

# Contribution of Water Rehabilitation Projects in Supporting the Livelihood of People in Kilolo District, Tanzania: A Case of Ukumbi Ward

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## ABSTRACT

Human beings need safe and clean water for their survival. Accessibility to water resource depends on the presence of improved water infrastructure that can operate for the public good. The implementation of water projects in Ukumbi ward has brought significant changes in the respective communities, however none of them have been documented. This study intended to capture information from the project financers, responsible public agencies, local institutions and beneficiaries who possessed practical experiences on the significant changes that appeared in their daily lives. Questionnaire and key informant interviews were employed for collecting raw data from the respondents and key informants respectively and relevant secondary data were used for attaining objectivity in research issues being investigated. SPSS software and thematic analysis were used for analyzing quantitative and qualitative data respectively. Findings depicted that dominance of top-down approach in designing and implementing projects had sidelined ordinary community members and thus creating a sense of irresponsibility among project users. In addition, the study found disparities between male and female community members in project governing bodies which may lead to unsustainability. Despite the weaknesses being identified, the beneficiaries from Mawambala, Masalali, Ukumbi and Winome shared positive experiences on the socio-economic benefits gained from the respective project. This signifies the need for public water agency to support donors in allocating more resources for capacity building programmes and infrastructure development as a means of improving peoples' wellbeing and fostering socio economic development in rural communities.

**Keywords:** Water projects, water points, local communities and livelihood

## INTRODUCTION

Water is one of the most precious resources which supports the livelihood of human beings, plants and animals. Human beings as the master of the universe need water for domestic and commercial purposes. According to Mohammed (2023), a person needs around 150-250 gallons of water daily implying that shortage of water resource creates a number of challenges to the living beings, including human beings who have greater roles to play in mastering the universe.

Insufficient water supply cause human beings to suffer as they are forced to spend more time searching for water from unreliable and unsafe sources. This situation lowers the performance of productive and non-productive roles which remain to be substantial in supporting the livelihood of human beings. Reports from WHO and UNICEF (2021 and 2022 respectively) revealed that developing countries are mostly affected by insufficient water supply which affects the livelihood of people particularly the marginalized people living in the periphery where water infrastructure are poor and inaccessible. About 45% of rural people in the developing world lacked access to safe drinking water compared to 25% of urban people. This indicates that more efforts are needed to improve access to safe and clean water services in the respective region.

In addressing the respective problem, public authorities and private organizations have worked together to initiate new water projects for the sake of reducing water scarcity in the marginalized communities.

Mohammed (2022) reported that through “Public and Private Partnership model”; new water projects have been designed and financed through PPP model where public and private sector mobilize resources and implement the project according to the existing plans for the public good.

Practical experiences from Tanzania have shown that USAID, religious institutions and other related organizations have invested resources in water projects for resolving the existing challenges facing rural communities. Iringa region is one of the places where water projects have been initiated and implemented for extending coverage of water services in semi-urban and rural areas. Reports from the District Executive Director of Kilolo District (2022) revealed the dynamics of the Community Based Management Model in implementing rural water supply projects which intended to give water users powers to manage all project operations for the sake of enhancing sustainability and ensuring better services for the targeted beneficiaries. USAID and ELCT collaborated in constructing water points for enhancing accessibility to clean and safe water for the targeted people near their homes. Such projects were implemented in four villages namely Mawambala, Masalali, Ukumbi and Winome found in Ukumbi. In implementing the respective projects, the model demanded water users to cover costs related to operation and maintenance (O&M). Some of the operations include replacement of the hand pumps, pipes and other related stuffs through regular households’ contributions as a form of tariffs. In order to ensure financial accountability and transparency, the model demanded the presence of water point committees that involved literate and committed people who can manage funds for operations and maintenance. The technical aspect was controlled by RUWASA as the responsible public agency for implementing rural water supply projects in rural areas.

