

**FROM CONSCIOUSNESS RAISING TO  
SUSTAINABILITY OF COMMUNITY OWNED WATER  
SCHEMES IN TANZANIA: LESSONS FROM  
MOROGORO AND NJOMBE RURAL DISTRICTS**

*Titus O. Mwangeni<sup>1</sup>, Aggrey Kihombo<sup>2</sup> and Iddi Makombe<sup>3</sup>*

<sup>1</sup>*Institute of Rural Development Planning, Dodoma, Tanzania*

<sup>2</sup>*Department of Economics, Mzumbe University, Morogoro,  
Tanzania*

<sup>3</sup>*Institute of Development Studies, Mzumbe University,  
Morogoro, Tanzania*

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**Abstract**

*This paper assessed the role of consciousness raising on sustainability of community owned water schemes in Mtamba village Morogoro rural District and Magoda village Njombe rural District, focusing on financial ability of the community in maintaining and operating the established water schemes, availability of spare parts and technical skills, and number of water points functioning overtime (functionality rate). Sample of 272 participants was used. It was a descriptive study that blended qualitative and quantitative (mixed) methods that used qualitative sequential quantitative design. Primary data were collected through interview, observation, and focus group discussions. Secondary data were collected through documentary review method. Quantitative data was analysed*

*using descriptive statistics while qualitative data were analysed through ATLAS.ti 7 qualitative data analysis software package. The study found that sustainability of the newly established water schemes were affected by inability of some community members to pay water levy throughout the year, distance and cost in accessing spare parts, malfunctions of some water points due to technical problems and failure of community members to recover some broken water points. Out of 5 established water schemes 2 had malfunctioning problem of 100% for Mtamba World Bank water scheme and 19% for SHIPO water scheme. Those water schemes whose users accessed water without paying water user fee were at high risk of malfunctions than those with fixed water levy system paid by water users on monthly basis. This implied that consciousness raising was successful in influencing community in establishing water schemes than on sustaining them.*

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## **1.1 Introduction**

Community consciousness raising (empowerment) as a contested concept has been viewed differently in a number of academic fields. This study assessed institutional engagements in consciousness raising towards sustainability of the established community owned water schemes in Njombe and Morogoro regions. More specifically the study examined the sustainability level of the established community owned water schemes; focusing at community ability in maintaining and operating the established water schemes. Three indicators were used to answer

the study questions namely: financial ability of community members, availability of spare parts and technical skills; and functionality of the established water points. The paper is divided into four major parts: the background information to the problem, the study area and methodology; the findings and discussion and finally, the conclusion.

## **1.2 Background to the Problem**

Sustainable access to clean drinking water is a human right and indispensable for leading a life in human dignity (UN, 2012). Despite the global efforts of improving sustainable accesses to water services, it has been noted that since the beginning of the twenty first century, the global water scarcity continued to be one of the world's leading problems affecting more than 1.1 billion people (UN, 2011). Worldwide, around 84% of the people who do not have access to clean water services, which is more than eight in every 10 people, reside in rural areas (DFID, 2011, UNICEF and WHO, 2011). Lack of sustainable access to water services is largely caused by the malfunctioning of most of established water schemes/points. Many of the constructed water services have not continued to work over time. It has been estimated that in Africa only two out of three installed hand pumps are working at any given time (RWSN, 2010).

In Tanzania, the National Water Policy (2002) recognizes that access to clean and safe water is a basic need and a right for all human beings and efficient management and equitable use of water in rural areas should be promoted (URT, 2002). Since independence, the government initiated different programmes for improving water supply in the country. In 1965, shortly after independence, the state viewed water as a right to be

accessed freely and embarked on large scale programmes to improve water services. Following the Arusha Declaration in 1967, there was heavy investment in water schemes, which resulted in the proportion of the population with access to improved water supply increasing from 12 to 47% in the period from 1971-1980 (Maganga *et al.* 2002; Vavrus, 2003). Water was recognised as a public good provided freely and the government undertook to cover all capital costs of investment (Maganga *et al.* 2002; Vavrus, 2003). However, due to sustainability constraints, these early investments could not be maintained and many schemes fell into disrepair. More of the blame for failure of water supply sustainability was placed on a lack of community participation in design and management of water resources (Therkildsen, 1988; URT, 2002; Kyessi, 2005).

