

Impact of Drinking Water and Sanitation Project on Local People in Damak Municipality, Ward Number 2

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Abstract

This study was carried out among the users of Damak drinking water supply and sanitation system in Damak municipality, ward no. 2, Jhapa district. The primary objective of this study is to assess the impacts of the Drinking Water and Sanitation System project on the residents of Damak municipality area following its implementation. To achieve this goal, the study formulated research questions and employed a combination of qualitative and quantitative research methods. The study focused on analyzing and providing detailed explanations of the challenges related to drinking water, health, and sanitation facilities. Additionally, it extensively explored the transformations in the residents' lifestyles attributable to the project. The research design used in this study is both exploratory and descriptive data collection involved multiple methods, including observation, interviews and key-informant interviews.

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Keywords: Domestic, Infrastructure, Water supply , Sanitation

Introduction

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.

From this study an overwhelming preference for the introduction of a new ‘water development fee’ to fund water and sanitation infrastructure instead of paying a water bill or income tax. Although a water bill often covers multiple residential water services (water supply, waste water collection and treatment, and storm water management), not everybody pays a water bill because not everybody is connected to the urban water system, including wastewater collection and storm water drainage. Such a fee therefore seemed to best fit the idea of tackling water challenges in Dhaka in a holistic way. However, introducing this fee would merely add to the complexity of the existing administrative system. Ultimately, further up scaling of connection rates for water supply and sewer and enlarging the existing storm water infrastructure and diversifying residential water rates based on service

Impact of Drinking Water and Sanitation Project on Local People in Damak Municipality, Ward Number 2 provision seems to hold most promise. Finally, besides investing in the continuous improvement of water quality to gain customer trust in water supply reliability, raising public awareness through door-to-door communication and information campaigns about the costs and benefits of the essential water services provided by DWASA is expected to increase public trust that their money is well spent. Providing more information allows for more public scrutiny and accountability and this is expected to increase beneficiaries' financial support for the services provided. Convincing customers as beneficiaries of the water services to pay their water bill is crucial for cost recovery and sustainable delivery of the water and sanitation services (Amalia, 2023). Open burning of wastes is still practiced in many countries, which leads to air pollution especially when hazardous wastes containing heavy metals, plastics, and rubber are burnt. Management of hazardous wastes from health facilities and e-waste require special attention (UNESCO,2024).

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.

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 Gauradaha Municipality. It also focuses on people's way, method for the management of the water sources. This proposed study has been conducted on Gauradaha Municipality, Jhapa district where water supply system (STWSS) was implemented by local community

Objectives

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, Damak municipality, after its establishment. However, the specific objectives of the study are as follows.

- i. To trace out the past condition before the implementation of the project in Damak Municipality.
- ii. To analyze the role of the project in changing the people's daily life.

Research question

To sum up, this study will be focused on finding out answers to the following question: - Research question;

- i. What necessitated the beginning of the drinking water project in Damak municipality?
- ii. How was the previous condition before the implementation of the project?

- iii. Are there any changes after the construction of the project?
- iv. How did the user's group contributed in the construction of the project?

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, this study mainly answers to the problem associated with the drinking water, health and sanitation facilities. It explores the changing pattern of the Gauradaha people during and after the intervention of this project.

Limitations of the Study

This research study was following limitations:

- i. The study has been limited in Damak municipality of Jhapa district.
- ii. In this study only one ward i.e. ward no. 2 of the municipality was selected.
- iii. 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.

- iv. This study is a micro level study because it is based on small sample of the limited area.
- v. Only primary data will use for this study purpose.

Literature 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 (22) different promoters.

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.

This study explores the changing pattern of 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

Impact of Drinking Water and Sanitation Project on Local People in Damak Municipality, Ward Number 2 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. (Shrestha, 2018)

profound demographic shifts and drastic climate events have greatly affected LMICs capacity to reach access to safe drinking water and sanitation practices, and to protect citizens' health from risks associated to the exposure and use of contaminated water.

Detailed phylogenetic and microbiological information on the exact composition of pathogenic organisms in urban and peri-urban water is scarce, especially in rapidly changing settings of sub-Saharan Africa. In this review

we aim to highlight how large- scale water path biome studies can support the LMICs challenge to global access to safe water and sanitation practices (Taviani, E., & Pedro, O. 2022).