Despite initiatives being undertaken to rehabilitate rural water supply projects through construction of water points, little information is known on the contribution of such projects in improving the livelihood of people in rural areas where Ukumbi ward was chosen to be the case of this study. This study therefore focused on assessing the contribution of the rehabilitation of rural water supply projects in supporting the livelihood of people in the respective ward.

## METHODOLOGY

The study was conducted in Kilolo District. This district extends between Latitude 7.0 and 8.3 south of the Equator and between Longitude 34 and 37 east of the Greenwich. The district border Mpwapa and Kilosa districts to the North, Kilombero District to the East, Iringa District Council to the west and Mufindi District to the south. The study was conducted in Ukumbi Ward because of accommodating good number of water points which needed to be improved so as to ensure high rate of functionality. The study explored the connection between the high functionality rate of water points (boreholes) and the contribution of the community management of water points. Figure 1 indicates the map of the study area;



Figure 1: Map of the Study Area

The targeted population of this study include water users, members of Water Project Committees and technocrats from RUWASA and other related organizations operating in the study area. The reason behind was to collect information on the functionality of water points (boreholes) that paved to the availability of water at Ukumbi Ward.

The study employed both qualitative and quantitative research approaches. The decision to employ both qualitative and quantitative research approaches was made in order to strengthen weaknesses of each approach for generating objective findings that revealed the reality taking place on the ground.

This study adopted descriptive research design. The descriptive research design is employed to showcase the characteristics and features of the data, offering a detailed representation of the phenomena under investigation. This design enabled both qualitative and quantitative data collection to be conducted smoothly as the design intends to facilitate a comprehensive understanding of the respective research issues to be investigated.

The study employed Taro Yamane method to get the actual sample size that was involved in data collection processes. The method has been presented as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where by

n= sample size

N= Population

e= marginal error (0.05)

Hence:

$$n = \frac{425}{1 + 425(0.05)^2}$$

$$n = \frac{425}{1 + 1.0625}$$

$$n = 206$$

From the method being applied, the sample size for this study was 206 respondents. However, according to Kothari, (2014), 30% of the sample size is enough for gathering information for statistical analysis. Hence the sample size of approximately 206, the sample was reduced to 50% equivalent to 103 sample size. Basing on such arguments and calculations, the study dealt with 105 respondents who participated in data collection exercise and provided sufficient information as per objectives. The reduction of sample was done due to time and financial limitations.

Table 1: Distribution of sample size in the study area

| Villages          | Water Users | Percent (10%) |
|-------------------|-------------|---------------|
| Mawambala Village | 400         | 40            |
| Masalali Village  | 150         | 15            |
| Ukumbi Village    | 300         | 30            |
| Winome Village    | 200         | 20            |
| <b>Total</b>      | <b>1050</b> | <b>105</b>    |

As Table 1 reveals, the key respondents of this study were 105 respondents from four (4) villages namely; Masalali, Mawambala, Ukumbi and Winome. These were the consumers of water services that were provided in the respective villages. They used water from water points that were established in various parts of such villages. The decision to involve such respondents was made in order to capture information from the respondents who possessed practical experiences on availability and accessibility to water from the infrastructure that were established in the respective villages.

Furthermore, the study involved key informants namely, seven members of the Village Water Committees (VWC) from each village, eight village leaders from the selected villages. The members of VWC were involved because of their unique positions on the functionality of the water points (borehole) in the selected villages.

Different sampling techniques were used in order to get the representative sample. Simple random sampling was employed in this study for selecting the key respondents particularly water users who consumed water from the boreholes being developed in their respective villages. Through this sampling technique, each member from the population sample had equal chance to participate in the study. This technique was used to select individuals by chance who ultimately provided adequate information for the study. Furthermore, the study used purposive sampling technique to select key informants who provided technical information on the research issues. Such key informants were the village leaders and members of the village water committees. These participants were selected purposely because of their positions in the water related projects designed and implemented in the respective villages. They provided technical data which enabled the study to generate real findings that reflected the reality on the ground.

