

**Performance of Non-State Actors in Provision of Water along  
Kiambere-Mwingi Water Pipeline in Kamuwongo Division, Kitui  
County**

**By**

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**Declaration**

This report is my original work and has not been presented for a degree award in any university.

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**Approval**

This Project Report has been submitted for examination with our approval as University supervisors.

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**Dedication**

This report is dedicated to my family especially my mum and dad, sisters and my brother who have been supportive and encouraging throughout the course.

## **Acknowledgement**

This report is a product of a research conducted in Kamuwongo Division, Kitui County in March 2014. The report is a result of generous contribution and assistance of a number of organizations, institutions and individuals both within and without Kenyatta University. First and foremost, I thank our Almighty God who gave me good health and opportunity to carry out the study. Special thanks and sincere gratitude also go to my Supervisors, Dr. Sammy Letema and Ms Carolyn Getao, whose professional advice, guidance and constant encouragement was important in perfecting this report. In a special way I thank the Chief of Kamuwongo Location for her guidance which made me get the resource persons like the directors of NGOs and CBOs. I also thank the Kyuso Water District Officer and the Managing Director of KIMWASCO for their loyalty and hospitality during the research. Finally, I wish to convey my heartfelt gratitude to all who contributed to this exercise, but whose names and designation may not have been stated in this report.

## **Abstract**

*The Millennium Development Goal 7c of halving the population without access to safe drinking water was achieved in 2010. However, in Sub-Saharan Africa, Kenya included, this goal is yet to be met as disparities still thrive. About 57 per cent of the households in Kenya have access to safe water. The government has tried to improve water service provision through resource allocation; reforming key institutions involved in supply of water and water pipelines have also been established in the rural areas as part of the government's plan to improve access to water in the areas. Kiambere-water pipeline is one of the pipelines that were established by the government to improve water access in the arid area of Mwingi. This pipeline however, has not realized its full potential because of several factors. First, the water points are located far away from some of the villages leaving most people especially in Kamuwongo Division without access to water service. Secondly, the Water Service Board in the area has also not been effective in ensuring that the people along that pipeline are served with water. This has led to the entry of non-state actors in the provision of water services to fill the gap left by the state. This study investigated the performance of the non-state actors in provision of water service in Kamuwongo Division. To achieve this, the researcher employed both secondary and primary data. Primary data was collected using questionnaires, interview schedules, photography, checklists and observation guides. Data from the questionnaires were coded and then analyzed using Statistical Package for the Social Sciences. Information from Interviews and checklists were organized and analyzed in themes. Data were then presented in tables, charts and graphs. This study recommends the adoption of capacity building, improvement of water supply water, proper management of CBO water initiatives, increasing level of investments towards water service provision, subsidizing connection fee and improving water infrastructure.*

## **ACRONYMS and ABBREVIATIONS**

CBM	Community Based Approach
CBO	Community Based Organization
CDF	Constituency Development Fund
DMS	Degrees Minutes Seconds
FAO	Food and Agriculture Organization
FBO	Faith Based Organization
ILRI	International Livestock Research Institute
IRC	International Rescue Committee
JMP	Joint Monitoring Program
KDDO	Kyuso District Development Plan
KIMWASCO	Kiambere Mwingi Water and Sanitation Company
KIPPRA	Kenya Institute for Public Policy Research and Analysis
MNSR	Mwingi Nutrition Survey Report
NGO	Non-Governmental Organization
RSWN	Rural Water Supply Network
SDA	Service Delivery Approach
SDM	Service Delivery Model
SPSS	Statistical Package for the Social Sciences
TANATHI	Tana and Athi Water Service Board
UN	United Nations
UNICEF	United Nations Children Fund
WASREB	Water Service Regulatory Board
WHO	World Health Organization
WSP	Water Service Provider

## Table of Contents

Declaration .....	i
Approval .....	ii
Dedication .....	iii
Acknowledgement .....	iv
Abstract .....	v
ACRONYMS and ABBREVIATIONS.....	vi
List of Tables .....	x
CHAPTER ONE .....	1
INTRODUCTION .....	1
1.0 Background to the Study.....	1
1.2 Statement of the Problem.....	2
1.3 Research Questions .....	3
1.4 Objectives of the Study .....	3
1.5 Research Premises .....	3
1.6 Significance of the Study .....	4
1.7 Justification of the Study.....	4
1.8 Scope of the Study .....	4
CHAPTER TWO .....	6
LITERATURE REVIEW .....	6
2.1 Introduction.....	6
2.2 Public Versus Private Water Service Provision.....	6
2.3 Rural Water Supply Arrangement.....	8
2.4 Theoretical Framework.....	9
2.4.1 The Theory of State Failure .....	9
2.4.2 The Theory of Public Good .....	11
2.4.3 The Triple-S Theory of Change .....	12
2.5 Conceptual Framework.....	17
CHAPTER THREE .....	20
STUDY AREA .....	20
3.1 Introduction.....	20
3.2 Physical Set-Up.....	20

3.2.1 Location .....	20
3.2.2 Altitude and Climate .....	23
3.2.3 Geology and Soils .....	23
3.2.4 Drainage .....	23
3.2.5 Vegetation .....	23
3.2.6 Topography .....	23
3.3 Socio-economic profile .....	24
3.3.1 Population Profile .....	24
3.3.2 Economic activities .....	24
3.5 Water Resources .....	24
3.6 Transport Network .....	25
3.7 The extent of Kiambere-Mwingi Pipeline.....	25
CHAPTER FOUR.....	27
METHODOLOGY .....	27
4.1. Introduction.....	27
4.2 Research Design.....	27
4.3 Nature and Sources of Data .....	27
Methods of Data Collection .....	27
4.4.1 Observation .....	27
4.4.2 Interviews.....	28
4.4.3 Questionnaires.....	28
4.4.4 Photography .....	28
4.4.5 Literature Review.....	28
4.5 Instruments for Data Collection .....	28
4.5.1 Questionnaires.....	28
4.5.2 Interview Schedules .....	28
4.5.3 Cameras.....	28
4.6 Target Population.....	29
4.7 Sample Size.....	29
4.8 Sampling Techniques and Procedures .....	29
4.8.1 Transect Sampling .....	29
4.8.2 Purposive Sampling .....	30

4.10 Limitations of the Study.....	30
CHAPTER FIVE .....	31
RESULTS AND DISCUSSIONS .....	31
5.1 Water Service provision arrangement in Kamuwongo Division .....	31
5.2The Ministry of Environment, Water and Natural Resources.....	32
5.3 Kiambere-Mwingi Water and Sanitation Company.....	32
5.4 Role Of Non-State Actors In the Provision of Water Services .....	35
5.5 Performance of Non-State Actors in Provision of Water.....	42
5.6 Measures to Improve Performance of the Non-State Actors in Water Service Delivery in Kamuwongo Division. ....	54
CHAPTER SIX.....	56
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS .....	56
6.1 Summary of Findings.....	56
6.2 Conclusion .....	58
6.3 Recommendations.....	59
6.3.1 Water service arrangements in Kamuwongo Division.....	59
6.3.2 Recommendations on the Performance of Non-State Actors in the Provision of Water in Kamuwongo Division .....	60
6.3 Areas for Further Research .....	61
APPENDICES .....	66
Appendix I: Household Questionnaire.....	66
Appendix II: Interview Schedule .....	70
Appendix III: Business Questionnaire .....	71

## List of Tables

Table 1: Triple-s principles framework .....	14
Table 2: Water billing by Non-State actors .....	38
Table 3: Connections to the main pipeline.....	41

## List of Figures

Figure 1: Conceptual Framework .....	18
Figure 2: Kitui County in Kenya .....	21
Figure 3: Location of Kamuwongo in former Mwingi District .....	22
Figure 4: Extent of Kiambere water supply project (KIMWASCO, 2014).....	26
Figure 5: Water service providers in Kamuwongo .....	36
Figure 6: Monthly water bill for private providers .....	38
Figure 7: Affordability of Non-State water services.....	39
Figure 8: coping strategies for those who can't afford water services .....	40
Figure 9: Distance from water point .....	44
Figure 10: Non-State water service distributions.....	46
Figure 11: Reasons for unfair distribution of water .....	48
Figure 12: Days of water access .....	49
Figure 13: Challenges faced by non-state actors .....	51
Figure 14: Possible causes of Non-State actors' failures.....	53
Figure 15: General Performance of Non-State actors .....	54
Figure 16: Mitigation measures proposed by residents .....	55

## List of Plates

Plate 1: Kiambere-Mwingi water pipeline.....	33
Plate 2: Replacement pipes used by TANATHI	33
Plate 3: Kyandoo water storage tank.....	33
Plate 4: Kiambere-Mwingi Water and Sanitation Company .....	34
Plate 5: Kamuwongo water kiosk .....	35
Plate 6: CDF funded CBO .....	36
Plate 7: CBO water access point.....	37
Plate 8: Residents fetching river water .....	40
Plate 9: T-Point along Kamuwongo-Tyaa Kamuthale pipeline .....	42
Plate 10: Car wash .....	43
Plate 11: Pipes along Ndoo pipeline .....	45
Plate 12: Resident fetching water from a private provider's home .....	47
Plate 13: Water Vendor in Kamuwongo Market .....	50

## CHAPTER ONE

### INTROUDCTION

#### **1.0 Background to the Study**

The Millennium Development Goal (MDG) 7c of halving the populations without safe drinking water by 2015 was met in 2010, five years before the 2015 deadline (WHO/UNICEF, 2012). Over 2 billion people gained access to improved water sources from 1990-2010 (WHO/UNICEF, 2012). This increased the number of people with access to safe drinking water to approximately 6.1 billion (89%) of the world's population (WHO/UNICEF, 2012). However, the benefits are very unevenly distributed (GLAAS, 2012) since still over 780 million people are still without access to improved sources of drinking water, (WHO/UNICEF, 2012). If current trends continue, these numbers will remain unacceptably high in 2015 as 605 million people will be without an improved drinking water source (WHO/UNICEF, 2012).

Despite the impressive global gains, most countries are falling short on meeting their national water provision commitments, with 83% and 70 of countries reportedly falling significantly behind the trends required to meet their defined national access targets for drinking-water (WHO, 2012) compared to Latin America, large parts of Asia, Northern Africa and the Caribbean.

Sub-Saharan Africa has the least water access with only 61% of the population having access to improved water supply compared to Latin America, Asia, Northern Africa and Caribbean with 90% access to improved water supply (WHO/UNICEF, 2012). Similar disparities are found within countries, between the rich and poor and between those living in rural and urban areas (WHO/UNICEF, 2012). About 84% of people without access to improved drinking water sources live in rural areas (WHO/UNICEF, 2010). Even those people who supposedly count as having been supplied with water actually have systems that are now not working properly or have failed completely( Lockwood and Smits , 2011).

Kenya is one of those countries that are yet to meet MDG 7C; with that about 57 % of the households in Kenya having access to safe water (KIPPRA, 2011). However, there are disparities with 80 % of households in Nairobi having access to safe water, but residents in informal

settlements spent an average of eight hours daily searching for water (KIPPRA, 2011). Kenya water sub-sector aims to improve access to safe water to attain 90% access in urban areas and 70% in rural areas (KIPPRA, 2011).

There have been multiple interventions by the government of Kenya over the last decade to improve water access in the country (KIPPRA 2011). Resource allocation and reforming key institutions involved in supply of water are some of the interventions that have been rolled out by the government (KIPPRA 2011). There has been a significant improvement in allocations to improve water supply in rural areas and changes in the approaches used in water supply (Lockwood and Smits, 2011). However, most of the interventions have encountered difficulties; thus access to water is not achieved until external bodies such as donors and Non-Governmental organizations (NGOs) come in. In recognition of the impacts of low access to the services by the poor, several NGOs and Donors have come in with a range of efforts to improve access (Munala 2009). However, the performance of non-state actors is not yet clear, thus this study assessed the performance of non-state actors in rural water supply within rural context along Kiambere-Mwingi pipeline.

## **1.2 Statement of the Problem**

The current legal and institutional framework for water provision in Kenya is anchored on the National Water Policy (1999) and Water Act (2002) (KIPPRA, 2011). This institutional framework highlights the three-tier pyramidal institutional set-up of the water sector, where the Ministry of Environment, Water and Natural Resources is in charge of co-ordination, financing and policy formulation, while the Water Service Regulatory Board (WSRBs) is the water services regulator (KIPPRA, 2011). Water Service Boards (WSBs) are the asset holders and are responsible for efficient service provision in their areas of jurisdiction, either through contracting a Water Service Provider (WSP) or directly where there is no agent (WASREB, 2004). One of the main ideas with this water service arrangement in Kenya was to decentralize water service provision and eventually achieve efficiency (Munala, 2009). However, the state, through the WSBs, has not been effective in the water provision with only 9 out of 55 water service providers in Kenya providing continuous water supply (WASREB, 2009).

The government has also invested more on infrastructure and especially in water pipelines in a bid to improve water supply (KIPPRA, 2011). However, most of the water supply structures are

only given special attention during the construction processes, with little consideration for asset management and post-construction support (Lockwood and Smits, 2011). Kiambere-Mwingi water supply pipeline is one of the pipelines established to improve access to water to residents of Mwingi District (TANATHI, 2012). This pipeline has not realized its full potential because of the assumptions that people could travel to the nearest available communal water storage and distribution points (TANATHI, 2012).

These failures by state to adequately provide water services has led to a new dimension where the non-state actors have come in to supplement gaps and challenges of the state in water provision (World Vision , 2012). There has been a significant entry of Non-State actors and donors with a range of efforts aimed at availing water services (Munala, 2009). However, performance of non-state actors and their provision arrangements, especially in rural Kenya is scanty. This study therefore, sought to assess the performance of non-state actors along Kiambere-mwingi Pipeline in Kamuwongo Division Kitui County.

### **1.3 Research Questions**

The research questions for this study are;

1. What are the water service provision arrangements in Kamuwongo Division?
2. What is the performance of Non-State actors in provision of water in Kamuwongo Division?
3. What measures can be adopted to make non-state actors effective in the provision of water in Kamuwongo Division?

### **1.4 Objectives of the Study**

The objectives of this study are;

1. To examine water provision arrangement in Kamuwongo Division.
2. To examine performance of Non-state actors in provision of water service in Kamuwongo Division.
3. To suggest measures to improve performance of the non-state actors in the provision of water in Kamuwongo Division.

### **1.5 Research Premises**

Water service provision arrangement in Kamuwongo Division is not efficient.

Non state actors have been effective in provision of water services in Kamuwongo Division.