From this study an overwhelming preference for the introduction of a new ‘water development fee’ to fund water and sanitation infrastructure instead of paying a water bill or income tax. Although a water bill often covers multiple residential water services (water supply, waste water collection and treatment, and stormwater management), not everybody pays a water bill because not everybody is connected to the urban water system, including wastewater collection and stormwater drainage. Such a fee therefore seemed to best fit the idea of tackling water challenges in Dhaka in a holistic way. However, introducing this fee would merely add to the complexity of the existing administrative system. Ultimately, further upscaling of connection rates for water supply and sewer and enlarging the existing stormwater infrastructure and diversifying residential water rates based on service provision seems to hold most promise. Finally, besides investing in the continuous improvement of water quality to gain customer trust in water supply reliability, raising public awareness through door-to-door communication and information campaigns about the costs and benefits of the essential water services provided by DWASA is expected to increase public trust that their money is well spent. Providing more information allows for more public scrutiny and accountability and this is expected to increase beneficiaries’ financial support for the services provided. Convincing customers as beneficiaries of the water services to pay their water bill is crucial for cost recovery and sustainable delivery of the water and sanitation services (Brouwer et al., 2023).

The observed sanitation challenges in the studied towns are principally associated with the higher population growth and rate of urbanization.

Growing population together urbanization is increasingly creating gap in water

Impact of Drinking Water and Sanitation Project on Local People in Damak Municipality, Ward Number 2 supply and sanitation in both quantity and quality, particularly for dwellers in the condominium apartments, slum and informal settlements. Under dynamic increasing population, compared with declining water sources, access to water and sanitation will be decreasing with time. Associated water stress and health problems are extremely expected, particularly among dwellers in the slum and informal settlements. Moreover, it is likely that with limited resources and finances, development of improved water supply and sanitation services with a rate consistent to increasing rate of population and urbanization represents big challenge.

Moreover, the existing challenges happened due to dependence on a) short-term (reactive) measures instead of protective measures b) campaign instead of sustainable and long term measures c) donor-driven sanitation instead of demand-driven systems, d) ‘single’ approach instead of multiple or ‘context-based approaches, and focusing on constructing sanitation facilities before ensuring behavioral changes of the users. The researcher is expected that ‘slipping’ back to OD may be happening due to the rise in cost of labor and construction materials. This could be more serious for the marginalized groups such as the poor, women, child and the elders. Moreover, the continuing unrest in different parts of the country may further complicate the sanitation challenges. However, working strongly on behavioral changes and culture in discussion with the local community and influential persons will at least help to maintain the lower status of OD when compared with other countries in Sub-Sahara Africa. Consequently, ‘slipping’ back to OD may be controlled and the Ethiopian ambition to declare open defecation free urban areas by 2025 and achieving the Sustainable Development Goals 6.2 may be ensured.

The author is of the opinion that this study will help policy makers and municipalities to develop sound sanitation management strategies and context-based sanitation management approaches as the different settlement categories

need different interventions. This is because; there is no simple, single solution to all urban sanitation challenges, particularly in developing countries. It is recommended that locally relevant innovative sanitation solutions that put users first be implemented. Some of the limitation of this study are: 1) the absence of data on water quality testing of unprotected sources, 2) lack of original data on the impacts of open defecation on the general environment and associated epidemiological aspects that might be linked with unprotected water supply sources, 3) the assumption that the FGD and KII respondents could have reported what they thought the interviewer wished to hear (courtesy bias) and 4) inability to include the very updated data because of logistical and budgetary constraints, and security issues in some parts of the country. Thus, further comprehensive country-wide study on water supply and sanitation including the level of open defecation and its broad impact is recommended for urgent intervention (Adugna, D. 2023).

For the towns we partnered with, we recommend directly implementing our study findings and beginning a language brokering approach via STEM education curriculum in the local schools to increase student, family, and community knowledge about arsenic contamination. Using a language brokering approach for risk communication that brings home the in-language information about the safety of community water systems and arsenic risk in local drinking water to the limited-English proficient and/or low-literate parents and family members from their educated children who learn about these issues of water contaminants and water safety through their STEM curriculum in the local schools. Children or students can bring home this knowledge to adults and children in their homes and improve parent, family, and community knowledge about arsenic contamination and safe drinking water. In addition, children who learn about these issues early in life will have the potential to one day transform their communities into safe water havens and sustain the knowledge and skills needed to ensure water safety in their

Impact of Drinking Water and Sanitation Project on Local People in Damak Municipality, Ward Number 2 communities into the future. For similar rural, unincorporated towns who are at risk for drinking contaminated water, we recommend speaking with community residents and leaders to understand their perspectives and preferences for risk communication and education which may also include an educational intervention for school-aged children. Incorporating questions about residents' primary source of drinking water (domestic wells, small community water systems, etc.), and conducting baseline knowledge testing about water contamination, might also help researchers structure appropriate intervention programs. If our future community outreach and education program approach proves effective, it could be adapted to increase awareness of additional environmental hazards among other rural, unincorporated towns, particularly those in the San Joaquin Valley of California who are at risk of drinking from contaminated water sources Boyden et al., (2023).