The study collected both primary and secondary data. Primary data were collected from the respondents and key informants through semi-structured questionnaire and interviews respectively while secondary data were gathered through document reviews which encompassed information that supplemented findings that were not obtained in the field. Such documents include; water policy of 2002 version 2023, reports from the ministry of water, RUWASA and other related institutions.

Data analysis methods were employed to generate objective findings. Qualitative data from the key informants were analyzed using content analysis. According to Prashad (2008), the content of the message gathered from the key informants can be used to make inferences and drawing conclusions in relation to the research issues being investigated. Quantitative data were sorted, coded and summarized prior to analysis. The analysis was done using Statistical Package for Social Science (SPSS version 23). Descriptive analysis was carried out where frequencies and percentages were used to present findings of the respective research objectives.

## RESULTS AND DISCUSSIONS

### Demographic Characteristics of Respondents

Results in Table 2 revealed that 52.4% of the respondents were female while 47.6% of them were male. This signifies that the largest part of the respondents were women, who are mostly affected by the shortage of water at the household level. They are the ones who struggle to fetch water from various unreliable sources for the sake of securing family livelihood.

Contrary to the study findings, the study by Chumbula (2016) found that few women were involved in water committees compared to men, which affects performances of many water points. This situation prevails because of the negative attitude that the responsible personnel from the local authorities had towards women, thinking that women are weak and incapable of handling successfully managerial and technical assignments being given to them. Such outdated attitudes have sidelined women in many communities-based projects and thus leading to poor performance or failure of such projects. Similar findings were reported by Miruka (2017) who identified that in rural Kenya's, women are neglected during the formation of water committees because of the negative attitudes towards their capacities and skills in handling water projects. Data from the

Demographic Households Survey (DHS) (2016) which indicate that scarcity of water in the community affects more women than men since the core duties of women rest on domestic chores which mostly need sufficient amount of clean and safe water for their operations.

Findings revealed that most of the respondents (56.2%) had attained primary education while the minority (6.7%) had not been attended formal education. About 18.1% of the respondents had attained secondary education and 9.5% of them were graduates of bachelor degree and diploma respectively. This implies that majority of respondents were literate and thus capable of reading, count and writing. This reveals clearly that adult literacy rate in the study area is more than 90%. Literacy rate among adults remains as a key attribute for enabling community members to know their rights and duties so that water services and other social utilities can be developed and provided to the public.

Table 2: Demographic Characteristics of the Respondents (n=105)

| Respondents                                     | Frequency  | Percent (%) |
|-------------------------------------------------|------------|-------------|
| <b>Sex</b>                                      |            |             |
| Male                                            | 50         | 47.6        |
| Female                                          | 55         | 52.4        |
| <b>Total</b>                                    | <b>105</b> | <b>100</b>  |
| <b>Household Members at the Household Level</b> |            |             |
| 1–3 persons                                     | 33         | 31.4        |
| 4–6 persons                                     | 58         | 55.2        |
| More than 7 persons                             | 14         | 13.4        |
| <b>Total</b>                                    | <b>105</b> | <b>100</b>  |
| <b>Education Status</b>                         |            |             |
| No formal education                             | 18         | 17.1        |
| Primary level                                   | 71         | 67.7        |
| Secondary level                                 | 16         | 15.2        |
| Diploma level                                   | 7          | 6.7         |
| University level                                | 7          | 6.7         |
| <b>Total</b>                                    | <b>105</b> | <b>100</b>  |
| <b>Years Spent in the Study Area</b>            |            |             |
| Less than one year                              | 10         | 9.5         |
| 1 year                                          | 10         | 9.5         |
| 2–5 years                                       | 6          | 5.7         |
| 6–10 years                                      | 15         | 14.3        |
| Above 10 years                                  | 64         | 61          |
| <b>Total</b>                                    | <b>105</b> | <b>100</b>  |
| <b>Main Sources of Income</b>                   |            |             |
| Farming                                         | 37         | 35.2        |
| Casual Labour                                   | 26         | 24.8        |
| Employment                                      | 22         | 21          |
| Trading/Small Business                          | 20         | 19          |
| <b>Total</b>                                    | <b>105</b> | <b>100</b>  |

