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# IMPACT OF KEY PLAYERS IN PROVIDING SUSTAINABLE WATER SERVICES IN BUSEGA DISTRICT TANZANIA

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## ABSTRACT

**Purpose:** The purpose of this study is to investigate the impact of key players in providing sustainable water services to rural women in Busega District, Tanzania. Triple-S (Sustainable Services at Scale) approach was adopted to analyse structures applied by key players/actors to deliver services and enable rural women to access water close to their households.

**Design/Methodology/Approach:** The study was conducted through cross-sectional design to examine the existence of the situation at single visits. The sample size included 210 rural women who were visited in their households. A mixed research approach was applied to collect both qualitative and quantitative data. As such, primary data was collected by using household surveys, semi-structured interviews, non-participant observations and focus group discussions. Instruments used for collecting data were sets of questionnaire, interview guides or checklists and observations. In addition, documentaries were reviewed to collect secondary data. Content analysis was done to consolidate qualitative data. Quantitative data were analysed through One-Way ANOVA to compute a five-point Likert scale, descriptive statistics and Chi-square test.

**Findings**: Results revealed that only 35% of the respondents received sufficient water supplies from key players/actors due to weak structures and poor management of their services.

**Research Limitation:** The study involved rural women whereas during the household survey most of them were occupied by several duties that resulted in scheduling dialogues by considering their daily schedules.

**Practical Implication:** The article recommends that to ensure sustainable access to and use of water services in rural areas, the Ministry of Water and Energy need to construct reliable sources and facilitate local key players/actors to improve their services and meet the required demands.

**Social Implication:** The article provides knowledge to literature by creating awareness to water key players/actors to apprehend how their services were highly desired by rural women to reduce their workload of walking long distances.

**Originality/Value:** The article revealed that key players/actors who provided water services failed to ensure sustained access to fundamental supplies in rural areas.

***Keywords:*** *Actors. rural women.* sustainable. *water. workload*

## INTRODUCTION

In Tanzania, as in most other sub-Saharan African countries, key actors involved in delivering sustainable services play a great role in improving access to and use of facilities in the community. The article identifies key players/actors who supply water services to the community and they are

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capable to simplify the workload of household tasks for rural women in Busega District. The article focuses on water supply key players/actors as essential to rural women for reducing the workload of walking long distances and saving hours spent on the same activity. Key players/actors, for instance, the government, Non-government Organizations (NGOs) and local vendors in the country form formal and informal structures that are applied for providing water services to the community (Prakash, 2018; Komakech, Kwezi & Ali., 2020; Mgoba & Kabote, 2020; Sweya & Wilkinson, 2021). Key players/actors operate under formal or informal structures designed to provide services and sell them to local users by addressing societies' needs (Patnaik & Ghosh, 2019; Bhatt & Singh, 2020; Cardoso & Gonçalves, 2021). The article analyses key players/actors with their structures applied for providing services capable to reduce the workload of fetching water from long distances to save time. The article adopted Triple-S (Sustainable Services at Scale) approach to analyse key players/actors involved in supplying water to rural communities. The emphasis is on the provision of good quality and adequate quantity of water at a realistic distance. The article proposed water supply systems and harvesting techniques in the district such as piped water, reservoirs and pumps installed within households or public units.

In rural areas, households utilize water from different sources such as rivers, lakes, ponds, ground and pipes. Most households are located further from water sources while rural women are responsible to fetch water from different locations for household consumption. In rural areas, some key players provide water services to the community. Different activities conducted in households require various mechanisms to reduce the workload as key players/actors in water supplies play a great role to assist rural women (Nguyen & Watanabe, 2020; Nabayunga, Matolla, Shitotte, Kubiriza, & Kondowe, 2021; Babu & Akramov, 2022). However, water service key players/actors in rural areas have not examined how their services contribute to reducing the workload of fetching water for rural women. For instance, Sarkar, Shankar, and Kar (2022) discussed key players/actors on port logistic issues and challenges in India for transportation services to citizens. Lucas (2019) also analysed the interests of key players/actors in politics in addressing climate change. As such, it is also important to analyse key actors who supply water as they are likely to contribute to reducing the workload of rural women.