Frequent WASH-related challenges are experienced by communities during flood hazards. Tsholotsho communities experience flooding and collapse of boreholes and wells, increased water salinity, contamination of household items, loss of non-food items, the collapse of latrines, contamination of surface water, ponding water that provides a breeding ground for mosquitoes, and outbreaks of water and hygiene-related diseases. Using a seemingly unrelated regression model, this study revealed that access to NGO programs is one of the most important factors that influence households' experiences during flooding. Access to treated water and an improved source of water was also revealed to be critical in influencing the way households are affected during flooding incidences in Tsholotsho. The level of education of the household heads was also found to be an important factor that has a bearing on household experiences during flood episodes in Tsholotsho District. Government needs to formulate and implement deliberate programs that are meant to help communities to withstand the challenges they experience during flooding, even if they face budgetary constraints. Improvement of the

WASH sector in areas that are prone to flooding should be one of the top priorities of both national and local governments. Communities should be at the centre of decision-making by both government and NGOs. With the increased frequency of flooding due to climate change, there is a need for communities to be capacitated to withstand any WASH problems that may result (Tshuma et al., (2023).

Methodology

Methodology is the most important part of research work. Reliable and relevant study can be made possible only by applying scientific method. Hence, the main purpose of this chapter is to present the framework for the research design. Different procedures are used to study this are as follows:

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 Damak Municipality. 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 implementation, while the descriptive research design was used to describe the effects of the project on Damak people.

Population and Sample

This project covers all the wards of Damak Municipality, but the study was conducted on Damak, ward no 2 of Jhapa district. This study aims to examine the changing pattern of Damak 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

Impact of Drinking Water and Sanitation Project on Local People in Damak Municipality, Ward Number 2 drinking water facilities as well as in socio-economic life. Because of these reasons, this area was selected.

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

Data Collection Techniques and Tools 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.

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.

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.

Methods of Data Analysis

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.

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Data analysis and Interpretation

Damak is one of the oldest municipalities in Jhapa District in Province No. 1 of Nepal. It is situated between the Ratuwa River in the east and the Maawa River in the west. It has Sivalik Hills in its north and ends with the intersection of Ratuwa River and Mawa River in the south. Mahendra Highway (longest highway of Nepal) crosses this municipality nearly bisecting it.

According to census 2022, total population of Damak municipality is 107,227 with 27,569 household and wada number 2 have total population of 11,632.23 from which 80% of population is Brahman, 21% is Chettri, 11.10% is limbu, 7.50% is rai, 4.80% is Dhimal, 4.70% is Newar, 4.10% is Bishwakarma, 3.40% is Tamang, 2.90% is Pariya and 2.40% is Magar.

Table 1: Source of Collecting Water before the water Project

Sources of Water	Frequency	Percent
hand pumps/ Tube well	111	92.5
Private tap	9	7.5
Total	120	100.0

Source: Field Survey, 2024

Role of Water Project in Changing People's Daily Life

People of Damak had to face so terrible moments in the past. But, once the water project 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.

- i. Easy Access to Water Sources
- ii. Time Saving
- iii. Significant Changes in Income Generation
- iv. Tendency of Spreading Water-borne Diseases after the Project Construction
- v. Introduction of Drinking Water and Sanitation

Changes in Household Sanitation after the Water Project's Construction

Lack of easier access to drinking water had been a curse for people in Damak Municipality. 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 4.13 shows some views of the respondents related to this issue.