### **1.6 Significance of the Study**

This study will help the county government in the formulation of policies that will enhance water provision in Kamuwongo Division and the other rural areas in the County. The study will bring into limelight the contribution and measures that can be adopted to make the non-state actors efficient in providing water services. The study will also be among the pioneer studies on the non-state actors in provision of water and can act as a platform for future studies. The study will contribute towards the realization of MDG 7C and the reduction of the disparities of water supply that exist between rural and urban areas in Kenya.

### **1.7 Justification of the Study**

Kamuwongo Division was chosen because it is one of the areas that are affected by inadequate water provision services due to the assumption made during the installation of Kiambere-Mwingi pipeline that people could travel to the nearby water storage and communal water points to access water along the pipeline (TANATHI, 2012). This assumption left many people who were supposed to be supplied with water from the pipeline without adequate supply of water (TANATHI, 2012). Improved water provision is one of the key aspects addressed by MDG (UN, 2001). Goal number 7c requires all States signatory to the MDGs to ensure that the population without safe drinking water is halved by the year 2015 (UN, 2001). The WHO/UNICEF Joint Monitoring Program Report (2012) established that MDG 7c of halving the population without improved drinking water had been met (WHO/UNICEF, 2012); but not so in Sub-Saharan Africa, Kenya included, that need to be addressed (WHO/UNICEF, 2012). This study comes at a time when we are only a year to 2015 and carried in rural areas where disparities in water service provision are high and prevalent (UN/UNICEF, 2012).

### **1.8 Scope of the Study**

The study covered locations of Kamuwongo Division. The aim of the study was to find out how the non-state actors in the area have contributed to provision of water along the Kiambere-Kamuwongo pipeline. This includes availing water to the residents who live far from the communal water storage and distribution points. The study assessed level of service in reference to the service ladder developed by Moriarty *et. al* (2010) that show a continuum running from ‘-

no service,-' (which is effectively an insecure or unimproved source) to '-high-service-', where access is on demand at household (Moriarty *et.al* , 2010).

The study is limited to performance of non-state actors in the provision of water from the Kiambere-Mwingi pipeline. This means that other non-state actors who may be providing this service from other sources such as earth dams, boreholes and wells were not included in the study. The study did not measure the quality of water and only relied on the assumption that the non-state actors provide water which is safe from pipeline. The study targeted households that have been enabled to access water services by non-state actors.

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.1 Introduction**

Good water governance is a complex process, influenced by a country's overall standard of governance, its customs, morals and politics and conditions, (Munala, 2009). National policies are developed to create enabling environment in the sector, define the norms and regulatory framework, define service levels and macro-level financial planning (Lockwood and Smits, 2011). Policies can also be the level at which learning, piloting and innovation is funded and promoted; thus overall sector guidance and capacity building is set by this level of authority (Lockwood and Smits, 2011). These policies are driven by internal pressures on water resources and the need to meet social-economic development obligations like the MDGs (Munala, 2009). There is a worldwide recognition that public sector cannot provide adequate water services (Munala, 2009). This has led to experimentation with radical institutions reforms, opening the way for participation of the private sector in the once only public service sector (Munala, 2009).

#### **2.2 Public Versus Private Water Service Provision**

Water service provision in the 20<sup>th</sup> century, water service provision was considered a monopoly of the public sector (Munala, 2009). It was believed that if such services were left to the private sector monopolists, they will overcharge, undercharge and ignore the public health benefits of water (McGranahan and Satterthwaite, 2006). McGranahan and Satterthwaite argue that governments making political commitments on universal coverage felt obliged to display this commitment in their plans, and to set water prices at levels considered affordable to all but with time these assumptions came under challenge (McGranahan and Satterthwaite, 2006).

In the 1990s, proponents of the private sector involvement in service provision launched a critique on the public based service provision arrangements (Munala, 2009). It was argued that in the low income settings, public utilities are inclined to inefficient, overstaffed, susceptible to corruption, open to political manipulation by politicians pursuing short term political ends, and unresponsive to consumer demands (McGranahan and Satterthwaite, 2006). McGranahan and Satterthwaite argue that low water tariffs, far from ensuring that low income household can afford piped water, turn water distribution into patronage and contribute to utilities financial

difficulties, often inhibiting further financial investment, and preventing water and sewerage networks from being extended to low income settlements (McGranahan and Satterthwaite, 2006). The proponents of private run utilities argue that such utilities would be cost conscious, apolitical and demand-responsive (McGranahan and Satterthwaite, 2006). Further, the proponents argue that independent regulations coupled with competition for concessions or other contracts would prevent the abuse of monopolistic powers (McGranahan and Satterthwaite, 2006). Thus if private utilities are regulated in public interest, they could fill the gap that the public utilities had failed to fill for a long time (McGranahan and Satterthwaite, 2006).

However, the opponents of the private sector serviced provision were also vocal and they resisted moving service provision from the public utilities with words and actions (McGranahan and Satterthwaite, 2006). The opponents of private utilities in water service provision argued that private participation would lead to high water prices and focus efforts of serving only those who could afford to pay (Munala, 2009). Others it was morally wrong for multi-national companies to sell water to people living in poverty (McGranahan and Satterthwaite, 2006). Private participation has further complicated by the fact that there is increased corruption, cancellation of contracts and protests by consumers due to poor service delivery (McGranahan and Satterthwaite, 2006).

The reality is that the efficiency and consumer responsiveness of private water providers is not guaranteed by the market but depends on the nature of their contracts, quality of regulations and the local context (McGranahan and Satterthwaite, 2006). The companies are not convinced whether the poor will be willing to pay for the service and in most cases they end up withdrawing from the service provision (McGranahan and Satterthwaite, 2006). McGranahan and Satterthwaite points that despite the promotion of private sector participation in service provision, the extent to which private utilities have participated in water provision is remains small. Private utilities only supply 5 to 10 per cent of the world's population with water (McGranahan and Satterthwaite, 2006).

The controversy over the increasing private sector involvement in the provision of water largely revolve around large piped water networks which both private and public utilities tend to favor (McGranahan and Satterthwaite, 2006). However, it is clear that the biggest share of those people without access to water will not access it through the pipelines in the foreseeable future

(McGranahan and Satterthwaite, 2006). Though, it is worth noting that there is a consensus that private enterprises operating in low income areas provide better services to people without access to water (Munala, 2009).

### **2.3 Rural Water Supply Arrangement**

During the past two to three decades there has been relative success in providing new rural water infrastructure (building the physical systems) and driving increased coverage levels (Lockwood and Smits, 2011). However, despite this positive trend, there has to a large extent been a failure to achieve sustainable solutions (Lockwood and Smits, 2011). Tens of millions of rural people faces continuing problems with systems that fail prematurely, leading to wasted resources and false expectations (Lockwood and Smits, 2011). For many of those who supposedly already enjoy an improved service, the reality is one of poor continuity, poor quality and premature failure (Lockwood and Smits, 2011).

Water supply systems in the rural areas are poor, a factor that has led to 84 per cent of the people without access to improved water being from rural areas (WHO/UNICEF, 2012). The Rural Water Supply Network indicates an average rate of 36% non-functionality for hand-pumps in sub-Saharan Africa (RWSN, 2009). Poor sustainability of rural water supplies has been recognized for some time, and a number of management approaches have come and gone with the aim of addressing these problems; the predominant model of community management has been adopted as formal sector policy in many countries (Lockwood and Smits, 2011). At the same time, most efforts and resources in the water sector continue to go into the construction of new infrastructure, which undoubtedly is needed. However, such investment often appears to be at the expense of the sustainability of services already in place (Lockwood and Smits, 2011).

In response to the low levels of sustainability achieved by the community based management, private sector involvement is now being promoted at a national policy level in more than a dozen African countries (Foster, 2012). While they remain the exception rather than the norm, rural water services managed by private individuals and enterprises span the full gamut of service levels, from traditional well ownership through to piped schemes (Foster, 2012). Operation of piped schemes serving small towns is the most common modality of private sector involvement in rural water supplies with operators ranging from individual entrepreneurs through to multinational corporations (Foster, 2012). In some instances, private sector expansion of piped

schemes has occurred in small rural towns, with the costs recouped through service tariffs and connection fees (Foster, 2012). In most cases however, tariffs are constrained to covering operation and maintenance (O&M) costs, meaning expansion and rehabilitation is generally reliant on external support either from NGOs or Donors (Foster, 2012).

Privately operated decentralized water treatment kiosks have also emerged over the last decade, though they have captured only a small share of the rural water market (Foster, 2012). The kiosks are operated by the local entrepreneur but operation and management responsibilities are retained by the parent company (Foster, 2012). Self-supply offers a low-cost way to expand privately-managed supplies at a household level, though, it is worth noting that few formal initiatives have been scaled up beyond a pilot stage (Foster, 2012). Therefore, it can be argued that private sector offers a promising pathway to improve the provision of water services in rural areas (Foster, 2012).

## **2.4 Theoretical Framework**

This study relied on three theories that deal with service provision, the theory of state failure and theory of public good and neo-classical economic theory.

### **2.4.1 The Theory of State Failure**

According to Khan (2002), the analysis of state failure and the policy debate is driven by two very different underlying views of what the state does (Khan, 2002). First is the service delivery view that defines the role of the state to provide law and order, stable property rights, key public goods, welfarist redistributions and market regulation (Khan, 2002). In failing to provide these, state failure contributes to economic under-performance and poverty (Munala, 2009). It has been argued that public utilities in the low-income settings were inefficient, overstaffed, susceptible to corruption, open to manipulation by politicians seeking short term political ends and unresponsive to consumer demands (WUF, 2004).

The second view postulated by Khan was that developing countries are in a state of social transformation (Khan, 2002). Khan points out that this rapid transformation leads to the collapse of traditional production systems and the countries turn to capitalist economies (Khan, 2002). The service delivery model is not entirely wrong because developing countries still deliver services, but the social transformation model is a broader conception that subsumes the first (Munala, 2009). The critical area of state failure has been the absence of adequate institutional

and political capacity in developing countries to assist and accelerate dynamic transformation (Munala, 2002). Khan argues that many consensus policies of reforming institutions to improve service delivery is based on a partial reading of theory and evidence (Khan, 2002). The state is the only body in the society that can legitimately enforce institutions, collect taxes, redistribute income and wealth, represent and enforce social cohesion or resolve conflicts, in all cases using force if necessary (Khan, 2002). Khan says that all these functions are interdependent and play a role in realizing service delivery and social transformation (Khan, 2002).

Institutions are the “rules of the game” that set incentives, opportunities and limitations for organizations (Khan, 2002). The system of property rights, the interventions that define rents and incentive structures and the higher level of political institutions such as democratic or authoritarian decision making bodies that describe the rules for changing the rules of some key institutions enforced by state (Munala, 2009).

There are three theoretical components that support the service delivery model (Khan, 2002).

- i. Efficient markets are rent-free and have stable property rights (Khan, 2002). Khan defines rents as incomes that individuals can earn that are higher than their best opportunity (Khan, 2002). This situation exists if those in the next-best activities are prevented from getting access to particular resources or opportunities (Munala, 2009). Khan points out that the protection of rights over information, rights over subsidies, monopoly rights to supply particular markets and right over a valuable natural resource as some of the possibilities that make this situation ripe (Khan, 2002).
- ii. Rent seeking creates rents and destabilizes property rights (Khan, 2002). Rent seeking consists of activities such as lobbying and corruption to persuade states to create rents, while at the same time wasting resources in unproductive persuading activities (Munala, 2009). The literature on rent seeking has been growing and has been extended by recent literature addressing corruption (Khan, 2002). Corruption is a form of rent seeking where the rent seeker uses bribes to influence public officials (Munala, 2009). One of the most damaging effects of rent-seeking and corruption is that it destabilizes property rights since re-allocation of rents always require appropriate changes in the rents (Khan, 2002).
- iii. Absence of democracy and weak bureaucracy allows rent seeking to continue (Khan, 2002). Damaging rent seeking continues even when a majority is hurt because of several

reasons (Munala, 2009). First, the absence of democracy enables small groups to continue with their damaging rent-seeking activities (Olson, 2000). Secondly, low bureaucratic salaries and weak judiciary can reduce the expected cost to public officials of accepting bribes, making rent-seeking more likely (World Bank, 1997).

Khan sums up this argument by stating that state failure will be driven by lack of institutional capacities in the respect of, capitalist transition and acquisition of new technologies, and more importantly, the incompatibility of institutional capacities with pre-existing distribution of power (Khan, 2002).

#### **2.4.2 The Theory of Public Good**

A public good is a good that is non-rival (Munala, 2009). This means that consumption of that good by one individual does not reduce the amount of the good available for consumption by others (Munala, 2009). Public goods are also non-excludable meaning that they may be under produced by the private sector, or may not be produced at all, following the conventional wisdom (Holcombe, 1997). Thus economic efficiency requires that the government forces people to contribute to production of public goods, and then allow all citizens to consume them (Holcombe, 1997).

In formalizing this theory, Samuelson (1954) argued that there is no good revealed-preference mechanism for public goods, so they will not be produced efficiently, if at all, in the private sector (Samuelson, 1954). Thus, public sector is required for efficiency (Munala, 2009).

A good is said to be excludable if it is prohibitively costly to keep people from consuming the good after it has been produced (Munala, 2009). The problem with these types of goods is that if consumers cannot be excluded from consuming them, they will free ride and consume without paying, leading to underproduction of the good (Munala, 2009). There is confusion that public goods are produced by the public sector (Munala, 2009). However, this is not necessarily the case as public goods can also be produced by private individuals and firms, by non-state actors or they may not be produced at all (Munala, 2009).

Public goods can present the perfect scenario of market failure (Munala, 2009). In the realization that no private organization can reap all the benefits of a public good which they produced, there will be insufficient incentives to produce it voluntarily (Munala, 2009). Consumers can take

advantage of the non-exclusive nature of these goods without significantly contributing to their creation leading to the free rider syndrome with very small consumer contribution (Munala, 2009).

### **2.4.3 The Triple-S Theory of Change**

The theory of change emerged over time and was influenced by IRC, by an international thematic group on scaling up community management and, more generally, by complexity theory and systems theory (Moriarty and Schouten, 2013). Triple-S seeks to achieve water services for rural people that meet appropriate levels and are sustained over time. The nature of the water sector in a specific country determines how, by whom and through which partnerships the change required to achieve this vision will occur, and what kind of innovations, training, research and information are needed (Moriarty and Schouten, 2013).

Although context has a determining role, Triple-S informs and guides the change process in two ways (Moriarty and Schouten, 2013):

- With a strong vision of what a rural water sector capable of delivering sustainable services looks like (concepts and principles).
- With a set of tools and approaches to catalyze and support a national search for solutions that work.