In 1972, the government created an institutional framework that could facilitate development of equitable and sustainable distribution of water services through consciousness raising and popular participation of the community in decision making, improvement of democracy and empowerment of local people (Mehrotra, 2006; Bergh, 2004). This was done through Decentralisation by Devolution under the decentralization policy of 1972. The policy focused on decentralizing key authorities and functions of government from the centre to the grassroots level so as to enable community to participate in decision making (Picard, 1980, Massoi & Norman (2009). In 1998, the Local Government Reform Programme was initiated to foster, among other things, improved sustainable water supply reflecting local demands and conditions. This was seen as a step that could give people more decision making powers on matters

affecting their welfare and of local importance, as it could increase the responsiveness and enhances accountability of the government to the needs and priorities of the community (Dijk, 2006; Mehrotra, 2006). This step in turn could improve water supply and delivery of water services at local level and empower community to hold the government accountable for improving water supply.

In similar vein, in July 2007 the government adopted the Water Sector Development Programme (WSDP) which mobilised significant financial resources to the sector (URT, 2010). Through its quick-win sub-projects, about 8,285 water points were developed, providing water supply to over 1.89 million beneficiaries (URT, 2010). In promoting sustainability of water schemes, the WSDP adopted a Sector-Wide Approach to Planning (SWAP) based on community demand orientation and decentralised management through local governments that emphasized on: management at the village level, communities owning and managing their schemes, communities achieving full cost recovery for operation and maintenance of schemes, as well as replacements (URT, 2009). In achieving the WSDP the government used the National Rural Water Supply and Sanitation Programme (NRWSSP) as a vehicle in achieving rural water supply target of increasing access to water supply to 79 % and adequate qualitative acceptable sanitation facilities to 90 % by 2015.

However, in spite of all of these efforts by the government, water supply and sustainability of rural water supply remained a daunting challenge in Tanzania (see Katko, 1993; URT, 2014; Jiménez & Foguet, 2011). Almost one in every two persons

has no sustainable access to safe water service in the country, most of people who do not have sustainable access to clean water services reside in rural areas (DFID, 2011, UNICEF and WHO, 2011). This has resulted in many people especially women in rural areas travel long distances, consuming much of their time fetching water (Mwambuli, 2011). In 2014 about 51% of rural community had access to improved water services; this situation seems to be far below the National Rural Water Supply and Sanitation Programme target that intended to increase access to water supply to 79 % by 2015 (URT, 2014). The Water Point Mapping (WPM) surveys conducted in 51 districts found that only 54% of all established public water points were functional (Taylor, 2009). Even the very newly established water supply points had problems. These surveys also found that just two years after water projects were completed, a quarter of the water points were no longer functioning. Assuming a similar malfunctioning rate applies nationwide, as of now there could be around 30,000 nonfunctioning rural water points in Tanzania. This number would be enough to provide access to clean and safe water to 7.5 million rural Tanzanians assuming 250 people are served per water point (Taylor, 2009).

In addressing the sustainability problem, the Tanzania National Water Policy (2002), basically recognise that development and sustaining rural water supply schemes requires adequate financing, dependence on government and donors as sole providers for water services has led to inefficient delivery and weak sustainability of rural water supply. It is imperative to mobilize and empower communities to take the lead in their water development activities. Financial support for water supply from both Central Government and District Councils will

be initiated and requested by the respective communities themselves who shall also demonstrate their ability to sustain the schemes before they can access to financial support (URT, 2002).