The article reviews the literature to discuss the process of establishing sustainable access to and use of water for rural women through services provided by key players/actors in Busega District, Tanzania. Key players/actors epitomise government interventions or Non-governmental Organizations (NGOs) to change patterns of water utilities in the community (Bertelli, Mele & Whitford, 2020). As Uchiyama, Ismail and Stevenson (2021) stated that planning structures assist key actors in identifying and implementing projects desirable in the community to promote people's living standards. This article addresses the following research question: how do water supply key players/actors support rural women to reduce the workload of transporting water from long distances in Busega District, Tanzania? Following this question, key players/actors with the structures applied for delivering water services to rural women in the study area were examined to determine whether they were sustainable for reducing long distances walking to fetch water. The

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discussion of this article is worth undertaking to determine whether key players/actors have contributed significantly to reducing the workload of transporting water to rural women in Busega District, Tanzania.

## SUSTAINABLE WATER SERVICE APPROACH

The article adopted Triple-S (Sustainable Services at Scale) as an intervention for improving the services of water in rural areas. The process of reducing rural women's burden in this article is grounded in the importance of improving sustainable access to and use of sources within 400 or less meters of households. Water supply technicians recommended this distance and documented it in the National Water Sector Development Strategy of 2015. Triple-S is among the initiatives to increase access to water sources at a short distance approximately one kilometre to households. The International Water and Sanitation Centre (IRC) was granted a total amount of $ 20 million by Bill and Melinda Gates Foundation to develop models to establish sustainable water supply services (McNicholl, McRobie & Cruickshank, 2017). Theoretically, Triple-S was designed to foster sustainable approaches for rural water deliveries at scale and access by shifting from project-based, one-off and stand-alone water systems (Casella, 2021). The strategy was a six-year multi-country initiative that operated under the development team internationally.

The national and local partners created a strategic planning framework that was run by a collaborative process. The framework was adopted to allow the implementation of Triple-S focused on creating the best service delivery approach to local beneficiaries. Triple-S seeks to meet coverage targets and recurrent expenditures to sustain water deliveries to rural communities (Kumasi, Nyarko, & Antwi-Agyei, 2022). Triple-S is adopted in this article to explain water supply key players/actors' management and administration of their structures by determining how rural women could afford to utilize their services at scale. Water supply key players/actors are expected to reduce the burden of walking long distances in search of water for rural women. Valcourt, Walters, Javernick-Will, Linden, and Hailegiorgis (2020) argued that the Triple-S system builds on strengthening the interaction of key players/actors to establish structures for providing sustainable services to the rural poor who walk long distances in search of water.

The strength of Triple-S is in the notion that "to ensure sustainable services, it was necessary to address the whole system of actors and institutions that make up rural water sub-sector and the links between them" (Lockwood & Duti, 2015). The water sub-sector in rural areas creates a pathway for reducing the workload of fetching water in households (Prosper, 2020). To achieve this notion, projects were implemented to strengthen and provide support to the rural poor for delivering sustainable water services that could benefit the target population (Tyndale-Biscoe, Crawford, & Bailey, 2020). The slight changes are expected to exceedingly larger changes in the system to improve the living standards of people (Valcourt, Javernick-Will, Walters & Linden, 2020). Darteh, Moriarty, and Huston, (2019) argued, "…sustainability remains elusive because of a failure to engage with WASH service delivery as a system".

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The weakness of Triple-S projects is that it is hard to achieve sustainable water services and it has failed to address the real problem in rural areas because it operated for a short time. Despite the weaknesses of this approach, Triple-S projects are related to this article that argues for key players/actors to create structures that enhance sustainable access to and use of water services for rural women. The direct application of established structures contributes to offering sustainable services for increasing access to and use of water to the rural poor (Valcourt, Javernick-Will, Walters & Linden, 2020). Therefore, the article covers the gap by focusing on interactions of water services key players/actors with rural women which have not been taken into account by the Triple-S system.

## METHODOLOGY

### Study Area and Selection Criteria

Busega District was the study area. The district is located in Simiyu Region in the northern part of Tanzania with its administrative centre in Nyashimo town. In the northern part, the district is bordered by Lake Victoria and Bunda District, Bariadi District in the eastern and Magu District in the southern part. Geographically, the district is located in $2^0$ 10' and $2^0$ 50' latitudes in the south with $33^0$ and $34^0$ in the east. The district is potential due to its closeness to the western gate 'Ndabaka' of Serengeti National Park which has a variety of lodges in the northern part for accommodating tourists who visit the park. The district is the potential for small-scale income generation activities as it is linked by the two well-maintained and "paved national trunk roads" from Mwanza to Musoma. However, despite the potentiality of the district rural women are still living in income poverty. Rural women were targeted in this study because most developmental opportunities favoured men and they failed to tap them as they were occupied by the workload of transporting water for household consumptions including other responsibilities (Gores & Kapinga, 2020; Madoshi, 2022). This call for water service key players/actors to reduce the workload of fetching water to rural women so that they can manage to tap available opportunities to improve their livelihoods.