#### ***The basis for systemic change***

This theory views water sector's problem as systemic. Therefore, the change towards sustainable water services must also be systemic: the whole sector needs to change, including its actors and institutions and the links between them. A sector largely dependent on aid must become a more independent sector. A sector that builds water infrastructure must become a sector that delivers water services. A sector that is uncoordinated and ineffective must become one that effectively delivers an agreed level of services using an agreed set of management and business models. Triple-S works by engaging with the sector in the countries where it works as well as internationally to catalyze and then support this process of change.

### ***Pillars of this Theory***

The Triple-S theory of systemic change in the water sector is built on three pillars. These three pillars provide a vision of a water sector capable of delivering sustainable services (Moriarty and Schouten, 2013):-

#### **i. A service delivery approach**

According to Triple-S, the entire water sector in a country must be focused unambiguously on the provision of a given (and defined) level of sustained water services, to all people. By an agreed level of service it means that the services assessed in terms of a user's ability to reliably and affordably access a given quantity of water, of an acceptable quality, at a given distance from the home. This vision of a water service consists therefore not just the hardware (the infrastructure) but also the 'software' (the knowledge and behaviors) necessary to achieve this objective. Whereas an infrastructure-driven approach provides hardware; a water service delivery approach provides water.

#### **ii. Harmonization and alignment**

The framework for development of the rural water sector in a country should be set by an empowered and informed government, as a legitimate representative of citizens. Harmonization among actors in the rural water sector (development partners, governments, NGOs) means, aligning with nationally agreed and government-owned strategies, policies and practices. Currently, while some development partners channel their financing through government systems such as basket funding, most international NGOs work outside government plans and often implement projects directly, using their own approaches and methods. However, no water service can be sustainable and no service delivery approach effective if approaches, hardware, and processes are not harmonized and aligned with national plans and priorities.

#### **iii. A learning and adaptive sector**

A country's rural water sector has strong learning and adaptive capacity, enabling it to adapt to a rapidly changing operational and physical environment. A country's water sector must be able to learn and adapt its strategies and plans for delivering sustainable services. It needs the technical capacity to deliver services and the policies, guidelines and resources to achieve its goals.

Strengthening sector capacity is the sine qua non that shapes Triple-S values and intervention strategies.

Table 2.1 represents a summary of the pillars, principles and the applications of those principles. The pillars should complement each other in order to provide adequate water services to rural areas.

**Table 1: Triple-s principles framework**

<b>PILLARS</b>	<b>PRINCIPLES</b>	<b>APPLICATION OF PRINCIPLES</b>
Service delivery approach	Policy, legislation and institutional roles are clarified for commonly agreed on service delivery models	Service delivery models (involving both infrastructure and management arrangements) and expected service levels for point source and networks are clear. Institutional roles and responsibilities are established and authority to act is granted, including asset ownership.
	Financing for full life-cycle costs are effectively covered through an agreed upon combination of tariffs, taxes and transfers	Full life-cycle costs should be understood at all levels Full life-cycle costs of service delivery reflected through a combination of tariffs, taxes and transfers. An improved balance between capital investment and all other recurrent and capital maintenance costs.
	Planning aims for full coverage and accounts for the different stages of the life	Transparent and inclusive planning, involving consumers

	<p>cycle of the service and is based on participatory processes</p>	<p>at different stages in the life cycle of the service (including technology selection).          Planning based on life cycles and involve asset management; where possible seeking to maximize economies of scale.          Planning always with the aim of full coverage and to be directed by clear national policy and prioritization.</p>
	<p>Transparency and accountability mechanisms are in place between consumers, service providers and independent oversight bodies over the quality and sustainability of services provided</p>	<p>Accountability mechanisms should be in place for stakeholders, including customers having access to information and being able to hold service providers to account.          Monitoring and regulatory instruments should be in place to ensure accountability against an agreed set of indicators; indicators should focus on outcomes rather than outputs.</p>
<p>Learning and self-sustaining capacity</p>	<p>Capacity (awareness, skills, resources and access to support) exists within the sector for stakeholders to fulfil their functions, as defined in the service delivery model</p>	<p>Consumers should be aware of their roles, rights and obligations.          Skills, resources (including supply chains) and information</p>

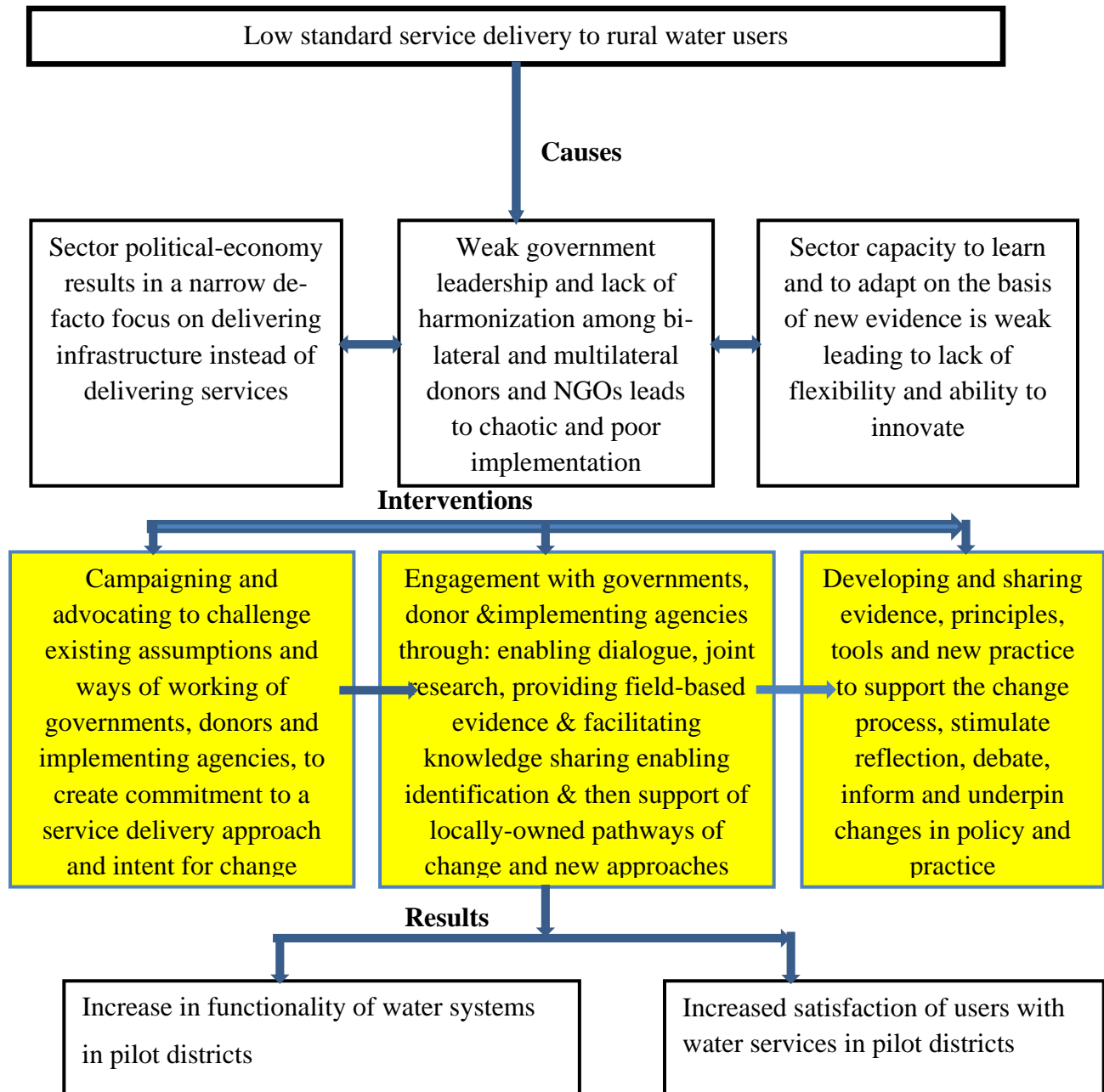
		<p>should be available for good water governance, including long-term support to service providers and service authorities.</p> <p>Capacity should be strengthened at all levels</p> <p>Leadership should be provided at a national level.</p>
	The sector has the ability to learn and innovate on the basis of knowledge sharing, reflection and analysis	<p>Mechanisms should be in place for learning from performance monitoring and sharing with peers.</p> <p>There should be a learning culture and adequate resources made available for monitoring, information gathering, research and innovation (including technology and management arrangements)</p>
Harmonization and alignment	Sector investment and support is harmonized and aligned with national priorities and policies	<p>All stakeholders should operate within commonly agreed national guidelines and service delivery models.</p> <p>Development partners should harmonize approaches and align with national priorities and frameworks.</p>
	Actions of stakeholders are coordinated at different levels with commonly	Coordination should be done for information sharing,

	<p>recognized platforms and fora</p>	<p>effective planning and creating economies of scale.</p> <p>Funding flows and policies in the sector should be coordinated at national and international level.</p>
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Source: Moriarty and Schouten, 2013.

**2.5 Conceptual Framework**

In conceptualizing this study, a lot was borrowed from Triple-S Theory of change and to some extent the theory of state failure. According to the theory of state failure, weak institutions lead to rent seeking which in turn leaves a gap of people taking bribes (Khan, 2002). This in turn weakens the institutions making service delivery from those institutions poor. Triple-S Theory of change on the other hand, dwells on water service delivery in rural areas. This theory is built on three pillars that should be coordinated for ultimate service delivery (Moriarty and Schouten, 2013). Figure 1 shows the ideal situation that can lead to adequate water service provision in rural areas.



**Figure 1: Conceptual Framework**

Source: Modified from IRC, 2013

Each of the water sector’s many stakeholders will play a different role in creating change. Because the levels in the system – water users, local service providers, regional service authorities, national governments, international development partners – are linked, it is crucial to understand how each contributes to the current problems and how they could contribute to

sustainable services at scale. A service delivery approach entails harmonization and alignment, and a learning and adaptive sector – supporting each level so that the entire system can deliver sustainable services at scale.

## CHAPTER THREE

### STUDY AREA

#### 3.1 Introduction

The Kiambere-Mwingi water pipeline traverses the arid and semi-arid area of Mumoni, Kyuso and Mwingi Central sub-counties. Kamuwongo division is one of the three divisions that make up the Kyuso sub-county. This area was named after River Kamuwongo that is found near the main market center in the division, Kamuwongo.

#### 3.2 Physical Set-Up

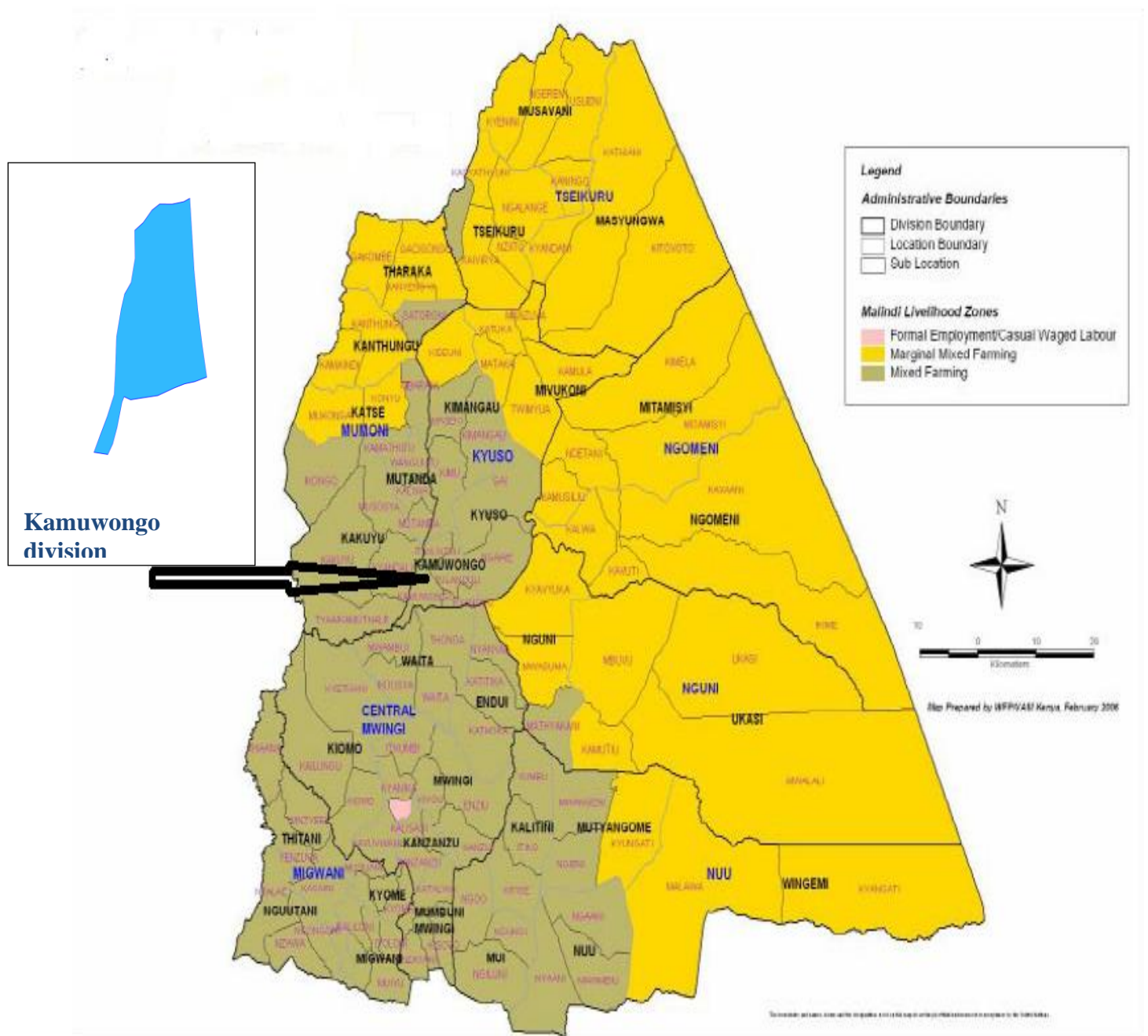
##### 3.2.1 Location

The area under study is Kamuwongo Division which is found in Kyuso Sub-county of Kitui County (Figure 2). Kyuso was carved out the former larger district (Figure 3) in the last demarcations done in 2007 as part of government initiative in the distribution of services and has 4 administrative divisions, namely: Kamuwongo, Ngomeni, Mivukoni and Kyuso (Maina 2012). Kamuwongo, shown in figure 3.3, is located 30 km north of Mwingi Town. Its coordinates are 0°43'0" S and 38°4'60" E in DMS. The division has three locations namely; Kamuwongo Location, Tyaa location and Itivanzou location. The main market center in the division is Kamuwongo market which is the headquarters of the division.