In complementing government efforts of improving water supply and its sustainability, since 1990s different Organisations such as World Bank, SHIPO, SNV, and Daraja in collaboration with Water Aid, Oxfam, United State Agency for International Development (USAID), Global Water for Sustainability (GWS), Tanzania Water and Sanitation Network and Twaweza; implemented different models of water supply that intended to raise local people's consciousness to realise their own potential and take actions in improving water services. In practice these organisations' interventions are based on the empowerment theory, where they seek to raise consciousness to the community to see their problem or situation, to analyse the factors (personal, cultural, institutional) that contribute to the problem, and to act to change the problem or situation, which Freire called "see-judge-act" (Freire, 1997). These organisations raised community consciousness while believing that the informed and motivated citizens are the most powerful agents of change, with sufficient information, ideas, and confidence, citizens can make things happen at their level by taking actions of their own or demanding the government to deliver the services they deserve (Freire, 1995; Mehrotra, 2006; Bergh, 2004, Twaweza, 2011). By increasing the ability of individuals, groups, and communities could be able to (1) analyze their environment, (2) identify problems, needs, issues and opportunities, (3) formulate strategies to deal with these problems, issues and needs, and seize the relevant opportunities,

(4) design a plan of action, and (5) assemble and use effectively and on a sustainable basis resources to implement, monitor and evaluate the plan of actions, and (6) use feedback to learn lessons (UNDP,1995). As a process of capacity building, competence and skills development and critical awareness in community issues; consciousness raising could result to organized and broad-based forms of social and collective action (Laverack, 2004).

These organisations have done this in both villages of Magoda in Njombe rural district and Mtamba Morogoro rural district, through programme interventions that support information on water supply, water policy and water rights to flow to the community in a way that spurs the public imagination and citizen actions. This was done by using mass mobilization strategies through mass media (radio and TV), mobile phones, fliers, open exhibition, bill boards and daladala shows. Through these mobilisation strategies, awareness on water issues were raised including: community role to contribute to water funds in cash and in-kind, the need of paying water user fees, formulation of water user groups, community awareness on the ownership and management of water schemes, the necessity of protection of water sources, community accessing information on the use of the water fund, and community rights on accessing water within a minimal distance level.

These raised consciousnesses resulted in community collective actions in addressing water issues in the respective villages. Community members in these villages in collaboration with the implementing organisation and district council established 5 community owned water schemes, namely: The Mtamba World



Bank Water scheme in Mtamba Village, in Magoda village: SHIPO rope pump water scheme, The *Umoja ni Nguvu* local water scheme, the *Sheledzi* local water Scheme and the *Umoja* local water Scheme. Therefore this study intended to assess the sustainability level of the established community owned water schemes. More specifically to determine the community ability in maintaining and operating the established water schemes.

## **2.0 The Study Area and Methodology**

The study was conducted in two villages of Mtamba and Magoda in Morogoro and Njombe rural districts respectively. These regions, districts and villages were randomly selected, from a sample frame of areas which different organisations implemented diverse activities related to community consciousness raising (empowerment) in improving and sustaining water supply. The target population for this study was the community members from the selected villages in which an individual head of household constituted the unit of analysis.

A sample of 272 participants was used, of these, 174 were respondents from heads of households, 18 were key informants and 80 focus group participants. This was a descriptive study that blended qualitative and quantitative (mixed) methods. However, since qualitative approach features more in the study compared to quantitative information; the design opted was thus qualitative sequential quantitative design. Qualitative and quantitative data were marshaled in order to provide a comprehensive analysis of the study problem. In this design, both forms of data were collected and then integrated in the

interpretation of the overall results (Creswell, 2003). Primary data were collected through interview, observation, and focus group discussion. Secondary data were collected through documentary review method. Quantitative data was analysed using descriptive statistics where numbers assigned to variables were used to summarize and describe data. Frequencies, percentages and score mean were the main types of descriptive statistics used in verifying the relationship between variables. For qualitative data, the ATLAS.ti 7 qualitative data analysis software package was used to analyse the interviews, field notes and textual sources.

### **3.0 Findings and Discussion**

#### **3.1 Sustainability of Community Owned Water Points/Schemes**

The sustainability of water supply was analysed in the context of the ability of the established water point (water schemes) to continue to work overtime as planned, and to recover in case of technical or non technical breakdown such that benefits of the supply continue to be realized by all users over a prolonged period of time (Abrams, 1998). In examining the sustainability of community owned water schemes in the study areas, an assessment of community ability to operate and maintain water points/scheme was done where three indicators were assessed: Financial ability of the community, Availability of Spare Parts and technical skills, and number of water points functioning overtime (functionality rate).