More findings from the same table showed that majority of the respondents (67.7%) in the study area had 4-6 persons in their households while the minority (15.2%) had more than 7 household members in their households. About 17.1% of the respondents had 1-3 members in their respective households. These findings

signify that most of the households in the study area accommodates several human persons who like other human beings need basic needs (water inclusive). This situation forces them to search for reliable and safe sources that can provide sufficient amount of water which can help improve the living conditions of people in the marginalized communities.

The study identified that 35.2% of the respondents stayed in the project area for more than 10 years while 24.8% of them reported to stay in the respective area between 6-10 years. These findings denoted that 60% of the respondents stayed in the study area for more than five years and the remaining percentage (40%) stayed for less than five years. This means that majority of people in the study area have practical experiences on the challenges of water scarcity that has affected people in different ways. Therefore, they have sufficient information of the situation that prevailed before the project, situation occurring during and after the project. Such people have enabled the study to capture detailed information on how the established projects have helped them to access water and challenges that have affected them to meet the intended objectives.

Furthermore, findings revealed that 55.2% of the respondents reported to be farmers who engaged directly in production of food and cash crops. Other respondents informed the study that they engaged in trade, livestock keeping, bricks making and charcoal making. Some respondents were civil servants serving in the educational, health and water sectors which are crucial for supporting the livelihood of poor people. Principally, all these activities can be undertaken smoothly in the presence of water. The responsible actors need water for undertaking farming, poultry production, construction and other related activities. Therefore, it is evident that the implementation of community based water projects have helped majority of people improve their daily operations for the public good. On the other hand other scholars revealed that environmental pollution in the rural areas have been caused by the daily operations in the productive sectors. Miruka (2016) reported that such human activities pollute water sources, hence resulting into poor water quality and drying of the sources.

### **Water Scarcity in the Project Area Prior to Project Implementation.**

The study intended to capture objective information from the host communities including the members of the Water Points Committees and local leaders from the villages namely; Mawambala, Masalali, Ukumbi and Winome on the actual situation before designing and implementing community based projects.

The study was informed that people who lived in the respective villages experienced water scarcity which ultimately affected their well-being. The residents used water from rivers, dams and other unreliable sources that did not provide safe and clean water. Inability to access clean and safe water caused the marginalized people to experience water borne diseases which created chaos in their respective communities.

People particularly women were forced to walk more than four kilometers to fetch for water from the rivers and other related sources. Such water resource was unclean meaning that it was contaminated with other stuff that ultimately affected the consumers who experienced endless health problems such as cholera, typhoid and related diseases.

One of the respondents who participated in the study reported the following: *“It is evident that people in these four villages (Winome, Masalali, Ukumbi and Mawambala) experienced a serious problem of water scarcity. The only solution was the decision to fetch water from the available water sources which were not safe and reliable. The long term effects of using such water was the spreading of water borne diseases which affected the wellbeing of thousands of people including women and children” (Interview with one of the WPC committees; 28/06/2024).*

Similar views were presented by one of the chairpersons of the selected villages who argued that:

*“Leaders of the selected villages had practical experiences on the problem of water shortage which limited opportunities for women to participate in other economic activities to generate income for supporting their*

families. But we did not have a solution to end the problem because we lacked technical, financial and managerial skills. The decision to implement this project was not welcomed by the ordinary residents of these villages because of having weak leaders who failed to develop proper strategies for resolving the existing problem for the public good.” (Interview with Chairman of Winome Village Government; 27/06/2024).