**Figure 2: Kitui County in Kenya**

*Source: [www.guidekenya.com/information/53/Counties-of-Kenya](http://www.guidekenya.com/information/53/Counties-of-Kenya)*



**Figure 3: Location of Kamuwongo in former Mwingi District**

*Source: MNSR, 2012*

### **3.2.2 Altitude and Climate**

Kamuwongo Division falls within the arid and semi-arid eco-climatic zones of Kenya (FAO-Sida, 2012). It has an altitude ranging from 400 to 913 m above sea level. Climate is generally hot throughout the year with mean annual temperatures ranging from 26° C to 34° C (ILRI, 2007). The mean annual rainfall ranges between 400 and 800 mm, with a bimodal pattern with peaks in April (long rains) and November (short rains) (FAO-Sida, 2012). The rainfall is erratic and unpredictable (ILRI, 2007). The short rains (October-December) are more reliable and comprise the main crop growing season (FAO-Sida, 2012). The mean annual potential evaporation in the study area ranges between 2200mm and 2400mm, creating a deficit of 1600mm to 1800mm annually (Maina, 2012)

### **3.2.3 Geology and Soils**

Kamuwongo division has red sandy soils, loamy sand soils and patches of black cotton soils (Maina, 2012). River valleys have saline alluvial soils of moderate to sometimes high fertility (Maina, 2012). The soils are of low fertility and prone to erosion (Maina, 2012). Most hills are covered by shallow and stony soils unsuitable for cultivation (Maina, 2012).

### **3.2.4 Drainage**

The drainage system of the study area is influenced by the Tana River catchment and rivers flow in a north and north-east direction to Tana River (Maina, 2012). There are seasonal rivers and dry wadis in the area (Maina, 2012).

### **3.2.5 Vegetation**

The natural vegetation in the study area is acacia-dominated bush (FAO-Sida, 2012), Annual grasses, and herbs such as *Brachiarialeersioides*, *Justiciaexigua*, *E.cilienensis* *Tetrapogontenellus* and *A. adscensionis* also common in the overgrazed areas (Maina, 2012).

### **3.2.6 Topography**

The topography of the area is underlain by old basement rock with protruding inselbergs (Maina, 2012). It has an elevation of 913 meters above sea level with a generally flat landscape (Maina, 2012).

### **3.3 Socio-economic profile**

#### **3.3.1 Population Profile**

Kamuwongo Division has an estimated population of 10,030 (KDDO, 2012). Kamuwongo location has the highest population of 3957, Tyaa-Kamuthale 3325 and Itivanzou 2748 (KDDO, 2012).

#### **3.3.2 Economic activities**

The main economic activities in this area include;

##### ***Agriculture and livestock***

There is abundant arable land, largely acquired through family inheritance (FAO-Sida, 2012). The main crops grown in the area are cereals (maize, millets and sorghum), legumes (beans, cowpeas, pigeon pea, pumpkins, sweet potatoes, green grams) and tubers (sweet potato and cassava) (FAO-Sida, 2012). However, Crop production is hampered by drought, pests and diseases (Maina, 2012).

The main livestock kept are goats, sheep, chicken, donkeys and cattle (FAO-Sida, 2012). Overgrazing and shifting cultivation is common in the area and this has resulted in increased bare ground and decreased cover by perennial grasses (Maina, 2012). Apiculture using the traditional log hive and modern hives, is widely practiced (Maina, 2012).

##### ***Trade***

Kamuwongo is the biggest and the busiest market in Kamuwongo Division. This market serves as the main trading center for both livestock and cereal farmers. Farmers normally sell their livestock in market day but pother trading activities go on through the week.

### **3.5 Water Resources**

There are seasonal river sand dry wadis characterized by flash flood flows in the wet season and the larger ones include Nthunguthu, Kamuwongo and Tyaa (Maina, 2012). Water obtained from holes excavated in their river beds is relatively saline water (Maina, 2012). There are community owned water points managed through Water Users Associations, Water self-help groups but such waters as seasonal rivers have no rules to regulate access and use while borehole, sub-surface dam and pans are managed by committees (Roba, 2012).

### **3.6 Transport Network**

The road network in Kamuwongo Division is rather poor with only a kilometer of tarmac road. The other roads are all murrum and most of them are poorly maintained.

### **3.7 The extent of Kiambere-Mwingi Pipeline**

The Kiambere-Mwingi water project was originally identified by TARDA, Tana and Athi Rivers Development Authority, with the aim to provide water to the drought afflicted populations of the Mwingi District (TANATHI, 2012). The provision of water for human consumption, drawing water from the Kiambere lake, purifying and lifting it to a tank sited at an appropriate elevation on the Kyoea hill, from where a gravity pipeline would convey it to the main populated area Mwingi town with additional draw-off points along the line, was therefore identified as a project of great social impact on the region which qualified for foreign aid under the Italian funded bilateral financial package which was finalized in 1991(TANATHI, 2012).

This water pipeline runs from Kiambere dam, shown in figure 3, all the way to Mwingi Town. The first phase completed in 1998, comprises all features of the project, namely water intake, water treatment, lifting to the Kyoea hill tank and conveyance to the main storage tank in Mwingi, with intermediate smaller water tanks at Katiani, Kyandoo, Kimangau, Kamuwongo, waita and Kyulungwa. Assumptions were made to take into account the water demand of populations not directly served by the pipeline, but expected to travel from the nearby areas to the closest available communal water storage and distribution points.



## CHAPTER FOUR

### METHODOLOGY

#### 4.1. Introduction

This chapter discusses the type and sources of data, methods used in data collection, the sample size and frame, sampling procedures, analysis and presentation of data.

#### 4.2 Research Design

A research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data (Kothari 2004). This study assumed a descriptive design which employed the following approaches: Pre field work, Field work, Review of relevant documents, Data collection, analysis and interpretation.

#### 4.3 Nature and Sources of Data

The data collected relied on the objectives of this study. This included the efficiency of water service provision arrangement in Kamuwongo Division, the number of Non-State actors in Kamuwongo Division, reliability of the water services provided by Non-state actors and the billing of those services.

Two types of data were collected; primary and secondary data. Primary sources of data included data collected from households in Kamuwongo, resource persons from relevant institutions including National and county Government ministries (Natural resources, environment and water, Planning) Business Community, Households, NGOs/CBOs, Private Sector, and County Administration.

Secondary data sources for this study included publications, books, annual/quarterly reports, journals, Development plans, periodicals and existing spatial information like maps of the study area.

#### Methods of Data Collection

Various methods of data collection were used. They include the following;

##### 4.4.1 Observation

Physical aspects that are relevant to the study were obtained through observation to verify verbal claims by respondents. An observation guide/checklist was used to capture such elements.

#### **4.4.2 Interviews**

This method involved collection of data through face to face interaction with residents of the study area and other stakeholders in Kamuwongo Division. These interviews were conducted among various groups and individuals involved in the provision of water services. Data that was collected using this method includes: existing water service arrangement in Kamuwongo, the number of non-state actors in Kamuwongo and the adequacy of their services.

#### **4.4.3 Questionnaires**

This method involved the collection of data through pre-determined questions based on the study objectives. The questionnaires were administered to households and businesses.

#### **4.4.4 Photography**

Photographs were taken to capture first-hand information which was used during the analysis and presentation of the research findings.

#### **4.4.5 Literature Review**

Documents such as reports, projects, books and publications were reviewed and information gathered used in the study analysis. This was conducted in the Government offices and Non-state actors' offices.

### **4.5 Instruments for Data Collection**

#### **4.5.1 Questionnaires**

A total of 70 household questionnaires, 20 business questionnaires and 10 interview schedules were administered during the field work. This number was reached after calculating the sample size using Nassiuma (2000) formula which yielded a sample size of 100. The questionnaires were administered randomly. This was done in order to collect information as per the objectives of the study.

#### **4.5.2 Interview Schedules**

These were used to collect data from relevant institutions and key resource persons such as District Development Officer, District Water Officer, NGO/CBOs/FBOs management, Private water service providers, District Officer and KIMWASCO manager.

#### **4.5.3 Cameras**

Digital cameras were used to record real on-site images during the field study and were used during report writing and data analysis.

#### 4.6 Target Population

The study population consisted of households and business supplied with water by non-state actors in the study area, non-state actors (CBOs, NGOs and private providers) involved in the provision of water services and relevant government agencies (TANATHI, KIMWASCO, ministry of environment, water and natural resources and Local administration).

#### 4.7 Sample Size

The sample size was determined using the formula recommended by Nassiuma (2000) as follows:

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

Where n= sample size

N=population (10,030)

Cv=Coefficient of variation (take 0.5)

e= Tolerance of desired level of confidence, take 0.05% at 95% confidence level

Based on the above formula and my variables, my sample size was 99.2 rounded off to 100. The study therefore gathered field data from 70 households, 20 businesses and 10 relevant institutions.

#### 4.8 Sampling Techniques and Procedures

##### 4.8.1 Transect Sampling

During the administration of household questionnaires, 5 transects were identified. The researcher used the five roads in the study area as transects to administer 14 questionnaires in each transect. Systematic random sampling together with simple random sampling was used in selecting the households. Simple random sampling was used in identifying the first household unit of the sampling frame. This formula  $N/n$  where N represents the total number of households

along transects while n represents the number of questionnaires administered was used in systematic sampling.

The administration of business questionnaires followed the same procedure. 20 business questionnaires were administered. This means that 4 questionnaires were administered in each transect. Simple random sampling were used on all the 5 transects to select the businesses.

#### **4.8.2 Purposive Sampling**

Purposive sampling represents a group of different non-probability sampling techniques (Mugenda and Mugenda, 2003). Also known as judgmental, selective or subjective sampling, purposive sampling relies on the judgment of the researcher when it comes to selecting the units (e.g., people, cases/organizations, events, pieces of data) that are to be studied. The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which will best enable you to answer your research questions. This method was employed in the identification of the various interest groups, Non-state actors (CBOs, NGOs and Private water service providers) and government institutions (TANATHI, KIMWASCO and administration offices).

#### **4.9 Methods of Data Analysis and presentation**

Qualitative description and quantitative methods were used to analyse the information collected from the respondents. Quantitative techniques were done through coding the data using broad thematic areas. The questions were labeled and entered into the statistical package for social sciences software (SPSS) Version 20. Questions with multiple responses were analysed using Excel. Proportions and percentages were used to make general inferences. The data was then presented using pie charts, bar graphs, percentages, frequency tables among others.

#### **4.10 Limitations of the Study**

- **The time allocated for the study was short** given the study was to cover a whole division.
- **The weather also was unfavorable** especially the hot sun in the afternoons made data collection during that time very hard.
- **The researcher also faced financial constraints** as the study was self-financed.
- **Large number of questioners with multiple responses** made coding and analysis

## CHAPTER FIVE

### RESULTS AND DISCUSSIONS

#### **5.1 Water Service provision arrangement in Kamuwongo Division**

The Water Act 2002 established the following institutions for the management of water and sanitation: the Minister, the Director of Water, the Water Resources Management Authority (WRMA), the Water Services Regulatory Board (WSRB), Water Service Boards (WSBs), Water Service Providers (WSPs), Catchment Area Advisory Committees (CAACs), Water Resources Users Associations (WRUAs), the National Water Conservation and Pipeline Corporation (NWCPC), the Water Services Trust Fund (WSTF), and the Water Appeal Board (WAB). There are 8 water service Boards in Kenya established through Kenya Gazette Notice No. 1715 of 12th March, 2004. Their mandate is to ensure cost effective and sustainable provision of water and sanitation services in the area of jurisdiction as provided for by the Water Act 2002. The Water Act 2002 provides that Water Service Providers will deliver services as agents of the Board. This arrangement is effected through Service Provision Agreements (SPA) that the Board enters into with its Service Providers and for which the providers pay an agency fee.

Under the new constitution, water service provision has been devolved to the counties. County governments are required by the County Government Act to ensure that services are provided in a financially sustainable manner. In practice, water services were already largely devolved to the local level (through local water companies for urban areas and community schemes in rural areas). This new water service provision arrangement leaves the future of Water Service unclear. County leadership may want to change the way water services are provided by, for example, creating county water providers and/or taking over the functions of Water Services Boards. The water sector now lacks a clear sector-specific policy and legal framework to operationalize devolution. A revised Water Policy and Water Act fully consistent with the Constitution, government policies and legislation will make the devolution process smoother, particularly on issues such as the transfer of staff and assets to counties. A new Water Act will also benefit the inevitable reforms of institutions with oversight or supervisory roles over the sector.

The draft water bill promises to address most of these concerns. This bill explicitly recognizes the constitutional right to water. The Bill also states that County governments will be responsible

for establishing water service providers or alternative provision arrangements for urban and rural areas for both the development and management of water services. There is also a provision for the transfer of assets, rights, liabilities, obligations, agreements and other arrangements from Water Services Boards to either the County Service Providers (county infrastructure) or the proposed Water Works Development Boards (national public works infrastructure). The county government should oversee the formation of county-level water services providers, set up as companies under the Companies Act and the merging of multiply water companies in a county into a single county water services provider.

### **5.2 The Ministry of Environment, Water and Natural Resources**

The Ministry of Environment, Water and Natural Resources is involved in planning and developing a framework for consultation with county governments about assistance to counties in undertaking priority tasks related to the devolution process. These include staff establishment, planning, budgeting and performance management, as well as the broader process of institutional reform. The District water engineers develop the water infrastructure and then hands it over to TANATHI which in turn hands the mandate to KIMWASCO. From the interview conducted with the District Water Officer in Kyuso sub-county, the Ministry of Environment, Water and Natural Resources does community building to enlighten the community on the need to conserve water and help residents willing to connect to the Kiambere-Mwingi pipeline. The officer acknowledged that low funding from the government had led to the emergence of non-state actors to fill in the gaps in water supply especially in Kamuwongo Division. The district water office offers technical assistance to the non-state actors.

### **5.3 Kiambere-Mwingi Water and Sanitation Company**

TANATHI is the water service Board (WSB) within which Kiambere-Mwingi water pipeline (plate 1) is developed. They are asset owner and responsible for major maintenance works (Plate 2 and 3). The money for developing this pipeline was obtained from donor funds from the Italian government and government of Kenya. The first phase of the project which is Kiambere-Mwingi pipeline was completed in 1998. Residents within the area were to get water services from the nearest water kiosks while those able to meet the cost could apply for private connections.