### Research Design

The study employed a cross-sectional research design for collecting data through a single survey in rural households. The research design was applied by conducting a household survey to explore the situation at a certain period. The study determined rural women's ability to access and use water services and how key players/actors managed to suffice their needs in reducing their workload. The design was employed because it was helpful to explore issues at that particular time and capture information in a natural set-up of rural women's lives.

### Sampling Techniques and Sample Size

Sampling techniques for this study included simple random and purposive sampling. Simple random sampling was employed to select 210 households of which rural women were selected as representatives of the population. The sample size was determined through the application of the

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Fund for Agriculture Development (IFAD) formula to calculate the actual number suitable to represent the population of rural women (IFAD, 2011).

*IFAD Sampling Formula:*

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

*Description:*

n = required sample size
t = confidence level at 95% (standard value of 1.96)
p = estimated percentage of the sample size (16.3%)
m = margin of error at 5% (standard value of 0.05)

*Calculations:*

$$n = \frac{1.96^2 \times 0.163(1-0.163)}{0.05^2}$$

$$n = \frac{3.8416 \times 0.026569}{0.0025}$$

$$n = \frac{0.52411333}{0.0025}$$

$$= 209.645332 \sim 210$$

In addition, a purposive sampling procedure was employed to select sixteen key informants and 60 participants for focus group discussions (FGDs). Key informants included a district commissioner who explained the initiatives undertaken at the council to establish water units. The agricultural extension officer provided information about rural women's failure to participate effectively in agricultural activities as they spent much time fetching water daily. One community development officer, a social worker and one development stakeholder from Social Network Venture (SNV) were consulted to explain their observations on the nature of water services provided by key players/actors. The director from Simba wa Yuda Academy (SYA) and a principal from Nassa Theological College (NTC) was interviewed to provide information on how those who managed to pay installation and usage charges were supplied with water. Three ward and six village executive officers were interviewed to explain the status of water points in their areas. Key informants were interviewed in this study because they are knowledgeable people who work and provide services to the community, and they understand the status of rural women's livelihoods.

**Data Collection Methods and Instruments**

Qualitative and quantitative approaches were employed to collect primary and secondary data from the study area. Primary data was collected through household surveys, focus group discussions and non-participant observations. The questionnaire was administered to rural women during the

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household survey. Rural women responsible to organize and conduct household chores in their homes were purposively selected. A series of questions were asked during the household survey to collect data from selected rural women among the actual sample size of 210. The household survey was suitable for collecting data in this study because rural women conducted their activities in houses.

More data were collected from six focus group discussions comprised of ten participants with a total of 60 conducted. Active members who responded effectively during the household survey were identified and were requested to participate in focus group discussions. Village Executive Officers helped to invite participants and they were directed to meet in selected locations for each village. Focus group discussions created an opportunity to collect in-depth information to explain the phenomenon. In addition, objective information was collected through non-participant observations. Observations were done on facilities used for fetching water, rural women's movements in households and available water points. Observed information enriched the study, as they were collected through witnessing what was happening to rural women in their households. Detailed information was also collected from key informants. Key informant interviews were conducted with knowledgeable people who understood the situation of water services provided by key actors to rural households as has been detailed. Identified key informants were visited in their working places. Checklists relevant to their roles played in the community were used to ask open-ended questions.

The article was enriched by documentary reviews from secondary data that has been produced and recorded. Documentary reviews were conducted to get information from district profiles, water service fliers and water pricing systems from the district council, Simba wa Yuda Academy and Nassa Theological College as key players/actors who provided water services to rural women. Water service reports at the district council were reviewed to get information about the process of installing water in different locations and households.

**Processing and Analysing Data**

Data analysis and processing were done to explore both qualitative and quantitative data. Qualitative data were analysed through content synthesis to assess the commitment of key players/actors in providing services to rural women. Qualitative data were categorized, coded and organized to explain findings in detail. Communication through texts provided a fundamental aspect to analyse interactions between key actors with rural women as customers who required water services to reduce their workload of walking long distances and transporting water to their households.

The Statistical Package for Social Sciences (SPSS) software was used to analyse quantitative data. The unit of analysis was an individual rural woman who utilized water services provided by key players/actors daily. Descriptive statistics were computed to determine distances from households to Lake Victoria which is the main source of water in this study area. The calculation was also

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done to analyse the distribution of rural women based on their perspectives on the services provided by key players/actors. A One-Way ANOVA was computed to analyse a five-point Likert scale to determine the status of interactions that existed among key players/actors of water supplies with rural women as customers. The Chi-square test was also analysed to examine the association that existed between the status of services provided by key players/actors and the number of hours used by rural women in conducting household chores.

