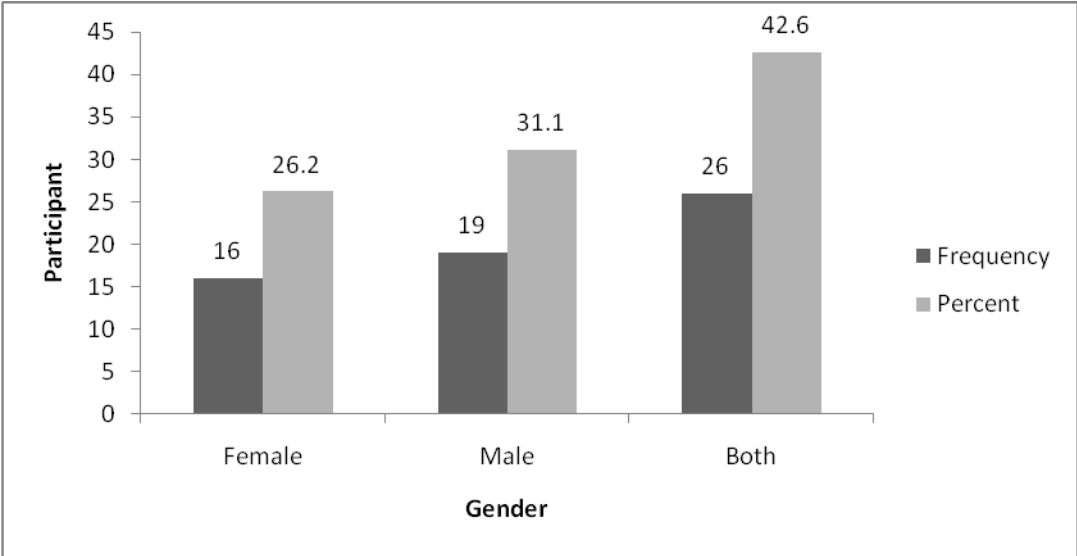
4.6 Contribution of water user's group in the project establishment

As encouraged by their concern about easier access to water, people were engaged in the management and maintenance works of the project, one way their self concern encouraged them to participate in drinking water project activities. The main ways in which people of Lekhnath participate in the DWSS’S activities as discuss below:

4.6.1 Comparison of Active Participant of Female and Male Member from the Household in Project

The active participation shown by the people was very much encouraging right from the need assessment of this project. Their active participation towards the project’s activities was one of the major factors behind the success of this project. The following figure speaks more about it.

Figure 4.4: Comparison of Active Participation of Female and Male Members from the Household in Project



Source: Field Survey, 2018

As shown in the figure 7.1, 26.2 percent of the female respondents said that they were encouraged by themselves to participate actively from the household in LDWSS activities. Likewise, 31.1 percent of the male respondents show their participation from the household in the project's activities and 42.6 percent of both male and female were more participated from the household towards the drinking water project's activities. These data clearly show that there is also equal participation of male and female in drinking water project's activities.

4.6.2 Role of Local People in LDWSS activities

The role of local people in LDWSS activities was good as they have played extremely important role for the process of operation and maintenance of the project. The given table shows important data about it.

Table 4.12: Role of Local People in LDWSS Activities

Category	Frequency	Percent
Very good participation	17	27.9
Normal participation	42	68.9
Carelessness	2	3.3
Total	61	100.0

Source: Field Survey, 2018

As the table 7.1 demonstrates that 27.9 percent of the respondents thought that there was a very good participation of people in LDWSS activities while, 68.9 percent of the respondents viewed it as a normal participation. This data clearly shows the level of people participation in LDWSS activities.

.6.3 Involvement in Decision Making of the Operation and Maintenance Activities

Operation and maintenance is one of the important activities of any drinking water program. People of Lekhnath have played important role in decision making of the project's operation and maintenance. The following table shows the participation in the operation and maintenance of this drinking water project.

Table 4.13: Involvement of Local People in Decision Making of the Operation and Maintenance Activities

Category	Frequency	Percent
Higher	17	27.9
Less	27	44.3
Adequate	15	24.6
Negligible	2	3.3
Total	61	100.0

Source: Field Survey, 2018

According to the table 7.2, 27.9 percent of the respondents said that they are continuously involved in the operation and maintenance activities of the project, while 44.3 percent of them expressed that they are less participated in this activities and 24.6 percent of them are adequate and 3.3 percent of them are negligible.