**Plate 1: Kiambere-Mwingi water pipeline**

*Source: Field survey 2014*



**Plate 2: Replacement pipes used by TANATHI**

*Source: Field survey 2014*



**Plate 3: Kyandoo water storage tank**

*Source: Field survey 2014*

KIMWASCO is the Water Service Provider (WSP), thus responsible for day to day operation and maintenance. Their activities involve billing, revenue collection, and contract with water customers, training, water satisfaction survey etc. KIMWASCO serves customers in Mwingi East, Mwingi Central, Kyuso, Tseikuru and Mumoni Sub-counties. Kamuwongo is one of the areas served by KIMWASCO. However, the service provision by KIMWASCO has been inadequate mainly because of the distance from water kiosks (plate 5) where residents fetch water from. This means that the residents have to walk for long distances to access water while others rely on water wells, pans and earth dams. Water in these kiosks is sold at Kshs 2 per 20 litre jerry can. Collection from these kiosks is used to pay staff and maintain infrastructure. KIMWASCO managing director also acknowledged that the water pumps used to pump water in Kiambere dam are not adequate to pump enough water for the people because during installation the population estimates were based on 1989 census.



**Plate 4: Kiambere-Mwingi Water and Sanitation Company**

*Source: Field Survey 2014*



**Plate 5: Kamuwongo water kiosk**

*Source: Field survey 2014*

Most of the pipes are old and prone to burst and leakages. The money allocated for the repair and replacement of those pipes is little. This makes the Water Service Company ineffective in the provision of the service. These failures led to emergence of non-state actors who have come to provide water services.

#### **5.4 Role Of Non-State Actors In the Provision of Water Services**

Local community-based organizations (CBOs) have generally developed water supply systems using their own internal resources and available grants. There are a number of CBOs, NGOs, FBOs and private water service providers in Kamuwongo division. CBOS in Kamuwongo division are Tyaa-Kamuthale Self-help group, Ndoo self-help group and Katuuni Self-help Group. Tyaa-Kamuthale Self-help group covers Masukanioni, Ngungi, Tyaa-Kamuthale and Ukenyeya villages. Ndoo-Self help group serves Ndoo and Wandia villages while Katuuni Self help group covers Katuuni, Kwa Thangi and Kwa Kinyoki. These organizations were mainly formed by residents who stay away from the main pipeline. Action Aid played a great role in the

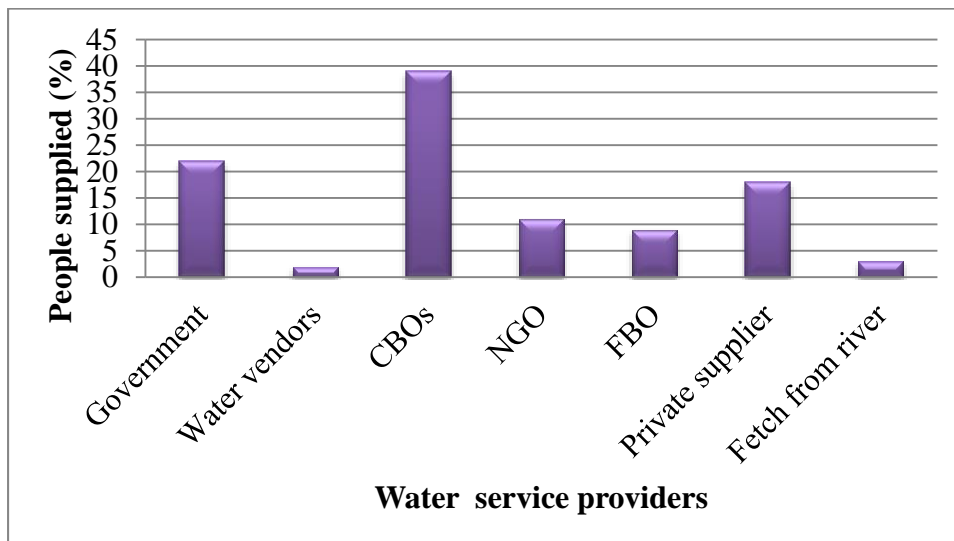
establishment of these three organizations. The NGO provided residents with pipes and technicians to fix the water pipes. Some CBOs are also supported by CDF (plate 6).



**Plate 6: CDF funded CBO**

*Source: Field survey 2014*

The only FBO involved in water service provision in the area is the Catholic community. CBOs take the greatest share in the provision of water services (Figure 5).



**Figure 5: Water service providers in Kamuwongo**

*Source: Field survey 2014*

Non-state actors work closely with KIMWASCO. Before they start connections, non-state actors are required to apply for connection from KIMWASCO. The company then sends engineers and other technicians to the site to connect them from the main pipeline. Water meters are installed at the connection point and the water company collects money after reading those meters at the end of the month.

Water points are established along the pipelines where the residents who were part of the initiative could get water. Other community members who are not part of the initiative also get the water from the water points but they have to pay. Plate 7 shows a water point along Ndoos water pipeline where the residents access water from.



**Plate 7: CBO water access point**

*Source: Field survey 2014*

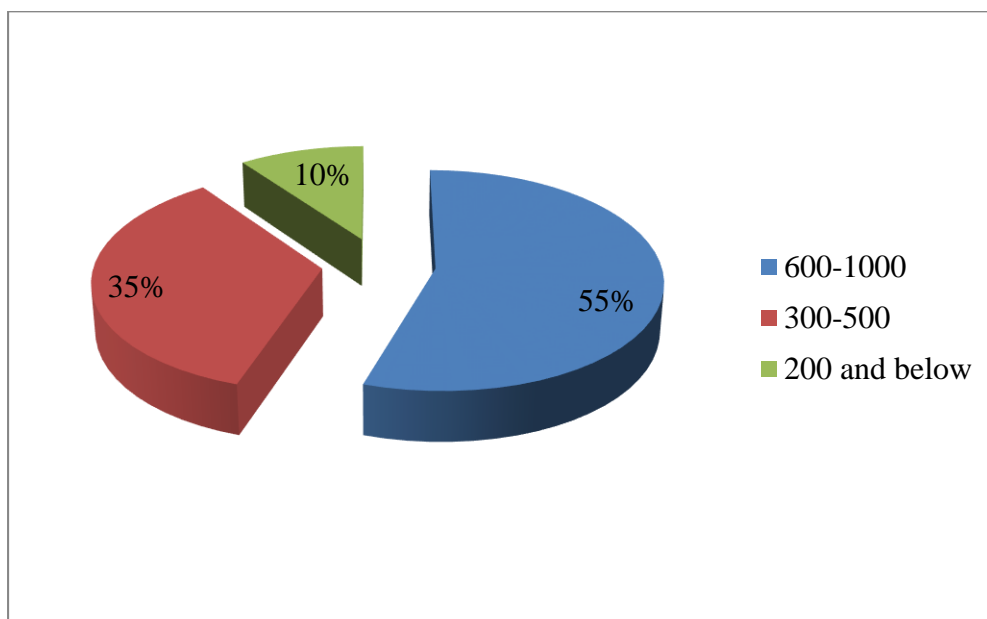
Residents walk to these water points to access water services. Water billing by non-state actors vary from one actor to another as shown in Table 2 below.

**Table 2: Water billing by Non-State actors**

Non-State Actor	Charges for 20 litre jerry can
Katuuni Self help group	Kshs 2
Ndoo Self help group	Kshs 2
Tyaa-Kamuthale Self help group	Kshs 2
Private service providers	Kshs 10-20

*Source; Field survey 2014*

Most of the private providers argued that they charge a higher fee than other providers to cover high water bills (Figure 6), charged by the water company. Domestic users have to pay a flat rate of Kshs 135 per month plus the amount for the number of units consumed that month. Some of the public institutions connected to the pipeline also face challenges in paying the water bills. For example, the area D.O observed that the water company had already retrieved the water meter because of unpaid bills. The situation was the same in Kamuwongo Primary School where the head teacher said that they have been facing problems in paying water bills.

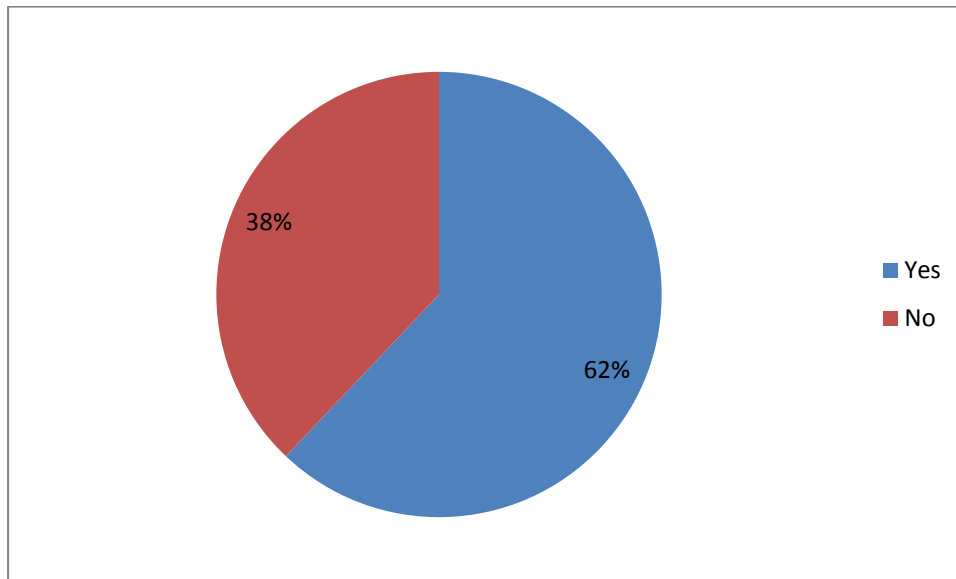


**Figure 6: Monthly water bill for private providers**

*Source: Field survey 2014*

Collections by CBOs from water kiosks are used to pay staff working in the kiosks and in improving infrastructure. However, the chairperson of Katuuni self-help group noted that the collections are in most cases not enough to maintain infrastructure.

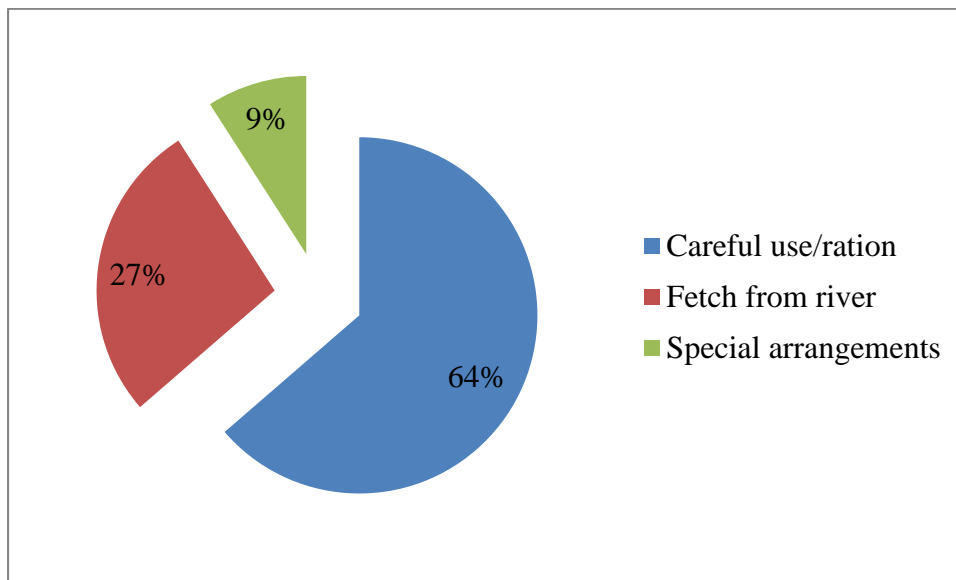
This study found out that, the billing of water services Non-State actors is fair to most of the residents. 62.07% of the respondents (figure 7) said that the water billing was affordable to them while 37.93 % felt that the billing was too high for them.



**Figure 7: Affordability of Non-State water services**

*Source: Field survey 2014*

Those who are not able to afford these services have developed other ways of coping with the situation. Most of them, 63%, ration the water they fetch from the water points while others walk to the nearby Kamuwongo River to fetch more water (plate 8) for their household needs. Other respondents said that they agree with the service providers to fetch water and then pay when they get money. Either, respondents felt that Non-State actors should charge less than Kshs 5 for 20 liter jerry can of water. Figure 8 shows the coping strategies adopted by residents who cannot afford the fee charged by Non-State actors.



**Figure 8: coping strategies for those who can't afford water services**

*Source: Field survey 2014*



**Plate 8: Residents fetching river water**

*Source: Field survey 2014*

Non-state actors have helped residents in Kamuwongo division connect to Kiambere-Mwingi pipeline. This study found out that the three CBOs operating in the area have helped 33% (table 3) of the respondents to get connected to the main pipeline. Individuals who are able to pay the connection fee (private service providers) and lay down the necessary infrastructure recorded the highest number of connections. Government mainly assists residents to get connections through CDF.

**Table 3: Connections to the main pipeline**

Water service provider	No. of connections (%)
Private service providers	36.1
CBOs	33
Government	20
NGO	5.6
FBO	5

*Source: Field survey 2014*

Along the pipelines, there are T points (Plate 9) where residents can tap the water into their homes.



**Plate 9: T-Point along Kamuwongo-Tyaa Kamuthale pipeline**

*Source: Field Survey 2014*

For one to get connected, the residents are required to buy standard pipes and a water meter from KIMWASCO. The residents are also required to hire technicians to lay the pipes and connect them to the pipeline.

### **5.5 Performance of Non-State Actors in Provision of Water**

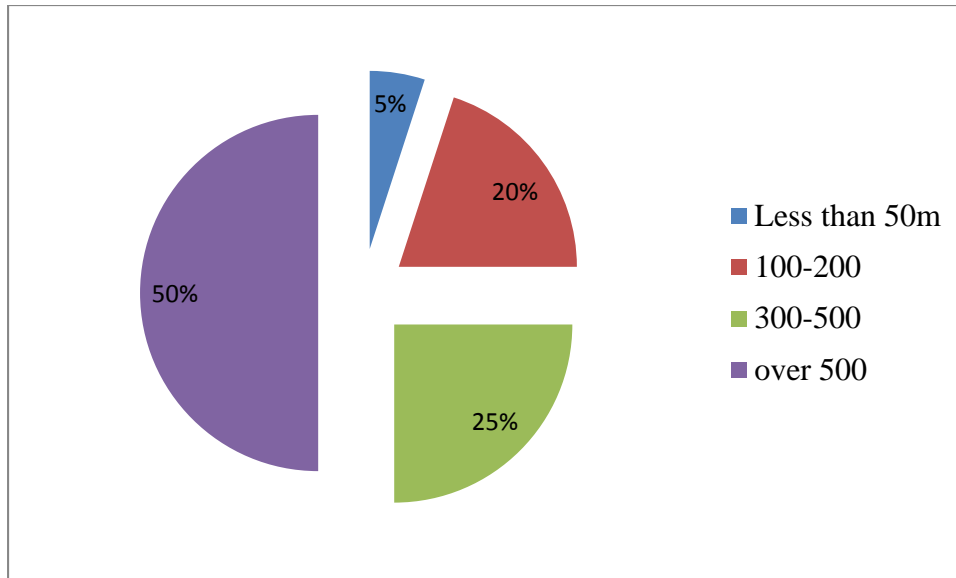
Non-state actors have had a positive impact in the provision of water services in Kamuwongo Division. Most of the businesses in the area have flourished because of the water provided by Non-State actors. Hotels, butcheries, salons and car wash are some of the business that have supply through Non-State actors. Plate 10 shows one of the businesses that have come to place because of the water service provision by non-state actors.