### **3.1.1 Community Ability in Operating and Maintaining Water Points/Schemes**

The concept of sustainability requires that the service delivered to human beings should be available to both the present and future generations. The sustainability of water supply in rural areas depends on the ability of community members to progressively operate and maintain water points/scheme after the project establishment. The National Water Policy (2002) provides directives that for the sustainability of water schemes, communities are required to pay full operation and maintenance (O and M) costs and to manage their schemes. Similarly, in empowering community in the study area, it was thought that the raised consciousness of community members on water fund and labour power contribution in establishing water schemes, paying water user fee, ownership and management of water schemes could trigger the sustainability of rural water supply schemes in the study area.

It should be noted that prior to consciousness raising from identified organisations hence establishment of water schemes in the study area, water service was recognised as a public good and the government undertook to cover all capital costs of investment and operations; with the establishment of new water schemes under the National Water Policy (2002) requirements, it was the role of community members to pay full operation and maintenance costs. In examining community ability to operate and maintain water points/schemes in the study area, three indicators were assessed: financial ability, availability of spare parts and Technical skills; and Functionality of the established water points.

***(i) Financial ability***

Sustainability of water supply in the study area depended on the continuous financial ability of community members to cover the cost for operation and maintenance of water points/schemes. The empowering community members in the study area, it was thought that through program interventions that supported information on water supply, water policy and water rights to flow to the community, enabled them to monitor and discuss what was going on with respect to water problems. This could result them to act on their own in addressing water problems through funding to sustain their scheme. In examining financial sustainability for maintenance and operation of water points/scheme, findings varied from one water project to another.

In Mtamba village, where the World Bank's gravity water scheme was successfully established and handed over to community on 20<sup>th</sup>, March 2007 with an output of 15 public water points, and 40 households being connected to water system at their premises; adding the number of water points in the village from the old dilapidated water scheme established by the government in 1982. In total the village had 105 water points of which 32 were public water points and 73 were connected to households. Since then water services were no longer a public good provided for free of charge. All community members accessing water services were obliged to pay water user fee on monthly basis. The financial sustainability for operation and maintenance of the scheme depended on the water user fee charged from community members on monthly basis. The study found that each household accessing water services from public water point paid water user fee of Tsh. 200/= per

month. Those households connected with tape water in their premises paid Tsh. 3000/= per month, while business people owning guest houses paid Tsh. 10,000/= per month. The amount collected was deposited in a village water bank account number NMB 22102300172, during the study it was also found that a village had a total amount of Tsh 415,000/= in a bank account as a balance for operation and maintenance of the scheme. However, the amount was too minute to afford for big maintenance when required.

Such considerable change of community's action on water user fee payments had an implication that the consciousness raised by the implementing organisations was effective in spurring public actions in paying water user fee. This was also told during focus group discussion in Mtamba village, one of the members said:

*Generally, before arrival of these organisations with their consciousness raising programmes in our village all community members used to accessed water services from the old dilapidated water scheme established by the government in 1982. Water was a public good accessed freely by all community members in our village. Once a public water tapes were broken we were waiting for the government either at village or District level to repair it. However, currently after getting knowledge our attitude changed we are paying water user fee once we access water from a public water point, also we are involved in maintenance and repairing the broken water points.*

**Table 1: Trend of annual turnover from water user fee collection in Magoda village**

<b>Year</b>	<b>Total annual turnover in Tsh.</b>
2008	700,400
2009	763,380
2010	1,469,602
2011	1,916,150
2012	7944,400
2013	982,400
2014	1,402,300
2015	1,500,000

*Source: Mtamba Village Water Financial Report, 2015*

Moreover, it was also found that despite positive public response of paying water user fee, the established water scheme in Mtamba village had some funds for operation, but not for big maintenance or replacement since the monthly turnover was not enough in case of gigantic technical problems. Data from Mtamba Village Water Financial Report indicated that there was variation in terms of total annual turnover raised from water user fee ranging between Tsh. 1,500,000 in 2015 as maximum collection to Tsh. 700,400/= in 2008 as a minimum collection. The study also found that community members failed to recover the broken water intake of the newly established water scheme due to financial constraints; this implied that financial sustainability was so uncertain in turn affected the ability of the newly established water point (water schemes) to continued work overtime as planned. Interview with the village cashier found that currently they afford to make minor maintenance of replacing broken pipes, replacing the broken water tapes and fixing the broken bolts and nuts since such materials are

affordable, but when it comes to big maintenance they can't afford the problem is forwarded to village governing council for further actions which also forward it to district council where they experienced facing less responses.