Table 2: Changes in Household Sanitation

Changes in Household Sanitation	Frequency	Percent
Clearer than before	71	59.2
No differences at all	23	19.2
Satisfactory	26	21.7
Total	120	100.0

Source: Field Survey, 2024

Impact Observed in Overall Health Hygiene and Sanitation of Household and Community after the Project's construction

Contribution of water user's group in the project establishment

Table 4 : Involvement of Local People in Decision Making of the Operation and Maintenance Activities

Involvement of Local People	Frequency	Percent
Adequate	93	77.5
Higher	13	10.8
Less	8	6.7
Negligible	6	5.0
Total	120	100.0

Source: Field Survey, 2024

Table 5: Happiness in All Respects with the Project

Happiness in all Respects	Frequency	Percent
Happier	32	26.7
Indifferent	17	14.2
Satisfied	71	59.2
Total	120	100.0

Source: Field Survey, 2024

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 is sometimes called safe water, water which is not contaminated to the extent of being unhealthy. The

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available supply of drinking water is an important criterion of carrying capacity, the population level that can be supported by planet Earth.

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).

Major Findings

Following are the major findings of study

- i. 16.70 percent of the respondents were Brahmins. Likewise, 15 percent Chhetri, 36.70 percent Dimal, 22.50 percent is kirat and 9.2 percent is Dalit. From this, Dhimal are dominant in the study area. Sometimes, this dominancy is found to be characterizing some severe cases of caste-opposition.
- ii. 64.20 percent of the respondents of this study area were Hindu. Similarly, 20 percent people were Christian and 15.80 percent people were in Kirat. This shows the prevalence of Hindus as dominant religious community in the study area.
- iii. Out of the total respondent's 39.2 percent were belonged to the age group 35-35. Similarly, 17.50 percent of them belonged to the age group 25-35. 20 percent were belonged to the age group 45-55. The respondents below 25 were 14.20 percent and the respondents above 55 were also 9.20 percent.

- iv. 57.50 percent were literate, 18.30 percent of them were having educational qualification of S.L.C. passed. 3.30 percent were Intermediate passed. Similarly, 16.70 percent of them were Bachelor passed and 4.20 percent were master passed.
- v. About 21.70 percent people were involved in service. Likewise, 19.20 percent people were involved in Business/Trade, 29.20 were in farming sector, 15.80 were in wage laboring and 14.20 percent people were found in housewife.
- vi. 92.5 percent of the respondents, hand pump/ tube well was the dominant source of water. Besides, this they used to collect water from private tap. To sum up, the main water sources of this area before the water project were private tap, and hand pumps/ Tube well.
- vii. 76.70 percent of the respondents have to spend 10 minutes or less to fetch water for domestic purpose and 23.30 percent of them need more than 10 minutes to fetch water. From this, it is clear that water project plays a significant role in changing people's daily life.

Summary

This study was carried out among the users of Damak drinking water supply and sanitation system in Damak municipality, ward no. 2, Jhapa district. The general objective of the study is to explore the major impacts of the project among the people in the selected area, Kharkhare, Damak municipality, after its establishment. But, it had three- fold specific objectives stated as follows:

- i. To trace out the past condition before the implementation of the project in Damak Municipality.
- ii. To examine the contribution of water user's group in this project's establishment.
- iii. To analyze the role of the drinking water project in changing the people's daily life.

Damak municipality has mixed types of castes from caste/ethnicity point of view. People of Brahmin, Chhetri, Dhimal, Rai, Limbu, Magar, Newar, B.K. etc community are living in the different wards. Brahmin is the major populated caste. In other words, Damak municipality is a Brahmin dominated society. To cater to the increasing demands of drinking water and sanitation facilities for faster growing towns and markets centers. 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.

Before the implementation of the project, the community relied on fetching water from public taps and rivers, which was a time-consuming task. This led to several challenges, including the need to allocate a significant amount of time for water collection, leaving them with limited attention for other activities. However, with the introduction of the drinking water project, continuous engagement in its construction and management has yielded several benefits. Firstly, it has significantly reduced the time required for water procurement and decreased the workload associated with it. This has freed up valuable time for the community members, allowing them to redirect their efforts towards other activities. Notably, this transformation has had a positive impact on their overall well-being, particularly in terms of health and sanitation.

Furthermore, the improved access to clean water has triggered a series of positive changes in the community's economic activities. People have harnessed the time saved from water collection and redirected it towards income-generating pursuits. A noteworthy trend has been the increased engagement in agriculture, where community members utilize their newfound time to cultivate crops, including vegetables. This shift towards agricultural activities not only enables the community to meet their vegetable needs but also generates additional income through the sale of surplus produce. In

essence, the implementation of the drinking water project has not only improved the residents' quality of life but has also fostered economic growth by empowering them to make the most of their time and resources.