4.6.4 Involvement of People in Other Development Activities Due To the Availability of Water

According to the data, 88.5 percent of the respondents have been able to use the saved time in other development activities. The researchers also attempted to investigate the ways these people are now contributing to development activities in Lekhnath after this drinking water project's construction. The result of this attempt has been shown below.

Table 4.14: Involvement of People in Other Development Activities due to the Availability of Water

Category	Frequency	Percent
School Management	5	8.2
Health Programme	16	26.2
Sanitation Work	31	50.8
Others	2	3.3
Indifferent	7	11.5
Total	61	100.0

Source: Field Survey, 2018

The table shows that 50.8 percent of the respondents were involved in sanitation work. Similarly, 26.2 percent of the respondents were involved in health program and

8.2 percent of them were in school management activities. Likewise, 3.3 percent of the respondents were involved in other kinds of development activities.

4.6.5 Happiness in All Respects with the Project

According to this study, it is already clear that lack of easier access to drinking water had been a curse for people in Lekhnath. They faced heavy work load as they had to allocate more time for collecting water and they had little attention on social activities. But, their collective awareness and participation ensured the construction of drinking water project and this brought great changes in their lives. Now they felt themselves happier and satisfied in all respects with the project. The given table shows more on it.

Table 4.15: Happiness in all Respects with the Project

Category	Frequency	Percent
Happier	14	23.0
Satisfied	46	75.4
Indifferent	1	1.6
Total	61	100.0

Source: Field Survey, 2018

According to the table 7.4, 75.4 percent of the respondents said that they were satisfied with the project activities. Similarly, 23.0 percent of the respondents felt that they were happier with the project establishment.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

This study was carried out among the users of Lekhnath small town drinking water supply and sanitation system in Pokhara Lekhnath Metropolitan, ward no. 3, Kaski district. The general objective of the study is to explore the major impacts of the project (STWSS) among the people in the selected area, Pokhara Lekhnath Metropolitan, after its establishment. But, it had three-fold specific objectives stated as follows:

1. To trace out the past condition before the implementation of the project (STWSS) in Pokhara Lekhnath Metropolitan.
2. To examine the contribution of water user's group in this project's establishment.
3. To analyze the role of the project (STWSS) in changing the people's daily life.

Pokhara Lekhnath Metropolitan has mixed types of castes from caste/ethnicity point of view. People of Brahmin, Chhetri, Gurung, Magar, Newar, B.K. etc community are living in the different wards. Brahmin is the major populated caste. In other words, Pokhara Lekhnath Metropolitan is a Brahmin dominated society. To cater to the increasing demands of drinking water and sanitation facilities for faster growing towns and markets centers, Government of Nepal has invited a community supported water supply and sanitation project with financial assistances from the Asian Development Bank (ADB). This project is called Small Town water Supply and Sanitation Project. Its concepts start first in 2001 and it established in 2005. This project was financed by Nepal Government (50%) and User's Committee (50%). Before the projects establishment, the people of that area were facing greater problem, as the sources of water was very small. But, after the establishment, people get the facility of drinking water services easily. After its implementation, people get healthy life by eradicating the existing water borne disease. This project ensures community to involve in water management, hygiene education and other sanitation activities. It is also developing in the leadership of communities by raising the level of public awareness on environment sanitation and health and hygiene education. It gives more emphasis on the development and expansion of the technology that can be afforded by the local users.

For the implementation of this water supply projects, the most priority is given to the participation among the backward areas, classes, caste/ethnic group and communities. Women's participation is also enhanced in this project. For operation and maintenance of this project, the capacity of the user's community is enhance.

Before the project's implementation, people used to fetch water from public tap as well as river which were more time consuming work. They faced problem as they had to allocate more time for collecting water and they had little attention on other activities. But, now the continuous engagement in construction and management of drinking water project has saved their time, decrease work lead, also improved health and sanitation activities. We can see great changes in their economic activities. People now used their saved time in economic activities which brought great changes in their income generation. Most of the people started to use saved time in agriculture works. From this, they are not fulfilling their need of vegetable, but also they are making some economic gains by selling vegetable

For the sustainable development of the project local unit, NGOs and private sector were optimally mobilized as partners by encouraging the participation of the private sector. Both male and female member were equally involved in the project's development activities. They were equally involved in decision making of the project activities. Likewise, they were playing important role in project's operation and maintenance activities. Both male and female members were actively participated from the household in the project's management and maintenance works. Due to the availability of water people now involved in other development works. People now involved in school management activities. Health Programme Sanitation work as well as other kinds of development activities. They are now happy and satisfied in all respects with the project establishment.