In Magoda Village Njombe rural where 4 water schemes were established namely: the Magoda SHIPO rope pump water scheme established in 2008, with a total of 37 public rope pump water points in place; the *Umoja ni Nguvu* local water scheme established in 2009 with a total of 87 water points connected to homestead of each group member; the *Sheledzi* local water scheme established in 2010 with a total of 30 water tapes connected to compounds of each group members, the *Umoja* local water scheme established in 2009 with a total of 5 water points connected to inhabitants of each group members. With respect to financial sustainability, the study found that financial sustainability for the local community own established water scheme in Magoda village varied from one scheme to another. Out of 4 established water schemes 3 of them their financial sustainability was very uncertain. The study found that while the Tanzania Water Supply and Sanitations Act (2009) Section 36 provides directives that, among of the source of fund for sustaining the community water supply schemes shall be the water levies or water charges payable to it by each consumer using the water scheme; the situation was different in the study area. For SHIPO rope pump water scheme, the *Sheledzi* local water scheme and the *Umoja* local water scheme, the water users access water services for free of charge without paying water users. The operational and maintenance costs did not depend on monthly collections from the water user fee. The

fund for operation and maintenance of water scheme was contributed by water user group when needs occurred. Once the technical problem occurred, an assessment for determining the actual cost for repair was done by the respective Water User Group (WUG) hence the total cost was distributed equally to the respective group members. The money collected from the group used in purchasing the equipments required, and finally all group members were involved in maintenance of the water point. This was contrary to the Tanzania National Water Policy (2000) and the Water Supply and Sanitations Act (2009) requirements which direct that each consumer accessing water from the public water scheme should pay water levy or water charges for operation and maintenance of the existing water scheme. This phenomenon was also contrary to the empowerment theory pioneered by the implementing organisations in the study area, which thought that the raised community consciousness on fund contribution could change their attitude hence community members could continuously pay water user fee for regular operation and maintenance of the newly established water scheme.

The study also found that lack of water user fee system to most of schemes in Magoda village caused financial sustainability risks since some water user group members were not able to contribute fund for maintenance when needed. This frightened the future sustainability of three schemes since sometimes the schemes required maintenance while some group members had no fund in hand; this implied that group members had weak ability to regularly pay money needed to cover maintenance cost of the scheme. During focus group discussion in Magoda



village, members said that lack of water user fee system had challenges when it came a time where a particular water point gets technical problem while some group members had no money at hand, this resulted in some community members failing to timely contributing the fund for maintenance of water points. When water points broke down, they are abandoned since there are no funds to repair or replace spare parts and nobody is responsible for this task. This implied that there was no financial sustainability for operation and maintenance of three water schemes namely: SHIPO rope pump water scheme, the *Sheledzi* local water scheme and the *Umoja* local water scheme.

Out of four water schemes only one scheme (The *Umoja ni Nguvu* local water scheme) had a well established modality of paying water user fee on monthly basis. Where each group member paid Tsh. 1,000/= per month payable directly to cashier. The total revenue collected was deposited in the NJOCOPA bank account number 016008930001 which provided an optimistic financial sustainability for future survival of the scheme. On the ability of group members to continuously paying water user fee on monthly basis, it was found that out of 87 water user group members 82 (94%) had the ability of paying water user fee each month since 2009 after establishment of water scheme to 2015. By the year 2014 the *Umoja ni Nguvu* group generated a total turnover of Tsh. 3,252,000/=. However, 5(6%) of water user group members were unable to pay their monthly water user fee regularly. These findings implied that consciousness raising to large extent had positive effect in influencing the *Umoja ni Nguvu* group members to pay water user fee for maintenance and operation of the scheme. The study also found that the operation and maintenance of the

scheme faced challenges of high maintenance and operational costs. For example, the calculations made in 2014 financial year found that the scheme had a total turnover of Tsh. 4,577,000 – 442700 (All expenses) = Tsh. 150,000 (Balance to Bank). The balance of Ths. 150,000/= might not afford incase of technical problems that requires large amount of money.