**Plate 10: Car wash**

*Source: Field survey 2014*

Non-state actors have to a great extent enabled most of the residents in Kamuwongo Division access water. Most of the residents acknowledged that the distance they walk to fetch water is less than they used to walk when Non-State actors were not there. CBOs and private providers have located water points near each other. 50% of the respondents said that they walk for at least 500 meters to access water from the nearest water point. 25% walk 300-500 meters to access water while only 5% walk for less than 50 meters to access water. Figure 9 shows the distances that residents walk to access water. This distance is less compared to the one residents used to walk before to access water from KIMWASCO water kiosks.



**Figure 9: Distance from water point**

*Source: Field survey 2014*

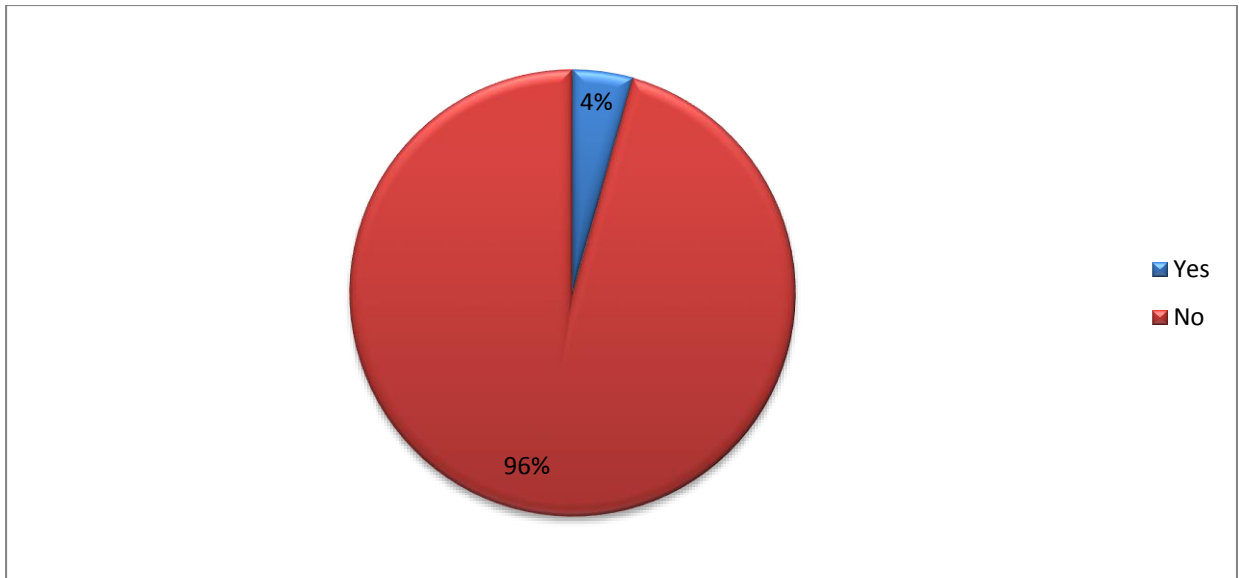
One of the major shortcomings of this water service arrangement is that good feasibility studies were not done before the infrastructure was laid. Thus the pipes used by non-state actors are not of good diameter. Some of those pipes are made of plastic unlike the pipes used in the main pipeline. This means that the pipes burst due to pressure, tear and wear fast and are easily vandalized by the uncooperative community members. Plate 11 shows pipes that are used by non-state actors.



**Plate 11: Pipes along Ndoo pipeline**

*Source: Field survey 2014*

There was a general agreement among the respondents that water is not evenly distributed by Non-State actors. Over 50 % ( figure 10) of the respondents held the view that Non-State actors have distributed water unevenly. Most of the respondents who said that water is evenly distributed are the private service providers who sell water at high prices. The uneven distribution is further accelerated by the fact that only a few of the members of CBOs have connection to their homes. These are members who are able to afford water meters, pipes and paying monthly water bills. Other members have to walk to the nearest water point to access water at a subsidized fee.



**Figure 10: Non-State water service distributions**

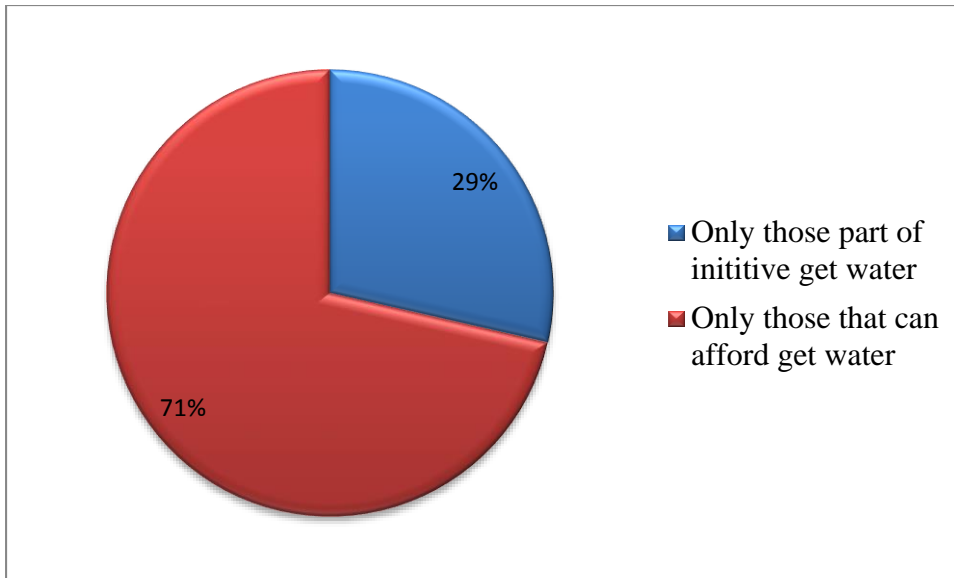
*Source: Field survey 2014*

The respondents cited two main reasons (Figure 11) why this situation has arisen. One of the reasons is the fact that CBOs only allow members who are part of the initiative to connect to the pipeline. Private water service providers also charge high fees for water. Residents who buy water from private providers pay a minimum of Kshs 10 for 20 liter jerry can. This discriminates those residents who don't have money to buy water. This means that the residents have to seek alternative ways of accessing water. Plate 12 below shows a resident of Kamuwongo market fetching water at the home of a private provider.



**Plate 12: Resident fetching water from a private provider's home**

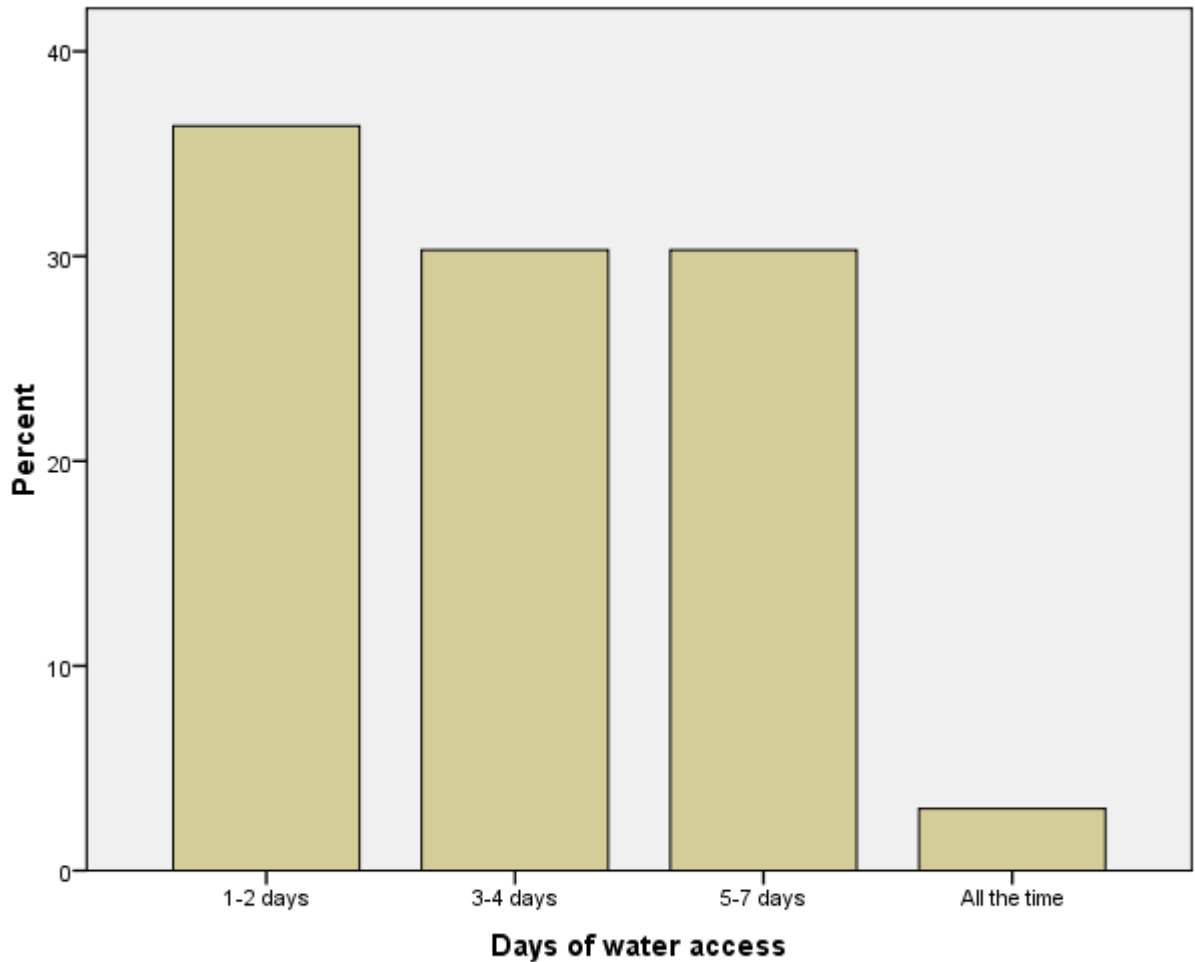
*Source: Field survey 2014*



**Figure 11: Reasons for unfair distribution of water**

*Source: Field survey 2014*

Residents who access water from government water kiosks get water for 5-7 days in a week. This is not the case with those residents who are supplied by Non-State Actors because most of the respondents reported that they get water for 2 days in a week (Figure 12).



**Figure 12: Days of water access**

*Source: Field survey 2014*

From the chart, it is well evident that most of the residents get water for only two days in a week. Most of those people have to supplement water from other sources like rivers and buying from water vendors (Plate 13). The District Water officer said that this unreliable nature of water provided by Non-State actors stems from the fact that most of these organizations do not have large storage tanks which could act as reservoirs. Either, the manager of KIWASCO observed that most of these water projects are done without proper consultations. This leads to poor infrastructure such as pipes with small diameter which cannot transport enough water to far distances. The organizations also fail to do proper surveys when laying down the infrastructure. This leads to low water flow, hence the unreliability. The manager also admitted that the water

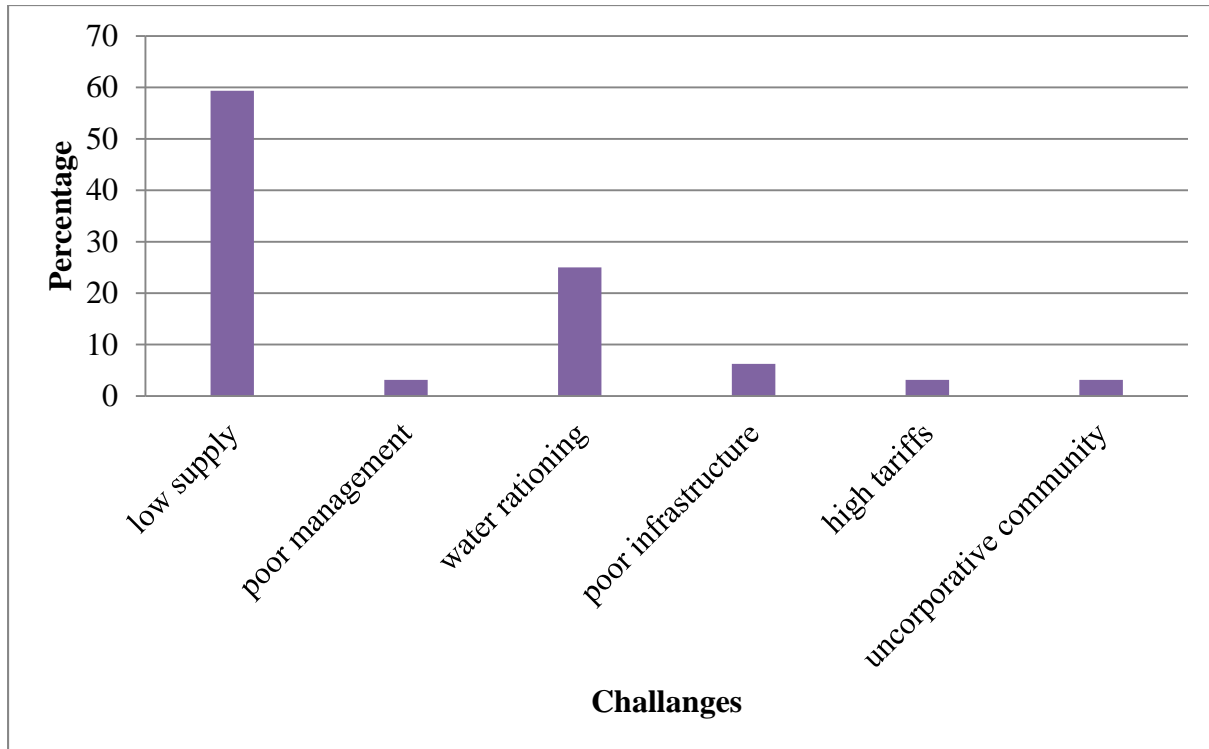
pump at Kiambere dam does not have the capacity to pump enough water to serve the ever expanding water pipelines.