Arguments from these key informants reflect the actual situation that prevailed in the study area. The problem of water shortage prevailed for a long time and affected the well-being of thousands of innocent people without any intervention from the village authorities, ward and ultimately district authorities. These findings correlate with Hamdani (2021) who revealed clearly that water shortage in rural areas is one of the greatest problems that needs special attention from local government authorities and private agencies. In each financial year, planners have to allocate resources for implementing new projects and rehabilitating old ones for resolving the existing challenges.

Basing on the findings, it is evident that people lived in the project area experienced water shortage that affected their wellbeing. This problem contributed to the spreading of water borne diseases which disturbed the living environment of community members and sometimes caused death. This implies that the presence of reliable water services is essential for improving the living conditions of community members since it enables water users to access water for domestic purposes and commercial purposes through undertaking income generating activities.

### **Community Participation in designing water points for rehabilitation purposes**

The study identified that community participation in designing proper areas for constructing/rehabilitating water points was limited. Technocrats from RUWASA and donors’ organizations had an opportunity to initiate and design project activities as per the action plans. This situation came into being because ordinary community members were considered to be illiterate and thus unable to plan and make rational decisions for the implementation of the respective projects.

Key informants informed the study that experts from the public agencies used their expertise to suggest for the appropriate places that were considered to be conducive for water points to be installed to benefit majority of people who are in need of the respective services. One of the key informants argued;

*“It was not proper to rely on local community members as the think tanks for designing projects because they were not experts in issues related to water. The decision to involve water engineers, water technicians and planners came into being because of the possibility of developing rational strategies that could facilitate the implementation of the respective projects for the public good.”* (Interview with the Planning Officer of ELCT; 29/06/2024).

However, other technocrats reported that the responsible public agency and donors worked closely with local leaders in the preliminary stages of the projects in order to ensure that they produced intended outcomes. This implies that local leaders who participated in the study represented their people and ensure that the common good is attained.

The chairperson of Ukumbi Village reported that water projects that were initiated and implemented in his village were controlled by the donors (USAID). Community members did not have a room to participate as a means of enhancing a sense of ownership. He said that:

*“We appreciate for the good work being undertaken by USAID for initiating and implementing rehabilitated water projects for the sake of enhancing accessibility to water near residential areas. However, the local communities failed to possess such projects because the initiators applied the top down approach which created a gap between technocrats as service providers and local communities as targeted beneficiaries”.* (Interview with Chairman of Ukumbi Village Government; 27/06/2024).

Such findings were supported by one of the beneficiaries of the project from Mawambala village who reported that:

*“The level of community participation in initiating and designing the respective projects was extremely low. This situation prevailed because the responsible public authorities (RUWASA), USAID and ELCT as donors failed to provide capacity building for the local people so that they could understand and internalize the concept of inclusivity in project initiations. He complained that the donors did not provide an opportunity for the local people to learn and apply such skills in project initiations and implementation as well. As a result, majority of community members remained as observers of the project activities that were undertaken in their respective villages.” (Interview with one of the beneficiaries living in Ukumbi Village; 27/06/2024).*

Through these findings, the dark side of top-down approach has been highlighted. It is beyond reasonable doubt that community participation is highly important for promoting sustainability of water projects. However, community participation is a product of community awareness. In areas where local communities are not aware of the necessity of effective participation in development projects cannot be ready to support donors/ government in designing projects that take place in their respective villages.

These findings correlate with Mohammed (2022) who reported that limitations of people’s participation in the preliminary stages of the projects forced the technocrats to control the designing processes and thus taking away the sense of ownership. It is mandatory for the project officials to provide an opportunity for the local communities to participate fully in the designing phase for ensuring bright future for the beneficiaries and project implementers as well.

### Community’s involvement in deciding the technology to be installed

Results in Table 2 revealed that 57.1% of the respondents reported that they were not involved in deciding the appropriate technology to be used in installation of water points. About 30.5% of the respondents agreed that they were involved on deciding the installation of appropriate technologies for the water points and 12.4% of them refused to say anything since they were not aware of the respective operations.