**Table 2: An overview of water price in Mtamba and Magoda Villages by 2014**

<b>Water Scheme</b>	<b>User Category</b>	<b>Price in Tsh. Per Month</b>
World Bank Water Project Mtamba Village	Guest house owners	10,000. 00
	water users	
	Households connected with water	3,000. 00
	Individuals users of public water points	200. 00
SHIPO rope pump water project Magoda Village	Individuals users of public water points	Free of charge, money Paid when technical problem occurred.
The <i>Umoja ni Nguvu</i> local water Scheme Magoda Village	Individual user of water point at homestead	1,000.00
The <i>Sheledzi</i> local water Scheme Magoda Village	Individual user of water point at homestead	Free of charge, money Paid when technical problem occurred.
The <i>Umoja</i> local water Scheme Magoda Village	Individual user of water point at homestead	Free of charge, money Paid when technical problem occurred.

Source: Field data, 2014

The findings also reflected that, those water schemes whose users were not paying water user fee were at high risk of failure to meet the operational and maintenance costs when technical problems occurred, compared to those with fixed water levy to be paid by water users, since during FGDs discussion members complained that the tendency of paying user fee irregularly when technical problems occurred, was very hard for them to pay since most of rural households do not always have money at hand when needed. Also there were no proper records kept on the amount of money (cost) used when breakdown occurred with respect to equipments purchased for repair. Irregularity on payments for repair of water schemes and lack of financial records discouraged the group member to pay for the future functionality of the established water schemes.

***(ii) Availability of Spare Parts and technical skills***

In theory it was thought that empowerment through community consciousness raising on monetary and in kind contribution through paying water user fee could result to affordability of community members to regularly access spare parts when needed for maintenance of the water scheme. Availability and accessibility to spare parts for maintenance is the fundamental determinants for sustainability of any water scheme. On availability of spare parts the situation in the study area differed from one water scheme to another.

For Mtamba village where the World Bank water scheme was established, it was found that spare parts were neither found in the village nor at the ward headquarter shops, all spare parts

were bought from Regional head quarter Morogoro town located more than 80 km. from the village. This culminated the transport cost to increase the prices of spare parts which affected sustainability of the project due to low turnover. However, during the study through observation it was found that the Mtamba World Bank water project had some spare parts which were bought in advance in case of any technical problems (Figure 1).



**Figure 1: Spare parts purchased and stored for maintenance of water point in Mtamba Village**

Source: Field data, 2014

The village water technicians were responsible for maintenance of water points when needed. It was the role of the cashier to purchase the equipments while the village water technicians

were given responsibility of keeping them under the control of the Village Water Committee. Generally data had shown that community ability to cover the cost of accessing spare parts for big maintenance was very weak affected by proximity to shops (distance) and price, consequently affecting the sustainability of water supply in the study area. However, existence of some spare parts stored in the village, implied that community empowerment influenced the capacity of community members in paying water user fee that resulted availability of some fund for purchasing some spare parts for small maintenance.

In Magoda village, the sustainability of SHIPO rope water pump project was backed up by the availability and accessibility of spare parts and Technical skills that SHIPO built an operational and maintenance capacity to community members. This was done through providing training in low cost technology of rope pump production, installation, repairing and drilling. SHIPO using its smart training centre trained members of Civil Society Organizations (CSOs), institutions, private entrepreneurs and individuals in the study area and other community members from nearby villages. Private entrepreneurs in small workshops produced, rope pump and spare parts sold to community members (Figure 2).



**Figure 2: Private entrepreneurs producing rope pumps in Uwemba ward**

Source: SHIPO Annual Report, (2012)

However, despite availability of spare part for SHIPO rope water pumps, accessibility to the parts was a challenge to some water user groups due to financial constraints as analysed in detail in this paper. This implied that empowerment initiatives implemented through SHIPO interventions were successful in inducing change through disseminating knowledge and skills on rope pump technology, but it was constrained by financial sustainability of community members in accessing equipments when needed.