**Plate 13: Water Vendor in Kamuwongo Market**

*Source: Field survey 2014*

These challenges stem from poor management practices adopted by Non-State water service providers. CBOs formed as a result of initiatives of Action Aid were managed by the organization for a year and then left to the community to run. The community members left to run the pipeline have no training on management practices. This has led to poor management and inability to pay the staffs that work in the water points. Figure 13 shows some of the challenges that Non-State actors face in provision of water services in Kamuwongo Division.



**Figure 13: Challenges faced by non-state actors**

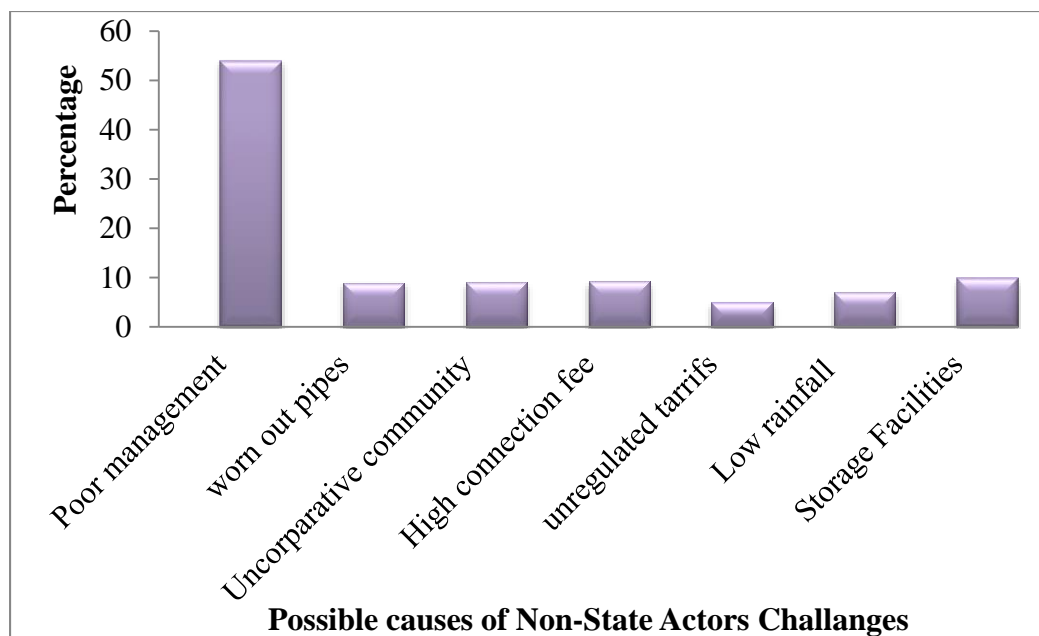
*Source: Field survey 2014*

This study found out that low water supply was the biggest challenge to Non-State actors. This low supply leads to unreliability of the services provided by the organizations. Most of the respondents attributed this to the fact that the management of the CBOs and FBOs was not sound (Figure 14). The managers of the pipeline are not trained; hence they have failed to run the projects well. Low water supply is also occasioned by low rainfall leads to low levels of water in Kiambere dam. This necessitates water rationing which was also cited by some of the respondents as one of the challenges that Non-State actors face. The management of KIWASCO also noted that the infrastructure used in pumping and distributing water along the pipeline is old and has outlived its lifespan. Thus, in most cases of the time the pipes burst leading to low supply of water. The pump at Kiambere is also not adequate for pumping the water to all the villages in Kamuwongo Division. During the installation of the pipes, Non-state actors are supposed to involve qualified experts who can access the gravity in the area and also recommend the correct types of pipes. However, due to inadequacy of funds in these organizations, the Non-State actors opt to lay the infrastructure on their own. This sometimes contributes to low water

supply especially in areas with high elevation. Such connections also lead to the bursting of pipes due to high pressure especially the plastic ones. Repair and replacement of these pipes is always a challenge because most of the members are not well endowed financially. This has led to the stalling of some of the Non-State Actors water initiatives as observed by the area chief.

Some community members who are not part of the water supply initiatives also destroy the pipes leading to loss of water. Others deny entry into their farms making the laying down of the infrastructure very difficult. Getting these community members on-board is always a huge challenge and some respondents noted that some of the water projects have to be relocated making the connections expensive.

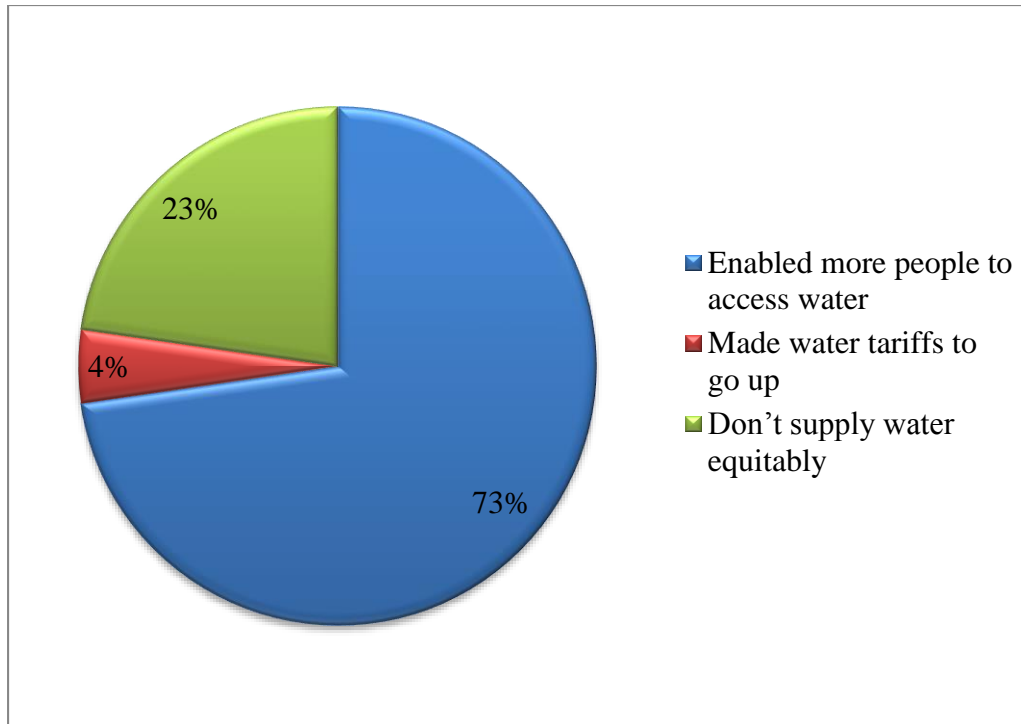
This study established that some of the Non-State Actors do not have storage facilities. This means that when the water is not flowing through the pipeline, they cannot access water. The taps can run dry for 3-4 days in a week. Some of the Non-State Actors have tried and have acquired storage tanks. However, most of those tanks are either small or in bad condition (Leaking).



**Figure 14: Possible causes of Non-State actors' failures**

*Source: Field survey 2014*

Generally, most of the respondents felt that Non-State actors have improved water service delivery in the area. The area Chief noted that Non-State actors have greatly enabled the residents to access water in Kamuwongo Division. This was also echoed by the Director and the Principals of the schools in the area. The Director of St. Francis Primary School observed that the Catholic Diocese water initiative had enabled the school to get water. People who live near Kamuwongo Primary School have also benefited from the CBO initiative which enabled the school to be connected to the main pipeline. Most of the residents in the area have private connections which are cheaper than connecting from the main pipeline. 72.73 % (figure 15), of the respondents had the opinion that Non-State actors have enabled more people in Kamuwongo Division to access water. This is due to the fact that the distance which the residents used to walk to get water from the government water kiosks has greatly been reduced. However, 22.73% of the residents feel that Non-State actors do not supply water equitably. The reason for this eventuality is that only those people part of the initiative are able to access water at low rates. Non-State actors have also led to the increase in water tariffs. This was evident from the private water service providers who charge an average of Kshs. 10 for 20 liter jerry can.

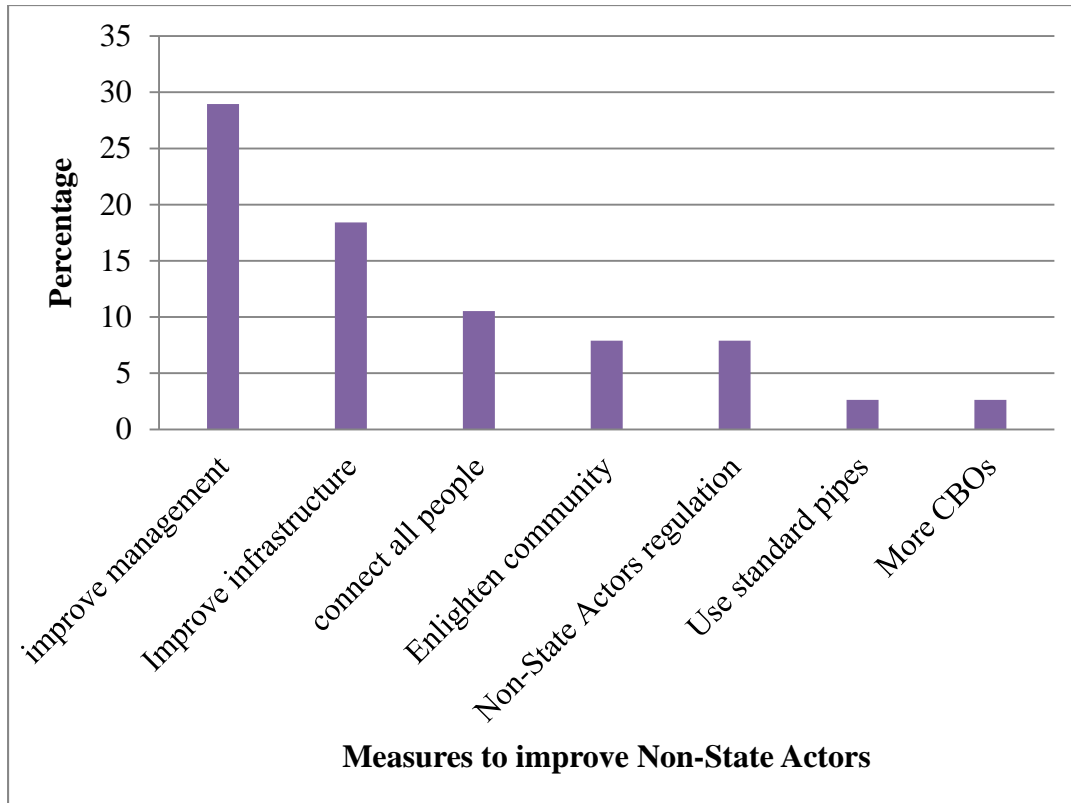


**Figure 15: General Performance of Non-State actors**

*Source: Field survey 2014*

### **5.6 Measures to Improve Performance of the Non-State Actors in Water Service Delivery in Kamuwongo Division.**

Most of the respondents alluded that there is a need to improve the service provision by Non-State water service providers. 36% of the respondents (Figure 16) noted that the management practices of non-state water service providers needs improvement while 28% felt that improving water infrastructure will make the service delivery better. The respondents also proposed that more people should be connected to the pipeline. This can be done by lowering the connection fee charged by KIMWASCO. Either entry of more Non-state actors can also help in improving water service delivery owing to the fact that most of the ones that are in existence have enabled more people to access water services. People also need to be educated on the need to join Non-State actors. Non-State actors without storage facilities should construct or buy water tanks to mitigate the challenge of low supply.



**Figure 16: Mitigation measures proposed by residents**

*Source: Field survey 2014*

## CHAPTER SIX

### SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 6.1 Summary of Findings

Non-state Actors have contributed to provision of water services in Kamuwongo Division through enabling people to access water from short distances. Most of the water points set up by Non-State actors are nearer to the homes of the residents. This study established that most businesses in the area have benefited from the improved water service delivery by non-state actors. Several new businesses have also been set up because water access is more improved under non-state actors. There has been marked increase of people with connections in their homes after the entry of non-state actors. This is due to the fact that non-state actors have greatly reduced the distance of access from the main pipeline. The requirements for connection to the homes are also less under non-state actors and most people find it easier to get connected from the T areas set in various locations along the pipelines.

This study examined the existing water service arrangements in Kamuwongo Division. The main water service provider in the area is KIMWASCO. This is the water service provider contracted by TANATHI Water Service Board. KIMWASCO has several water kiosks in major shopping centres where residents buy water at Kshs 2 per 20 litre jerry can. Either there are several storage tanks to store water which is used when the water levels in Kiambere dam go down. However, most of these water kiosks are located far from each other making long the distance that residents have to walk to fetch water. This study found out that the Company is now encouraging more people to get water connections into their homes rather than establishing more water kiosks along the pipeline. This is because the cost of running the water kiosks is high.

These inefficiencies in water service delivery by the government have led to the entry of Non-State actors. Non-State actors tap water from the main pipeline and then distribute it to the members of the organizations. Private water providers also sell water to the residents who do not have connections in their homes. From the study findings, it is evident that CBOs are the major Non-state actors involved in providing water in Kamuwongo Division. Most of the residents are supplied with water by CBOs. The requirements for private connections are fair compared to the requirements when connecting to the main pipeline. The study found that the requirements for connections are water meter, standard pipes, qualified technicians from the water company and

paying the connection fee. Most of the water points established by Non-State actors are easily accessible and near each other. This has greatly reduced the distance that the residents walk in order to access water services.

However, the study found that the water services provided by Non-State actors are not reliable. Most of the respondents said that they are only able to access water from the water points set by Non-State actors for only 2 days in a week. They also argued that in most cases the taps run dry for even a week making water accessibility extremely difficult. Either some of the water points are not operational because there is no personnel to operate them. Those who had been employed to distribute water in those points quit the job because of unpaid salaries. This situation arises because of poor management of the water projects. Another reason that has contributed to the unreliability of the water services is the absence of storage facilities. Some of the private service providers have storage tanks. However, these tanks are not big enough to store water for a whole week. Others have tanks which are in bad condition leading to water leakages.

The study also found that the water pipes used by non-state actors to distribute water are either of low quality or in bad condition. Some of the pipes used in the Ndoo water pipeline and Tyaa-Kamuthale line are not wide enough to distribute enough water to the residents. These pipes are also made of plastic. This shortens their lifespan bearing in mind that the area is hot for long periods of the year. High pressure destroys these pipes and the money to repair the pipes is always inadequate. This cuts the supply in those areas. Some of the Community members who are not part of the initiative also destroy the pipes in their attempts to access water. Others simply deny way through their farms for the pipes to be laid. This makes the CBOs and FBOs to use longer routes that are more expensive in terms of the pipes used and the labour required to establish the connection.