Table 2: Community Involvement in Deciding the Technology to be Installed (n=105)

| Respondents’ Views | Frequency  | Percent (%) |
|--------------------|------------|-------------|
| Yes                | 32         | 30.5        |
| No                 | 60         | 57.1        |
| Don’t Know         | 13         | 12.4        |
| <b>Total</b>       | <b>105</b> | <b>100</b>  |

Source: Survey (2024)

Through face to face interviews with the members of the VWCs, the study was informed that the decision to sideline local community members on the appropriate technologies to be used for water points’ installation came into being because local community members lacked expertise on such technologies which are so peculiar and special compared to other technologies in other sectors.

Key informants who participated in the study reported that the tendency of ignoring ordinary community members in decision making processes prevailed because of the superiority complex amongst the technocrats. Such attitudes have enhanced confidence of being omnipotent in technical issues related to water projects. These findings were supported by Chisenga (2014) who revealed that local community members cannot be involved in deciding on the appropriate technologies to be used in water points’ installation because they are not experts in such fields. Therefore, it is rational to give the technocrats mandate to make final decisions on technical issues since they possess skills in such affairs. However, Wang et al., (2013) had different opinions arguing that local people have local knowledge, skills and experience which are crucial

for designing community based projects in the water sector. Technical information alone are not sufficient to make the project viable and helpful to the local communities. Positive changes are attained when the experts and local people work together in every aspect of the project life cycle.

### **Accessibility to Safe and Clean Water through the Established Points Access to safe and clean water.**

The qualitative analysis shows majority of community members in the study area accessed clean and safe water from the established points found in their respective villages. However, some of the points had been installed far from the residential areas implying that not all people could access such services. There were minorities who could not access water from the improved sources.

Through face to face interviews with some of the respondents from the selected villages, the study found that most of the water points had been established in residential areas where majority of people could easily access water and other services. This situation affected people residing in the periphery where social services such as water suppliers could be easily accessed and thus forcing the targeted beneficiaries to opt for unhealthy and unreliable alternatives.

One of the respondents who participated in the study commented that:

*The presence of water points in our villages enables majority of people to access water smoothly for securing their livelihood. However, most of the points have been installed closer to people's residential areas and thus affecting people who live in the periphery where such services cannot be easily accessed. (Interview with the community member from Ukumbi Village- 30/06/2024).*

Similar views were presented by one of the village leaders who reported that:

*I admit that water points that have been established/installed in Ukumbi ward are not sufficient based on the number of beneficiaries living in the study area. This shows the need of the respective public authorities and donors to allocate more resources for drilling more boreholes and improving them for supporting the living conditions of the people. (Interview with the village leader of Winome Village- 30/06/2024).*

The World Bank Report (2017) emphasized on the need of investing more resources in designing and implementing community based water projects in order to enhance accessibility to water for the marginalized people who have been sidelined in the big projects funded by the multilateral corporations. Drilling of more boreholes and installation of water points can open more opportunities for the local communities to access water for the public good.

### **Time and distance spent in fetching water**

Through qualitative analysis, the study found that investment in community based water projects had brought significant changes in the livelihood of the people. Majority of people have improved their wellbeing through accessing clean water from the installed water points that were available across the selected villages.

The study was informed by the respondents that the presence of water points had enabled majority of people to spend at most 30minutes for fetching water. Only the minority reported to spend more than 30 minutes for fetching water. Most of these people lived far from the water points areas.

The study was further informed that before the existing projects, it was normal for people particularly women to spend more than four hours for fetching safe and clean water. During that time, people were forced to rely on unsafe water sources that existed within and sometimes beyond the village boundaries.