## FINDINGS

### Rural Women and their Responsibility of Fetching Water

Results in Table 1 show that 11.42% of respondents were aged between 18 to 26, 68.57% were aged between 27 to 35, 16.19% were aged between 36 to 44 and 3.82 were above 45 years old. The majority of respondents were aged between 27 to 45 revealing that young women were present in their households. This implies that there were energetic rural women who were responsible for conducting household chores that included fetching water.

As the task of fetching water is done frequently per day, it is crucial to determine distances from households to the main source which is Lake Victoria. A motorcycle was used to travel to the lake from centres of selected villages such as Yitwimila A, Yitwimila B, Bulima, Bukabile, Kabita and Nyamikoma to calculate distances from each. Findings in Table 4.2 show that 50% of respondents had a distance from 0.5 – 1.5 km, 16.67% had a distance from 1.6 – 2.6 km, 16.67% had a distance from 2.7 – 3.7 km and 16.67% had a distance from 3.8 - 4.8 km. This implies that the majority 50% was located at a distance of 0.5 – 1.5 km. Distances were not conducive as the majority of rural women fetched water by carrying buckets of approximately 20 litres on their heads.

This situation is common in rural communities but several trips carrying water have health problems as some rural women complained that they suffered from chest aches, neckaches and headaches. Analysing the task from a socio-economic perspective entails that dedicating many hours for fetching water impends rural women to generate income for their households. Income poverty reduction for rural women necessitates addressing factors that have been preventing them to participate effectively in productive opportunities. The task of fetching water is among the factors as it is done repeatedly per day and consumes many hours. As such, rural women need several mechanisms to reduce the workload of fetching water for household consumption.

Table 1: Age of Respondents

| Age category/Years | Frequency | Percentage |
|---|---|---|
| 18-26 | 24 | 11.42 |
| 27-35 | 144 | 68.57 |
| 36-44 | 34 | 16.19 |
| 45 and above | 8 | 3.82 |

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Table 2: Rural Women's Responsibility of Fetching Water

| Distance to the Lake/Km | Frequency | Percentage |
|---|---|---|
| 0.5 – 1.5 | 105 | 50.00 |
| 1.6 – 2.6 | 35 | 16.67 |
| 2.7 – 3.7 | 35 | 16.67 |
| 3.8 – 4.8 | 35 | 16.67 |
| **Total** | **210** | **100.00** |

Source: Survey Data, 2017

**Water Services Provided by Key Players/Actors**

Rural water supplies in the study area were examined to determine services provided by key players/actors to the community. Results in Figure 1 show that 78% responded that water services provided in the study area were not sufficient and 22% regarded them as sufficient. This implies that water services provided by key players/actors were not sustainable to reduce the workload of walking long distances. As such, fetching water from various sources was one of the household tasks that consumed rural women's time. Different key players/actors supplied water to rural households by applying various structures to serve their customers. During the household survey, it was discovered that water services provided by key players/actors were not sustainable to reduce the workload of fetching water for rural women. The structures applied, for instance, establishing centres for trading failed to meet the required demands of water supplies in rural households. Key players/actors lacked commitments and realistic structures in providing sustainable water services to their customers. Similarly, it was reported that by Hoffmann *et al.* (2020) water services key players/actors failed to ensure sustainable supplies within the household due to a lack of facilities to install systems in various locations.

Furthermore, in-depth interviews with key informants revealed that services provided by key players/actors varied significantly based on their roles and the facilities available in their workplaces. The community development officer reported that, for instance, the government's key players/actors focused on developing policies and strategies as technical guidelines for water supplies. The government set standards by coordinating various plans for launching sustainable water projects in rural communities. Plans were implemented at the district council to supply water and sewerage systems and build capacity for local government authorities. However, observations show that government efforts dedicated to installing water systems have not been adequate in this area.