In terms of water billing, the study found that most Non-State actors were selling water at affordable rates. Most of them sell water at Kshs 2 for 20 litre jerry can. Private Service providers however are more expensive than other Non-State water service providers. Most of them charge Kshs 10 per 20 litre jerry cans. They charge this price in order to cope with the high water tariffs levied by KIMWASCO. The water tariffs are unregulated and it is the right of the Non-State water service provider to decide what to charge for their services.

From the study, it was established that Non-State actors have not distributed water equitably. Most of the residents who get water supplied by the Non-state actors are those who are part of the

initiatives. Either Private Service providers only allow people who can afford to pay for water to access water from their water points. Residents in the area have therefore devised ways of coping with this situation. Some opt to fetch water from the nearby rivers while others ration the water that they fetch from the water points. The study also found that some of the respondents have developed some kind of partnership with the private providers whereby they fetch water and then pay at a later date when they get money. Businesses are highly affected by the inadequate supply and poor distribution of water in the area. Most of the businesses have to buy water from water vendors who sell the water at high prices while others close their businesses.

The biggest challenge faced by Non-State actors in providing water services is low supply from the main water pipeline. This study found out that one of the reasons why there is this problem is that feasibility studies were not done before the connections were made. This led to the establishment of connections along areas with elevations that cannot allow the water to flow well. It was also established that the pump at Kiambere dam was not powerful enough to pump enough water to the ever expanding water networks in the area.

## **6.2 Conclusion**

In conclusion therefore it was noted that Non-State actors are very instrumental in availing water services to the residents of Kamuwongo Division. They have to a great extent enabled most of the people living far away from Kiambere-Mwingi water pipeline to access water. This has also reduced the distance that people walk to fetch water. The Non-State actors have also enabled most people to have connections in their homes. However, it was noted that these Non-state water service providers are faced with multiple challenges that needs to be addressed. One of the major issues is the low supply of water from the main pipeline. This is further aggravated by the fact that most of the Non-State service providers do not have water storage facilities. This means that they can only supply water for 2 days in a week. The water projects are also managed by people who are not well trained in management practices. This has led to the failure or inadequate supply of water by these organizations. The water infrastructure is also in bad condition especially the pipes used to distribute water. Most of the old pipes burst and lead to loss of water. Capacity building should be done in order to equip those in management of the pipelines with proper management practices. People should also be enlightened on the need to form and join CBOs for them to get water. The county government should also consider giving the Non-State service providers especially CBOs some funds to purchase standard pipes and

construct storage tanks. The monthly water charges as well as the connection fee charged by KIMWASCO should also be reduced in order to lower the water tariffs of Non-State water service providers.

## **6.3 Recommendations**

### **6.3.1 Water service arrangements in Kamuwongo Division**

The Water Act, 2002, brought sanity and clear guidelines in provision of water services. The eight Water Service Boards are mandated by the Act to ensure there is efficient and affordable water service delivery in their areas of jurisdiction. With the enactment of the new Constitution, 2010, water service provision has been devolved. This leaves the Water Service Boards at a cross road because there is no policy now to guide their operations. The following recommendations can be adopted to solve the challenges in water service arrangements in Kamuwongo Division.

- A supportive policy and legislation should be enacted in order to guide devolution of water services. A revised Water Policy and Water Act fully consistent with the Constitution, government policies and legislation will make the devolution process smoother, particularly on issues such as the transfer of staff and assets to counties.
- The draft Water Policy and Water Bill should be fast tracked to ensure devolution of water services is done smoothly. The Bill contains a number of aspects that are relevant for future development of the water sector in a way that promotes the right to water, ensures sustainable provision of water services, guides future institutional structure of the sector at the county level.
- The new water Bill should give County governments responsibility for establishing water service providers or alternative provision arrangements for urban and rural areas for both the development and management of water services.
- The water Bill should have Provision for the transfer of assets, rights, liabilities, obligations, agreements and other arrangements from Water Services Boards to either the County Service Providers (county infrastructure) or the proposed Water Works Development Boards (national public works infrastructure).
- A County Support Unit could possibly serve as the platform for the donors and other partners to support water service provision, under the guidance of the national

government and proposed County Water Forum. This will allow the County government to monitor and know the number of Non-State actors operating in every area.

- The level of investments will need to be increased and spent well. In the context of devolution, existing and new money flows for investment will have to be evaluated and agreements reached between national and county government about how these investments are reorganized. It is important that devolution of capital funding arrangements is well managed to maintain and grow the level of funding in the sector.
- The Water Service Provider in Kamuwongo Division (KIWASCO) should improve its management practices and rid corrupt officials who participate in facilitating illegal connections. Sound management of the water pipeline will ensure that there is sufficient supply of water. This will also ensure that the infrastructure is well taken care of including replacement of old and broken pipes.
- KIMWASCO should also consider subsidizing the connection fee together with other requirements required for private connections. This will enable more people to get connections in their homes.

### **6.3.2 Recommendations on the Performance of Non-State Actors in the Provision of Water in Kamuwongo Division**

- ❖ Non-State actors need to improve on their management practices. CBOs should consider taking their staff for management courses to improve their management skills.
- ❖ Improving infrastructure; Non-State water service providers should improve their infrastructure. New pipes need to be bought to replace the old and substandard pipes. This will reduce loss of water through water leakages. There is also an urgent need for Non-State water service providers to construct new and large water storage tanks to enable them store and use water when the water levels at Kiambere dam go down.
- ❖ Non-State water service providers should also consider hiring qualified personnel when making the connections to do feasibility studies and surveys to establish areas where the pipes should be fixed. The experts should also be hired when the pipes burst or when replacing the infrastructure.
- ❖ There should be proper consultations with water service provider (KIMWASCO) before coming up with the water projects. The company can provide technical advice to the community members willing to start a CBO or FBO and tell the community whether the

pipeline will be able to supply enough water to them depending on the elevation of the area.

- ❖ The government should coordinate Non-state water service providers. The County government should have a record of the number of non-state water service providers and their areas of operation. They can do this by asking the area administration especially the Chiefs to register any organization that comes up with a water project.
- ❖ The government should also have a data on the number of people that these organizations supply with water. This can be achieved through regular audits of the Non-State water service providers in the area.
- ❖ Community participation should be encouraged as envisaged in Chapter Four, Bill of Rights in Constitution of Kenya, 2010. All members of the community should be allowed to join self-help group without discriminating them on the basis of social status. The area Chiefs, assistant Chiefs and headmen should hold barazas to enlighten members of the society on the benefits of forming CBOs.
- ❖ Non-State water service providers should consider installing water pumps to improve water supply. These pumps can be installed a few kilometers from the main pipeline to increase the pressure of water flow.
- ❖ After connection, the government should assist institutions in paying water bills to avoid disconnections. Institutions such as schools, hospitals and other public institutions that are connected due to community initiatives should be assisted by the government to pay water bills.

### **6.3 Areas for Further Research**

- Detailed study on other non-state actors who provide water from other sources such as earth dams, boreholes and wells.
- A study on the quality of water supplied by Non-State actors.

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**APPENDICES**

**Appendix I: Household Questionnaire**

**Kenyatta University**

**Department of Environmental Planning & Management**

**Master of Environmental Planning and Management**

I am a Masters Student from the Department of Environmental Planning and Management at Kenyatta University. In order to fulfill the requirements of this degree programme, I am carrying out a study entitled: Performance of Non-state Actors in the provision of Water along the Kiambere-Mwingi Water Pipeline in Kamuwongo Division, Kitui County. I kindly seek your indulgence in filling this questionnaire.

**Household Questionnaire**

Location -----

Name of village-----

Date of interview -----

**The information and data provided will be confidential and is intended for academic purposes only**

Please answer these questions to the best of your knowledge.

Write your responses in the space provided. Kindly put a tick (√) where applicable

**A. Household Information**

1. (a) What are your household characteristics? (Please fill in the table below)

Household member/s	Gender	Age	Educational level	Main occupation	Monthly income from the main occupation	Other sources of income	Monthly income from other sources


**2. For how long have you been living here?**

(i) <1yr. (ii) 1-2 yrs (iii) 3-4 yrs (iii) 5-6 yrs (iv) More than 6 years

**3. Who supplies you with water?** (i)Government (ii) Water Venders (iii) CBO (vi) NGO (v) FBO (vi) private supplier Specify.....

**4. (a) Do you have access to water from Kiambere-Mwingi Pipeline?** (i) Yes (ii) No

(b) Are you connected to the main pippeline, how did you get connected?

(i)Personal initiative (ii) through a CBO (iii)Through NGO (iii)through FBO (iii)any other specify

(c) What were the requirements for pipe connection?

.....  
 .....  
 .....

(d)If not connected to the pipeline, how far is the water point from your home?

.....

**5.a)How much does the service provider charge for the service?**

.....

b) If private provider, how much do you pay per month as water bill

c) How many days are you able to access water from the pipe? (i) 1-2 (ii) 3-4 (iii) 5-7

d) How far in metres or kilometres do you take walking to where you draw / fetch water?

(i) <50 m (ii) 50 - 100 m (iii) 100 -200 m (iv) Over 200m

(f) Is the water point where you fetch accessible? (i) Yes (ii) No

(g) Is this source of water: (i) Permanent or (ii) Seasonal?

6. (a) On the average how many buckets (20 litres) of water do you need for your household per day? (i) 1 (ii) 2 (iii) 3 (iv) 4 (v) 5 (vi) 6 and above

7. Is the water you fetch adequate or sufficient to meet your household requirements?

(i) Yes (ii) No

8. Are there other water providers you are familiar within Kamuwongo Division? (i) Yes (ii) No

9. How often do the providers in 7 above provide water? (i) Seasonally (ii) All the time

(iii) Any other Specify.....

10. How much do you pay to access (20 litres) of water? (i) Less than 5/= (ii) 10/= (iii) 15/= (iv) 20/= (v) Above 20/=

11. Under what circumstances do you buy from these other water providers?

.....  
.....

12. Please comment on the reliability in terms of water provision by: Non-state actors.....

13. Do you the non-state actors have distributed water equitably? (i) Yes (ii) No

Give a reason.....

14. In your Opinion, how much do you think the non-state actors should charge for one bucket (20 litres) of water? (i) Less than 5/= (ii) 10/= (iii) 15/= (iv) 20/= (v) Above 20/=

15. (a) Is the water price affordable to you? (i) Yes (ii) No

(b) If No, How do you cope?

.....

16. What problems do you face concerning water Supply and delivery in this area.

.....

.....

17. What do you think are the possible causes of the problems mentioned above?

.....  
.....  
.....

**18.** What do you think can be done to help mitigate or improve on the challenges in number 16 above?

.....  
.....  
.....

**19.** Comment on the general performance of non-state actors in the provision of water in this area and how their role can be improved.

.....  
.....  
.....

**Appendix II: Interview Schedule**

**Kenyatta University**

**Department of Environmental Planning & Management**

**Master of Environmental Planning and Management**

I am a Masters Student from the Department of Environmental Planning and Management at Kenyatta University. In order to fulfill the requirements of this degree programme, I am carrying out a study entitled: Performance of Non-state Actors in the provision of Water along the Kiambere-Mwingi Water Pipeline in Kamuwongo Division, Kitui County. I kindly seek your indulgence in filling this questionnaire.

**Institutional Interview Schedule**

**Name of institution.....**

- 1. What is your role in the Rural Water Service delivery?
- 2. Who is responsible for approving water tariffs for this area?
- 3. Does this affect your performance in water delivery in this area?
- 4. What are the other main players in the water sector which can influence the management of water in rural areas?
- 5. In your opinion is water service delivery adequate in this area? (i) Yes (ii) No
- 6. If the answer above is No, what do you think could have contributed to the inefficiencies?
- 7. What are the challenges that this area is facing in terms of water service delivery?
- 8. What is being done to address the challenges being faced?
- 9. Are you aware of any non-state actors involved in provision of water in this area? (i) Yes (ii) No

a) If yes, what do you think of their performance?

.....

b) What measures have you put in place to improve their performance?

.....

**Appendix III: Business Questionnaire**

**Kenyatta University**

**Department of Environmental Planning & Management**

**Master of Environmental Planning and Management**

I am a Masters Student from the Department of Environmental Planning and Management at Kenyatta University. In order to fulfill the requirements of this degree programme, I am carrying out a study entitled: Performance of Non-state Actors in the provision of Water along the Kiambere-Mwingi Water Pipeline in Kamuwongo Division, Kitui County. I kindly seek your indulgence in filling this questionnaire.

**Business Questionnaire**

1. What type of business do you run?

2. For how long have you been in this business?

(i) <1yr. (ii) 1-2 yrs (iii) 3-4 yrs (iii) 5-6 yrs (iv) More than 6 years

3. Who supplies you with water? (i) Government (ii) Water Venders (iii) CBO (vi) NGO (v) FBO(vi)Private(vi)supplier(vi)Anyother  
Specify.....

4. (a) Do you have water pipe connected to your Premise? (i) Yes (ii) No

(b) If yes, how much do you pay on the average as water bill per month? **Kshs...**

c) Was the result of the water connection an initiative of a non-state actor?  
.....

(d) What were the requirements for pipe connection?  
.....  
.....  
.....

(e) How many days does your tap flow in a week? (i) 1-2 (ii) 3-4 (iii) 5-7

(f) If your answer to 4(a) is No, how far in metres or kilometres do you take walking to where you draw / fetch water?

(g) <50 m (ii) 50 - 100 m (iii) 100 -200 m (iv) over 200m

(h) Is the water point where you fetch accessible? (i) Yes (ii) No

(i) Is this source of water: (i) Permanent or (ii) Seasonal?

5. (a) On the average how many buckets (20 litres) of water do you need for your business per day? (i) 1 (ii) 2 (iii) 3 (iv) 4 (v) 5 (vi) 6 and above

6. Is the water you fetch adequate or sufficient to meet your business requirements?

(i) Yes (ii) No

7. Please comment on the reliability in terms of water provision by:

Non-state actors.....

8. Do you think the non-state actors have succeeded in providing water services in this area?

(i) Yes (ii) No

9. (a) Is the water price charged by non-state actors affordable to you? (i) Yes (ii) No

(b) If No, How do you cope?

.....  
10. In your opinion, is there fairness in water service provision by the non-state actors? (i) Yes (ii) No

(a) If the answer above is No, what do you think could have contributed to the unfairness in the provision of water?

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.....  
.....  
11. What problems do you face concerning water supply by non-state actors in your area?

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.....  
.....  
12. How do the problems above affect your business?

.....  
.....  
13. What do you think are the possible causes of the problems mentioned above?

.....  
.....  
.....

**14.** What do you think can be done to help mitigate or improve on the challenges in number 16 above?

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