5.2 Findings

This study has made some important findings. Among them, the major findings made by this study have been summed up as given below:

- Among all the respondents, 26.2 percent of the female respondents said that they were actively participated in the LDWSS activities. Likewise, 31.1 percent of the male respondents show their participation from the household in

the project activities and 42.6 percent of both male and female were more participated from the household in the LDWSS activities.

- 75.4 percent of the respondents said that they were satisfied with the projects establishment. Likewise, 23 percent of the respondents felt that they were happier with the project's implementation.
- Similarly, 27.9 percent of the respondents said that they are continuously involved in the operation of and maintenance activities of the project, while 44.3 percent of them expressed that they are less participated in this activities and 24.6 percent of them are adequate and are 3.3 percent of them are negligible.
- 27.9 percent of the respondents thought that there was a very good participation of people in LDWSS activities. While, 68.9 percent of the respondents viewed it as a normal participation.
- After the construction of the project, 88.5 percent of the respondents have been able to use the saved time in other development activities.
- Among them, 50.8 percent of the respondents were involved in sanitation work. Similarly, 26.2 percent of them were involved in health programme and 8.2 percent of them were in school management activities. Likewise, 3.3 percent of the respondents were involved in other kinds of development activities.
- Similarly, 63.9 percent of the respondents were positive towards the establishment of the project and 36.1 percent of them were too positive towards the project. In general, positive impacts can be observed in overall health, hygiene and sanitation of household and community after the project implementation.
- 57.4 percent of the respondent shows their view that there is satisfactory changes in household sanitation after the project's implementation and 36.1 percent of them says that there is clearness then before in household sanitation after the project implementation and 6.6 percent of them says no differences at all.
- Similarly, 36.1 percent of the respondents have been able to generate some income very nicely and other 36.1 percent were significant to generate income. Likewise, 19.7 percent of the respondents have been able to generate

income in little way and 8.2 percent of them were indifferent to generate income.

- 77 percent of the respondents express their view that the tendency of spreading water borne disease after the project construction is decreasing and 23 percent of them says it is decreasing rapidly.
- Similarly, 98.4 percent of the respondents felt that the project construction has saved a large part of the time invested in fetching water.
- 70.5 percent of the respondents had to spend 10 minutes or less for fetching water while 29.5 percent of them had to spend more than 10 minutes for fetching water before the construction of the drinking water project.
- Now, 83.6 percent of the respondents have to spend 10 minutes or less to fetch water after the project's construction.
- 96.7 percent of the respondents had to use public tap for collecting water for drinking and other household uses.

5.3 Conclusion

This study explores the changing pattern of Lekhnath people in drinking water, health and sanitation. With the access to water, there has been an increase in socio-economic life. People of this place have been successful in taking the benefits due to the availability of water. They were successes in saving time due to the supply of drinking water which helps them to involve in other development activities. For the poor people and poorest households, the saved time has helped them to generate income. In other words, these people used their saved time in economic activities which brought great changes in their income generation. Most of them started to use saved time in agriculture works. From this, they are not only fulfilling their need of vegetable, but also, they are making some economic gains by selling vegetables.

The main change from the water supply system is that it makes people to participate in communities' sanitation program. This project ensures community to involve in water management, hygiene education and other sanitation activities.

The second change is that the tendency of spreading water borne disease is decreasing. People get healthy life by eradicating the existing water borne disease. For the better improvement of the project, the most priority is given to the local people

participation. Women's participation is also enhanced in this project. So, the participation of people in LDWSS system operation and maintenance activities brought changes in their daily life. Now people get the opportunities to participate in community activities like school management, health program, sanitation work and other kinds of development activities.

It is impossible to do any development works without people's participation. People should realize that their participation is necessary for the betterment of any types of development activities. So, participatory approach is the most important approach for every development programs. No development program can be successful without this approach.

5.4 Recommendation / Suggestion

This study answers to the problems associated with the drinking water, health and sanitation facilities. It explores the changing pattern of the people during and after the intervention of the project. Therefore, I would like to recommend the following suggestion.

- There should be availability of skilled manpower and sufficient tools for the maintenance and operation of the project.
- Public participation is necessary for maintenance and operation of the project.
- It is necessary to supply regular water.
- Institutional linkage with various agencies like government, bilateral organizations, UN Agencies, different NGO/INGOs, and private organization is very important for the development of the project.
- New technology should be applied in the project's better development.
- People must be encouraged for active participation in the project's better improvement.
- Various awareness programmes have to be launched for the betterment of the project.
- People must develop unity among themselves while doing project's related work.