One of the community members living in the study area reported that:

*Before the implementation of community based water projects, we spent more than four hours to search for water because there were fewer water points in our villages. But after the implementation of the respective projects, water can easily accessed within thirty minutes.*

Another respondent (woman) from the study area said:

*The presence of installed and improved water points has changed the living conditions of the people in our villages. People are healthy and capable of engaging in various economic activities for improving their living status. Some years back, people suffered from water borne diseases because they could not access safe and clean water from reliable sources”.*

These findings imply that the decision to implement community based water projects was rational because it intended to improve the livelihood status of the people. Respondents who participated in the study experienced changes in their livelihood as they managed to use clean and safe water for socio-economic purposes and thus experienced positive livelihood outcomes at the household level. According to Cairn cross (2020), distance to a water facility and access to the water have an inverse relationship. People's water usage rate is influenced by the distance they cover to access water. Mulwafu (2018) added that initiatives to improve water supply in rural areas can reduce 15 the time that women and girls spend for collecting water and thus increase the time spend for undertaking income generating activities for sustaining their livelihood.

### **Cultural Influences and Gender Dynamics in the Project**

The study was informed by the respondents that cultural influences affected the designing processes as well as the implementation phase. Since the project was designed and implemented in Kilolo District where the host communities are Wahehe who are patriarchal based tribe. This situation has created favorable environment for men to dominate the process because of possessing cultural powers in planning, designing and making final decisions on issues related to the implementation of the respective project. Majority of the members in the Village Council and committee that managed the project were males while the minority were women. Women remained obedient to men and the existing bureaucratic local institutions without creating chaos in their respective communities.

Gender relationship in the project area has involved men and women with different institutional powers. The study identified that operational activities were handled by men while women remained as the main users of water services being provided through the established points. However, such differences denoted that men were more important project members who could make the project sustainable because of their institutional powers in designing, implementing and making technical decisions. The situation was different for women who acted as end users without having powers for governing the project.

Gender gaps could affect the project and enhanced disunity among actors. It could also enhanced irresponsibility for female members and hence reducing the quality of water services. All these undesirable experiences could make the project unsustainable. These findings correlate with Ahmed (2020) who emphasized on the necessity of inclusivity in project management. This can make the project sustainable because participation of each stakeholder creates a sense of ownership and unity among key players. In addition, Muhsin (2018) reported that community participation implies involvement of male and female members who have common interests and goals to be attained. Such practices are essential in project management and they can enhance sustainability.

### **Effects of Water Project on the Livelihood of People in the Project Area**

The study found that the completion of the respective projects brought changes in the livelihood 16 of local community members living in the study area. The study was informed by the beneficiaries that the presence of water services reduced the number of people who suffered from water borne diseases like typhoid and cholera. Such diseases caused the patients to spend resources for medical treatment and those with limited resources failed to access medical services and eventually passed away. Being free from water borne diseases implies that people in the project area improved their health status and thus managed to concentrate on income generating activities that improved their socio-economic status.

One of the beneficiaries from Ukumbi Village reported that:

*I admit that before the project, my family experienced water borne diseases like typhoid which affected mostly my children. I spent more than Tshs 50,000 every month to cover medical services for my family members. But after the rehabilitation processes completed, I started to experience significant changes as my children became free from the respective diseases. Instead of allocating resources for medical services, my priorities focused on improving my house by installing electricity. (Interview with one of the beneficiaries from Ukumbi Village- 29/06/2024).*

Similar experience was obtained from another beneficiary from Mawambala Village who argued that:

*On my side, I have witnessed positive outcomes in my household. Resources that were allocated for accessing water from unreliable sources were shifted to other necessary services. Mostly, I re-allocated such resources for purchasing chemical fertilizers and pesticides for supporting agricultural production. Massive achievements in the maize production have been experienced as the number of bags increased from 5 per acre to 12 per acre. (Interview with one of the beneficiaries from Ukumbi Village- 29/06/2024).*

The study identified that the completion of the respective project enabled people to engage in socio-economic activities that focused on improving their wellbeing. Smallholder farmers managed to engage in horticultural production and livestock keeping (particularly zero grazing). Such activities enabled the beneficiaries to attain food security and raise income for the common good. During face to face interviews with one of the smallholder farmers in Mawambala village, the study was informed that;