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*Vol. 8, No. 2 (2022), pp. 48-67*
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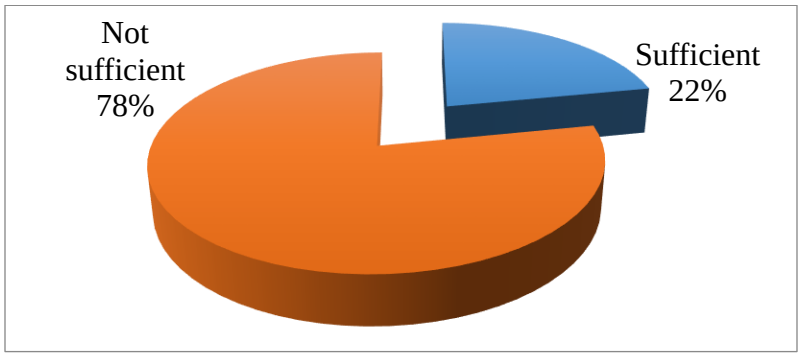


Figure 1: The Status of Water Services Provided by Key Players/Actors
Source: Survey Data, 2017

**Dominant Key Players/Actors for Groundwater Wells**

The study assessed key players/actors who provided groundwater services by constructing wells. The Health through Sanitation and Water Programme (HESAWA) managed to construct deep and shallow wells in the district. To identify water source locations, a survey was conducted in six villages within the district. The findings indicate that the distances to water sources varied significantly from one household to another based on each one's location in the village.

As Adams, Adams, and Koki (2021) and Savage, Rencken and Gurayah (2021) stated, distances from rural households to water sources vary significantly due to the geographical locations of each village. They further explained that in rural areas women walk long distances daily to fetch water from different sources for household utilization. Through observations, it was revealed that most rural women who were not employed either by the government or NGOs carried water on top of their heads from the lake. For the few HESAWA points that were functioning, rural women who preferred to use these wells had to send their children to line up and call them after filling up vessels as it is indicated in Plate 1. This is similar to Misunas, Erulkar, Apicella, Ngô, and Psaki (2021) and Raymond, (2021) who argued that in areas that are experiencing unavailability of water sources close to their households in Tanzania, children (mostly girls) are responsible to fetch water early at 5.00 a.m. each day. Children being responsible to fetch water before and after school had a negative impact on their academic performances as they spent much time. This is because; these children played that role immediately after school during the evening. The community development officer reported that in most cases their academic performances dropped down because they attended schools in the morning while they were tired and lacked preparation time during the evenings. The problem of spending much time fetching water has also limited women to participate effectively in livelihood strategies. It has also increased income poverty for rural women who were overwhelmed by this task every day.

ISSN: 2408-7920

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*Vol. 8, No. 2 (2022), pp. 48-67*
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Plate 1: Children Surrounding the Well of Water in Busega District

**The functionality of Water Points and their Statuses**

During the study in Busega District, it was discovered that 564 public water points were installed by key players/actors. These water points were installed by Health through Sanitation and Water Programme (HESAWA) key players/actors. However, only 273 water points in the district were working and 291 were broken (Table 3). The government of Tanzania statistics show that Busega District has only 35% of the population of 203,597 people distributed as 98,700 males and 104,897 females received public water supplies from various points while 65% were not served at all (URT, 2012; Makono, Mbassa, & Masanyiwa, 2017). Approximately this district has 33,933 households with at least six members in each. The National Water Sector Development Strategy of 2015 recommended the distance from households to water sources to be approximately 400 meters whereas a single unit is designed to serve at least 42 households while each with a total number of 6 members (URT, 2015). In addition, the Tanzania National Water Policy of 2002 proposes that a single water point is capable to serve sufficiently approximately 250 households for a distance of at least 400 metres from each household (URT, 2002). As such, the functioning wells in the study area can only serve approximately 134 households. According to Theodory (2022) HESAWA projects are unsuccessful in making differences in improving functionality with the sustainability of the systems and projects of water for rural communities.

By comparing the total population in the district it is obvious that most rural households did not get sustainable water services. This had negative impacts on women's time as they failed to participate effectively in livelihood strategies. For instance, Bukabile village had four (4) wells of water that were excavated and constructed by HESAWA. Approximately, among the total population, only a quarter (¼) was served. Similarly, Haule, & Massawe (2020) also discovered

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*African Journal of Applied Research*
*Vol. 8, No. 2 (2022), pp. 48-67*
*http://www.ajaronline.com*
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that non-functional water points in rural communities prevent them to get sustainable supplies for household utilization.

As a result, the burden of household duties increased as women had to dedicate time to fetching water from long distances. Likewise, in the country, over 30% of rural water points were not "functioning properly due to poor operational and maintenance arrangements" (URT, 2002). In addition, the Ministry of Water and Irrigation reported that, among the total of 88,000 rural water points, 60% were "functional", 31% were "non-functional" and 8% were "functional but need repair" (URT, 2016). The analysis shows that water supplies provided by key players/actors from the Department of Water and Irrigation at the district council did not suffice the needs of rural women. The initiative of reducing the workload of fetching water, as one of the household tasks for rural women, has not been addressed effectively by key players/actors in the study area. The study discovered that water points installed by HESAWA in the district lacked management and administration to ensure sustainable services to rural women.