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APPENDIX A

Interview Schedule

Household Survey:-

House No:-

Name of the Respondent:-

Date:-

Family Information

S.N.	Age	Gender	Marital Status	Education	Occupation

General Information

S.N.	Question	Answer
1.	Age	
2.	Gender	a. Male b. Female
3.	Education	a. Illiterate b. Literate c. Up to class 5 d.SLC e. Intermediate f. Bachelor g. Master
4.	Religion	a. Hindu b. Buddhism c. Hinduism- Buddhism d. Islam e. Others (Specify)
5.	Caste/Ethnicity	a. Brahmin b. Chhetri c. Gurung d. Magar e. Tamang f. Thakuri g. Newar h. B.K. i. Others(Specify)
6.	Occupation	a. Service b. Business c. Wage Labouring d. Farming e. Others(Specify)
7.	Sources of Income	a. Service b. Business c. Wage Labouring d. Farming e. Pension f. Others(Specify)
8.	Sources of water before LDWSS	a. Public Tap b. Rainwater c. Pond d. River e. Well/Inar f. Others(Specify)

9.	Distance of water source	a. Less than 10 minutes	b. More than 10 minutes
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Questions for Respondents

1. How long did it take to fetch water before launching the Drinking Water Supply and Sanitation System?
 - a. Less than 10 minutes
 - b. More than 10 minutes
2. How long does it take to fetch drinking water after launching the water supply system?
 - a. Less than 10 minutes
 - b. More than 10 minutes
3. Is there regular water supply in your water tap?
 - a. Yes regular
 - b. Irregular
 - c. Sometimes irregular
4. If irregular then when and why?
 - a. In dry season
 - b. In heavy rainy day
 - c. Because of physical damage
 - d. Carelessness on system
5. Is there time saving because of water supply system?
 - a. Yes
 - b. No
6. What type of easiness are you feeling after this project's establishment?
 - a. Good facility
 - b. Simple facility
 - c. Uneasiness feeling when it is irregular
7. What are the changes experienced in household sanitation habits after DWSS facility?
 - a. Clear than before
 - b. Satisfactory
 - c. No differences at all
 - d. Poor

8. Has any significant change occurred in income generation activities after launching of the DWSS system?
 - a. Yes, very much
 - b. Significant
 - c. Little
 - d. Indifferent

9. Where you are investing your saving time made by water easiness?
 - a. Social work
 - b. Economic activities
 - c. Agricultural work
 - d. Caring for children

10. What is the tendency of water-borne diseases after the commencement of the DWSS system?
 - a. Decreasing rapidly
 - b. Decreasing

11. Why did you want DWSS system in your house?
 - a. To save time
 - b. To get rid of diseases
 - c. To lessen morbidity

12. Has any impact been observed in overall health, hygiene and sanitation of household and community after launching the DWSS system?
 - a. Too positive
 - b. Positive
 - c. Negative

13. Are people involving in other development works because of availability of water facility?
 - a. Yes
 - b. No

14. If yes where are they involving?
 - a. School management
 - b. Health programme
 - c. Sanitation work

- d. Others
15. Are you happy in all respects with the launching of the New DWSS system?
- a. More happy
 - b. Satisfied
 - c. Indifferent
 - d. Unhappy
16. Are you involved in Water Users Committee?
- a. Yes
 - b. No
17. Are you ever involving in DWSS system management and maintenance works?
- a. Yes
 - b. No
18. What is the degree of your involvement in decision making of the operation and maintenance activities of the DWSS system?
- a. Higher
 - b. Less
 - c. Adequate
 - d. Negligible
19. Are there any major problems related with LDWSS system maintenance and regulations?
- a. Late on water fee collection
 - b. Less interest of women
 - c. Less interest of male
 - d. Dam damage on rainy time
20. What was the role of local people in DWSS activities?
- a. Very good participation
 - b. Normal participation
 - c. No participation
 - d. Carelessness on it
21. How is the water users called in LDWSS emergency work?
22. Are people encouraged to be participated in LDWSS system's activities?
23. Who is more participating in the LDWSS system related work from your house?
- a. Female member

- b. Male member
- c. Both

24. Will you tell any suggestion and comments for the smooth development of LDWSS system?

- 1. Comments
 - a.
 - b.
 - c.
 - d.
- 2. Suggestion

Thanks for your kind cooperation

APPENDIX B

List of Key Informants

S.N.	Name	Designation
1.	Shiva Chandra Amatya	Chairperson
2.	Hari Bahadur Thapa	Serviceman
3.	Kuldip Baral	Member
4.	Ramkrishna G.C.	Member
5.	Bindu Subedi	Member