Conclusion

This study delves into the evolving dynamics of drinking water access, health, and sanitation in the community of Damak. The availability of clean water has triggered a notable improvement in the socio-economic conditions of the local population. Residents have successfully harnessed the benefits brought about by this newfound access to water resources. One of the most significant changes has been the time-saving aspect of having a reliable drinking water supply. This has enabled community members to engage more actively in various development initiatives. Particularly for the economically disadvantaged individuals and the poorest households, the time saved has become a valuable resource for income generation. In practical terms, this has translated into a surge in economic activities, with many channeling their saved time into agricultural work. This not only fulfills their vegetable needs but also generates additional income through vegetable sales.

Another noteworthy transformation brought about by the water supply system is the increased community involvement in sanitation programs. This project has effectively mobilized the community to take part in water management, hygiene education, and other.

References

- Adugna, D. (2023). Challenges of sanitation in developing counties- Evidenced from a study of fourteen towns, Ethiopia. *Heliyon*, e12932.
- Amalia, M. M. (2023). Enhancing Accountability and Transparency in the Public Sector: A Comprehensive Review of Public Sector Accounting practices. *The Es Accounting and Finance*. Vol. 1(3). pp. 16-268. ISSN: 2985-7139, DOI: 10.58812/esaf.v1.i03.

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Banskota, M and Chalise, S.R. (2000). International Centre for Integrated Mountain Development, Kathmandu, Nepal.

Banskota, M and Chalise, S.R. (2000). International Centre for Integrated Mountain Development, Kathmandu, Nepal.

Bohara, R. (1997) "Rain water potential source for drinking water and sanitation" A case Study of Daugha VDC, Gulmi.

Bohara, R. (1997) "Rain water potential source for drinking water and sanitation" A case Study of Daugha VDC, Gulmi.

Bongartz, H. and Dahal, D.R. (1996). Development Studies: Self-help organization, NGOs and civil society, Kathmandu, Nepal Foundation for Advanced Studies.

Boyden, H., Gillan, M., Molina, J., Gadgil, A., & Tseng, W. (2023). Community Perceptions of Arsenic Contaminated Drinking Water and Preferences for Risk Communication in California's San Joaquin Valley. International Journal of Environmental Research and Public Health. DOI:10.3390/ijerph20010813

Brouwer, R., Sharmin, D., Liu, J. and Khan, M. R. (2023). Costs and benefits of improving water and sanitation in slums and non-slum neighbourhoods in Dhaka, a fast-growing mega-city. Ecological Economics. DOI:10.1016/j.ecolecon.2023.107763.

Laya, P. (1999). "A review Paper on social component in water resources strategy formulation." Kathmandu, a paper submitted to consolidated management Services, Nepal (P): Ltd. Nepal.

Luitel, A. (1998) "Need of integrated water resources management at village level" A case study of a pilot project in Bajang VDC, Parbat District

Millennium development goals, progress report, (2010) "The proportion of people without sustainable access to safe drinking water and basic sanitation", National planning commission, government of Nepal, Singha Durbar, Kathmandu, Nepal

Mollinga, P.P. (2000). Water for food and rural development approaches and initiatives in South Asia, Sage, New Delhi.

Nepal Human Development Report, (1998) Access to Safe Water and Sanitation, Nepal South Asia Centre, Kathmandu, Nepal Nepal

Neupane B. P., (2007). “Impacts of drinking water project on rural women, A sociological appraisal of Pelakot Udiyachour Drinking Water Project”, Pelakot, Syangya A Dissertation, Submitted to the Department of Sociology and Anthropology, T.U., P.N. Campus, Pokhara, Nepal.

Taviani, E. and Pedro, O. (2022). Impact of the aquatic pathobiome in low-income and middle-income countries (LMICs) quest for safe water and sanitation practices. *Curr Opin Biotech* Vol. 73 (1). Pp.220-224. doi: 10.1016/j.copbio.2021.08.015. Epub 2021 Sep 4. PMID: 34492621.

Tshuma, M., Belle, J. A., and Ncube, A., (2023). An Analysis of Factors Influencing Household Water, Sanitation, and Hygiene (WASH) Experiences during Flood Hazards in Tsholotsho District Using a Seemingly Unrelated Regression (SUR) Model. *Water*. DOI:10.3390/w15020371.

UNESCO (2024). The United Nations World Water Development Report 2024: water for prosperity and peace. Retrieved from: The United Nations World Water Development Report 2024: water for prosperity and peace - UNESCO Digital Library.