***(iii) Functionality of the established water points***

The functionality rate of water points was an important indicator in assessing sustainability of water supply in the study area. In

determining the functionality of water points, the documentary review and survey was made to observe and identify the non functional water points existed in the study areas. With respect to functionality rate, the study found that the newly established water schemes had sustainability problems of different intensity and impact caused by financial constrains, availability and cost of spare parts (Figure 3). Out of 5 established water schemes 2 had malfunctioning problem of 100% for Mtamba World Bank water scheme and 19% for SHIPO water scheme.



**Figure 3: The abandoned non functional water points observed in the study areas**

A broken Public Water Points in Mtamba Village: Abroken SHIPO water rope water point Magoda Village Morogorol rura Vilage Njombe rural  
Source: Field data,( 2014)

The newly established Mtamba World Bank water scheme that was handed over to community members on 20<sup>th</sup>, March, 2007; with an output of 15 public water points, and 40 households being connected to water system at their premises; all water points were not functioning within two months after handing over ceremony. The malfunctioning was caused by the destruction of the water intake. The maintenance required heavy investment which community members didn't afford. Once reported to the District council it was found that the council was not in the position of maintaining the broken water intake due to budget deficit. This implied that despite heavy investments which resulted to significant improvements of water supply due to donors' efforts, the community in collaboration with the District council, the sustainability of water scheme didn't last longer hence forced community members to depend on the old dilapidated water scheme containing 24 water points of which only 6 were operating; also did not provide water throughout the year. This resulted in community members to use the contaminated shallow wells, rivers and spring.

For SHIPO water scheme established in Magoda village, findings indicated that out of 37 rope pump water points which was handed over to community members in 2009, about 7 water points were not functioning by 2014 due to technical problems. This implied a non functionality rate of 19%. This resulted in shortage of water to some community members in the village hence opting to poor hygienic water sources of rivers, springs and shallow wells.



**Table 3: Functionality of established water schemes in Magoda and Mtamba villages by 2014**

<b>Name of water scheme</b>	<b>Number of water points established</b>	<b>Number of water points functioning overtime</b>	<b>Number of water points not functioning</b>	<b>Percentage of non functional water points</b>
The World Bank Mtamba water scheme	15	0	15	100
SHIPO rope pump Magoda water scheme	37	30	7	19
<i>Umoja ni Nguvu</i> water scheme	87	87	0	0
<i>Sheledzi</i> water scheme	30	30	0	0
<i>Umoja</i> water scheme	5	5	0	0

*Source: Field data, 2014*

For the functionality rate of the *Umoja ni Nguvu* water scheme, the study found that by 2014 a total of 87(100%) of water points were functioning, also for *Sheledzi* water scheme a total of 30 (100%) of water points were functioning and for *Umoja* water scheme 5 (100%) of water points were functioning. This provided an implication that after consciousness raising, the community own established water schemes without financial assistance from neither the existed organisations nor the governments had higher functionality rate of 100% than those water schemes establish with financial assistance from the implementing organisations and the governments.

#### **4.0 Conclusion**

In complementing government efforts of improving water supply and its sustainability, the World Bank, SHIPO, SNV, and Daraja in collaboration with Water Aid, Oxfam, United State Agency for International Development (USAID), Global Water for Sustainability (GWS), Tanzania Water and Sanitation Network and Twaweza; through different models that raised local people's consciousness to realise their own potential and take actions in improving water services in the study area. Through which five water schemes were established, out of which two were donor funded (the World Bank and SHIPO) in collaboration with the district council, while three water schemes were established by community's own initiatives without financial assistance from neither the government nor the existed organisations. However, the study found that sustainability of the established water schemes were affected by inability of some community members to pay water levy

continuously throughout the year, distance and cost in accessing spare parts, non functionality of some water points due to technical problems and failure of community members to recover some water points when broken down. Moreover, The study also found that, those water schemes whose users were not paying water user fee were at high risk of failure to meet the operational and maintenance costs when technical problems occurred than those with fixed water levy to be paid by water users. Lack of water user fee to most of schemes in Magoda village caused financial sustainability risks since some water user group members were not able to pay fund for maintenance when needed. This situation of diverse functionality rate between different water schemes, implied that community empowerment through consciousness raising was more successful in influencing community own initiatives in establishing water schemes than in persuading sustainability of the established schemes.

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