*The completion of this project has enabled me to invest in horticultural production and zero grazing which eventually ensured food security and higher income. These positive outcomes have brought significant changes in my family livelihood in terms of nutrition status, financial and social wellbeing. (Interview with one of the beneficiaries from Mawambala Village- 28/06/2024).*

These findings imply that the respective project has produced a good number of long term effects among local community members residing in Ukumbi ward. These include; engagement in socio economic activities like farming, zero grazing and other related productive roles which ensured higher income for the service providers and better living conditions for the service users. Similarly, Hayson (2017), reported that water projects are not implemented to facilitate the accessibility to water services only, rather they focus on improving the socio-economic wellbeing of the targeted beneficiaries.

Participation in various economic activities had enabled people to generate income. The obtained income generated from crop production, livestock production and off-farm activities enabled people to attain food security, proper housing and health services. Table below shows the difference between income earned before the project and income earned after the project;

Table 3: Income Status of the Respondents (n=105)

| Income Levels (Tshs) | Before the Project |             | After the Project |             |
|----------------------|--------------------|-------------|-------------------|-------------|
|                      | Frequency          | Percent (%) | Frequency         | Percent (%) |
| 100,000 – 399,000    | 65                 | 61.9        | 10                | 9.6         |
| 400,000 – 799,000    | 30                 | 28.5        | 40                | 38          |
| 800,000 and above    | 10                 | 9.6         | 55                | 52.4        |
| <b>Total</b>         | <b>105</b>         | <b>100</b>  | <b>105</b>        | <b>100</b>  |

Findings in Table 3 revealed that before the completion of the project, majority of dwellers in the project area earned less than 800,000 (Tshs) per season. This situation came into being because of water scarcity which forced people to concentrate on fetching water and forgot economic responsibilities that could generate income and bring significant livelihood changes at the family level.

After the completion of the project, household income increased successfully. Results in Table 3 depicted that availability and accessibility to water services had enabled people to concentrate on productive roles which brought significant changes in their livelihood. About 55% of the respondents reported to earn 800,000 (Tshs) and above as a manifestation of engaging in production of food and cash crops. These findings imply that availability and accessibility of water services creates more opportunities for the users to concentrate on production which resultantly enable them to generate income for the common good. Similarly, Beyene (2012) revealed that presence of water services encourages users to concentrate on economic activities which have positive effects on income and other related variables.

## CONCLUSIONS AND RECOMMENDATIONS

The study found that the initiation and designing processes were controlled by the technocrats from the responsible public agency and non-governmental organizations that engaged directly in the implementation of the project. The decision to sideline local communities has created a gap and thus increasing the possibility of the project to be unsustainable. Similar experiences has affected women who have been sidelined in project designing and implementation due to cultural forces prevailing in the Hehe community. In addition, the study identified that decisions on the application of technologies were made by the technocrats without any consultation from the local communities implying that the beneficiaries had lacked sense of ownership which gave the elites powers to control the whole project.

The study therefore recommends that:

- a) The Ministry of Water and other related public authorities have to develop sustainable plans to support community water projects by allocating resources for capacity building programmes and improving water infrastructure particularly in areas where the beneficiaries are extremely poor. Such programmes can be coordinated by the local government authorities that operate at the grass root level.
- b) The responsible ministry (Ministry of Water) must conduct regular meetings with donors as a means of undertaking capacity building. In such meetings, the government should emphasize on the need of involving local communities in designing and implementing water projects as a means of promoting inclusivity and sense of ownership.
- c) Local communities have to be empowered to collaborate with local experts in designing small water projects that extend the coverage of water services in the villages where water resource is scarce. Such initiatives should be supported by the local government authorities and donors.
- d) The Local Government Authorities have to collaborate with project financiers in restructuring organizational structure of the governing bodies by ensuring that gender equity is attained. Both male and female community members have to be involved in various organs/committees governing the respective project for enhancing unity and creating a sense of ownership among project beneficiaries.

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