Table 3: The Statuses of Water Supply Points

| Available Water Points | Functioning | Not-functioning |
|---|---|---|
| 564 | 273 | 291 |

Source: Survey Data, 2017

**Key Players/Actors and their Water Supply Charges**

In this article, the sources of water, key-players/actors and the expenses charged for services were examined. Water sources were identified such as Lake Victoria, ground, pipes and rain. No payments for water services from HESAWA wells and the lake unless otherwise for those who needed supplies from vendors. Lake Victoria is the major source of water for the majority of the study area. Though, most households were sited further from the lake, as such rural women were required to walk long distances to get to this source. In households that were located further approximately 1 kilometre from the lake, most rural women preferred to purchase water from vendors. In Table 4, the prices of getting water services from vendors are detailed for each village in the district. Water vendors were among the key actors who fetched water from Lake Victoria and supplied it to households and markets. These vendors used bicycles and wheelbarrows as their means of transport. Those who purchased water from vendors explained their statuses and the reasons that lead them to require these services to reduce the workload. During the household survey, a woman in Busega District reported that:

> *We usually purchase water because of health problems, old age, and among others, we are mostly occupied with income generation activities and household chores. Therefore, we are unable to carry water from long distances. However, sometimes we have been supplied with dirty water polluted by dynamite fishing and agricultural activities along the lakeshores. To get clear and clean water, one has to fetch it early in the morning between 05.00 a.m. to 07.00 a.m. before the commencement of other*

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> *activities around the lakeshores. Another alternative is to mix polluted water with aqua guards for purification* (August 2017).

Definitely, in Bukabile village they had a pump that propelled water from the lake to the tank and few households managed to pay for this water service. Those who used this service explained the schedule applied per week as it was irregular, done three days per week from 6.00 a.m. to 10.00 a.m. As one interviewee from Bukabile village clarified:

> *The cost of water is TZS 2,000 per unit (One unit of water equals 50 buckets of 20 litres or 1,000 litres). Yet, the flow of water in the pipelines within households is not frequent. I am employed as a primary school teacher; I have to report to my workplace at 7.00 am. It is very difficult to manage time in the morning. In most cases, I choose to report on time at my workplace and purchase water from vendors during the evening* (August 2017).

In general, the process of reducing the workload of fetching water for rural women has not been solved in Busega District. The costs for getting available services from key players/actors are not affordable by the majority. As such, rural women struggle with this repeated task differently based on their income statuses. The urgent need to get water services close to households was highly detected in rural women with health problems with those who were older than 60 years old. These women were required to forsake other needs and purchase water from vendors as they didn't manage to walk long distances. Key actors especially those water vendors were business oriented and their supplies were not sufficient and timely. Rural women also complained that they were sometimes supplied with dirty and polluted water by their customers. Vendors used the problem of fetching water as an opportunity for earning income regardless of safety. Even though these vendors managed to launch stopovers at village centres, their services were seasonal, and not reliable. For instance, in two villages such as Bukabile and Yitwimila B, water vendors supplied water at the local market as it is indicated in Plate 2.

ISSN: 2408-7920

*African Journal of Applied Research*
*Vol. 8, No. 2 (2022), pp. 48-67*
*http://www.ajaronline.com*
*http://doi.org/10.26437/ajar.31.10.2022.04*

Plate 2: Water Vending Business in Busega District

Table 4: Expenses, Distances to Water Sources and the Source

| Water supply sources in Busega District | | | |
|---|---|---|---|
| Location | Expense/TZS | Distance/ Kilometres | Source |
| Yitwimila A | 700 (per 80 litres) | 1 | Vendors |
| | None | 1 | Lake |
| Yitwimila B | 1,000 (per 80 litres) | 4 | Vendors |
| | None | 4 | Lake |
| Bukabile | None | 0.5 | Lake/HESAWA |
| | 1,000 (per 120 litres) | 1 | Vendors |
| Bulima | None | 1.5 | Lake |
| Kabita | None | 1 | Lake/HESAWA |
| | 1,500 (per 120 litres) | 2 | Lake |
| Nyamikoma | None | 1 | HESAWA |
| | 500 | 1 | Vendors |

Source: Survey Data, 2017

**Non-Government Water Supply Key Players/Actors**

In this district, there were non-government organizations involved in providing water services as key players/actors in reducing the workload of rural women. These NGOs that supplied water were found in Bulima village. These NGOs include Nassa Theological College (NTC) and Simba wa Yuda Academy (SYA). They provided piped water systems for households that managed to afford their charges. Rural women who had access to these services testified that they did not spend time

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*African Journal of Applied Research*
*Vol. 8, No. 2 (2022), pp. 48-67*
*http://www.ajaronline.com*
*http://doi.org/10.26437/ajar.31.10.2022.04*

fetching water from different sources like the ones who did not have them. Similarly, Smiley and Stoler (2020) reported that water expenses are beyond affordability which has led to household water insecurity which has been a barrier to development. These findings are similar to the report given by Tantoh and McKay (2020) who stated that having sustainable water sources is one of the key solutions for rural women to spend their extra time on other duties to improve their living standards. The installation stages included clearing and grading the site, digging trenches for the pipes, laying down the pipes within the trenches and fixing corks. The expense for accomplishing these activities was about TZS 150,000 (Table 5). In addition, water users from these sources were required to pay charges of TZS 1,000 per unit by calculating the amount utilized per month. However, low-income households did not afford the expenses of installing water systems offered by these NGOs.

For households to purchase or pay for water installation charges from key players/actors, is not easy for poor communities. Water supplies in households are very important to foster the development of women who were eligible to conduct household chores. When they became responsible to pay installation charges from the main sources, few households could afford the expenses.

Table 5: Water Installation Charges in Bulima Village

| Location | Expense/TZS | Distance/ Kilometres | Key Actors |
|---|---|---|---|
| Bulima | 150,000 (Installation) | 0.1 | Nassa Theological College |
| | 150,000 (Installation) | 0.1 | Simba wa Yuda Academy |
| | None | 2 | Lake |

Source: Survey Data, 2017

**Politician Responses to the Problem of Water Services**

Politicians participated in addressing the problem of water services during election campaigns. The systems of water were broken as it was explained by the village executive officer in Yitwimila B. He clarified those water systems in some water points that were broken; for instance, pipes and corks. The problem of malfunctioning at some water points was sometimes caused by normal blockage of structures or theft of systems, for instance, pipes and corks in these villages. Due to these status of water points, politicians turned the problem into an opportunity to win elections. They promised citizens that they were planning to construct a sustainable water system if they could elect them. However, elected leaders were not faithful to solving the problem after winning to take positions. Rural women in Yitwimila B explained the problem in detail as stated:

> *In the 2005 election campaigns, one of the contestants provided us with a pump that supplied water to our village for a few days. Each user paid TZS 200 per month as a payment to the guard of the system. Yet, after the elections, the pump was removed immediately from the site and the water system stopped functioning* (August 2017).

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*http://www.ajaronline.com*
*http://doi.org/10.26437/ajar.31.10.2022.04*

Furthermore, the study surveyed the process of monitoring water supply points and the possibility of key players/actors reducing the workload of fetching water to rural women. Patnaik and Ghosh (2019) observed that the problem of non-functional water points in rural areas is caused by a lack of proper structures and poor interactions of key players/actors in providing services to communities. It was observed that the Ministry of Water and Irrigation, as the key actor in the country, is responsible to monitor water points for urban and rural users and repairing them to maintain functionality. Ministry's water supply programmes were implemented by the national and local authorities. As such, the Department of Water and Irrigation, as a key actor in the district council, was working on renovating broken sources to solve the problem. Despite the management and administration of water services at the district level, the structures were weak such that systems were not renovated continuously.

**Interactions between Water Supply Key Players/Actors with Rural Women**

The article analyses interactions between key players/actors with rural women as one of the important behaviour for providing services to the community. The mode used for delivering water to local people was explained by rural women in each category and it was determined by using a five-point Likert-scale. The Likert-scale statement was "Interactions between water service key players/actors and rural women are satisfactory to meet the required standard of reducing the workload of fetching water". The assessment was based on a five-point Likert-scale such as: 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree. Responses were analysed by using One-way ANOVA for determining the five-point Likert-scale. The results in Table 6 indicate that rural women perceived water services to be insufficient which is verified by the average mean of less than 2.5 as a mid-point of the 5 scale point for agreeing and strongly agreeing with the statement.

As such, the results indicate that the majority in this district was not satisfied with the interaction that existed between key players/actors and rural women as beneficiaries. This testifies that key actors' engagement in water supplies was not committed to meeting the required standards of reducing the burden on rural women because they failed to organize structures for service deliveries to their customers in rural areas. Therefore, for key players/actors to come together, they have to adjust their interests and motives while considering the communities' needs (Sfar, Challal, Moyal & Natalizio, 2019; Njenge *et al.* 2021; Snyder-Young, Houston, Bell, Short, & Lincoln, 2022). This article regards the interests of key players/actors as not centred on providing sustainable water services to rural women, but on generating income for their household needs. For local key players/actors particularly water vendors, their services were suspended after getting their daily income regardless of customers' needs.

Furthermore, a Chi-square test was run to determine the relationship that existed between their responses and the time utilized for conducting household duties daily. The article analysed the association that existed between interactions of key players/actors and with time used by rural

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*Vol. 8, No. 2 (2022), pp. 48-67*
*http://www.ajaronline.com*
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women in conducting household chores. The results show that there is an association between water supply key players/actors and time spent by rural women on conducting household chores at 0.038 a p-value of 0.05 (Table 7). This means that rural women consumed many hours for household chores because their burden of fetching water was not reduced at all by key players/actors. This implies that insufficient services from key players/actors increased the number of hours used by rural women for fetching water. Key actors were not aware of how their services were valuable for reducing the workload of fetching water for rural women and maintaining satisfaction. The process of identifying the needs of water supplies for rural women was not assessed in the area of customers' experiences for improvement to meet the required standards. The paper argues that satisfactory services from key players/actors were likely to reduce the workload of fetching water for rural women. Essentially, the adoption of the Triple-S (Sustainable Services at Scale) for sustainable water services is applicable in this article to meet the required scale as a tangible solution to catalyze rural water sector reformation.

Table 6: Interactions between Key Players/Actors and Rural Women

| Nature of Interaction | Average | F-Statistics |
|---|---|---|
| Strongly disagree | 2.56 | 7.43 |
| Disagree | 2.61 | 19.34 |
| Neither agree nor disagree | 2.55 | 16.05 |
| Agree | 1.02 | 6.43 |
| Strongly agree | 1.06 | 6.31 |

Source: Survey Data, 2017

Table 7: Chi-Square Test on the Association between Key Actors' Interaction with Time Used on Household Chores

| | Value | Degree of Freedom | P-value |
|---|---|---|---|
| Pearson Chi-Square | 21.956[a] | 12 | 0.038 |
| Likelihood Ratio | 25.401 | 12 | 0.013 |
| Linear-by-Linear Association | 7.717 | 1 | 0.005 |
| Number of Valid Cases | 210 | | |

Source: Survey Data, 2017

## CONCLUSION

Water service key players/actors play an important role to reduce the workload of walking long distances in search of water for rural women. The findings of the study prove the notion of Triple-S that emphasizes sustainable services at scale as a strategy to improve water supplies in rural areas. In Busega District, it is evident that despite the availability of key players/actors who provided water services in rural areas, the problem of walking long distances in search of water

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still existed. Key players/actors for water services in rural areas were business oriented and they did not focus on increasing opportunities to access and use available sources. Water supply key players/actors failed to provide proposed sustainable services at scale to meet the required demands in households as the implementation of Triple-S. Key players/actors have not established strong structures for managing and administering sustainable water services. There were also poor interactions between key players/actors with rural women in offering and receiving timely and sustainable services at scale. Among other key players/actors, the government's priority was on developing policies and strategies for improving water supplies in rural areas. The study discovered that the government operated at the district level while the Department of Water and Irrigation has not managed to improve rural women's sustainable access to and use of water at a short distance. The study discovered the alternative used by rural women for purchasing water from vendors as local key players/actors. Moreover, politicians often used this problem during election campaigns to persuade local people to vote for them by promising to construct water systems. But, after the elections, they did not implement their promises. Moreover, there were some rural women with low incomes who did not afford the expenses of purchasing water. As a result, the majority of rural women in Busega District consumed many hours fetching water from the lake and other sources. In practice, the burden of fetching water has been an obstacle to rural women's income growth due to the wastage of hours that were invested to accomplish this task rather than participating in productive activities. Their social wellbeing was also destructed as they were overwhelmed by this burden that was done repeatedly per day.

**Recommendations**

The article recommends that rural women need support from service providers who can deliver water at affordable prices for all income levels in the community. The long-term solution for ensuring that the burden of fetching water is reduced in remote rural areas, the Ministry of Water and Irrigation should make sure that there are clear instructions and responsibilities among key players/actors to reduce barriers that exist among them. The government's key players/actors in the water sector should implement effectively the Tanzania National Water Policy of 2002 to reduce the burden of fetching water for rural women. Their efforts should focus on creating a conducive environment such as constructing and repairing water points in rural areas.

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