EXPANDING WATER SERVICE DELIVERY THROUGH PARTNERSHIP BETWEEN WATER UTILITY AND SMALL SCALE WATER PROVIDERS IN LUSAKA, ZAMBIA: A CASE OF LUSAKA'S PERI-URBAN AREAS

(Photo by NWASCO, 2002)

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Thesis submitted in partial fulfilment of the requirements for the award of the Degree of Masters of Science in Water Resources and Livelihood Security, at the Department of Water and Environmental Studies, Institute of Thematic Studies, Linkoping University, Sweden

10th JANUARY 2008

This research is done for the partial fulfilment for the Master of Science degree at the Linkoping University, Linkoping, Sweden
ABSTRACT

Zambia is a highly urbanized country with 60% of its urban population residing in low cost areas also called peri-urban, slum or informal settlements. The increase in urban population attributed to rapid migration and urbanization due to political and economic changes has taken a toll on service provision as the infrastructure development and service provision has failed to meet the demand. For the 33 peri-urban areas in Lusaka, the water supply and sanitation has been poor, inadequate and unreliable with the coverage being slightly above 50% for water while 90% of the urban population does not have access to the much needed sanitation. The low coverage is a result of lack the financial capacity on the part of the service providers to extend services to un served areas.

This research focuses on the strategies to provide sustainable water and sanitation services to peri-urban areas to ensure improved accessibility through the expansion of infrastructure and attainment of full cost recovery. In this era of increasing migration to unplanned settlements where the services are inadequate, alternatives to public provision of water and sanitation services need to be put in place. One of the alternatives is the public-private partnership which encompasses the society, private and the civil society. As has been found in the study the best alternative should not only be completely bottom up but should also be more demand driven and be able to provide for greater contributions from the affected communities.

The hypothesis of the study is to ascertain if provision of water supply to the Peri-Urban Areas (PUAs) can be achieved through the partnership between the water utility and the small scale water providers. Therefore, the objectives of the research are to: evaluate and compare the current service provision to the peri-urban areas by the utility and small scale providers in terms of technical, social and institutional arrangements and determine the best way of ensuring sustained service provision to peri urban areas and show how partnership can be the best solution to improving service delivery to these areas.

Service provision in PUAs can not be achieved without the involvement of all the stakeholders especially the community who are also the users and whose major role is paying for the service to enhance sustainability. In this study the Small Scale Water Providers (SSWP) users were found to be satisfied with the service provided than the utility users who felt that more needed to be done. The two providers are found to have different strengths which when combined would enhance service provision. The collaboration between utility with its competence in water supply, technical installations, water quality testing and SSWP with theirs in community involvement, cost recovery, effective operation and maintenance and demand driven water schemes have to be merged to achieve the intended goal and it is also an indication that the two can complement each other. Utility should therefore consider opening investment accounts for all the areas so as to detach PUAs needs from the general plan and eventually budget as they would be self sustaining and enhance willingness to pay for the users. The SSWP should therefore be viewed as partners by all and licensing should be considered by the government for the benefit of the urban poor.

Keywords:
DECLARATION BY THE CANDIDATE

I, Yvonne Mwandu Siyeni hereby declare that this thesis is an output of my own research. Wherever contributions of others were sought, due acknowledgement has been made. My thesis constitutes original work and has not been presented for any award at this or any other higher learning institution in the world.

Signature:..............................................       Date:..............................................
DEDICATION

To

My Late Parents

Ms. Bertha Simwawa and Mr. Anderson Siyeni for all the love, support, guidance and making me a better person. Ba Mayo you will always be my role model and source of inspiration because you will always be the best

My Sister Charity, Brothers Howard and Chola and all my Cousins this is to inspire you thank you for the support and love

Chabota and Taizya for loving and looking up to me

Mervis for being more than a friend and bringing all the smiles

My Jehovah Jireh
For His love and abundant Grace
ACKNOWLEDGEMENT

The production of this thesis would not have been possible without the invaluable, generous, insightful criticism and vital guidance provided by my Supervisor and mentor, Dr. Birgitta Rydhagen. I wish to thank her for being patient and understanding I will always be indebted to her.

I wish to sincerely appreciate all the Teachers in the Department of Water and Environmental Studies for knowledge shared and imparted upon my life and the staff particularly Ian Dickson for all the assistance. I would also like to thank the Programme Coordinators Dr. Julie Wilk and Associate Professor Åsa Danielsson for their support during my study programme at LIU.

I would also like to express my deepest appreciation to the respondents from NWASCO and CARE International for sharing their views with me. Others are the Water trust Managers, Board Chairpersons and the residents of these Compounds Bauleni, Chaisa, Chawama, Chiptata, Garden, Kanyama, Kalikiliki and Ng’ombe for their cooperation, support and knowledge. I know it was not easy but you did it anyway for the sake of the betterment of the people out there.

I also wish to convey my gratitude to my employer Lusaka Water and Sewerage Company for granting me study leave to enable me widen my knowledge and also to the Swedish International Development Agency (SIDA) for their incessant support during my stay in Sweden.

I also wish to acknowledge all the people who sacrificed their time and effort in various ways to enable me complete my paper. I would like to particularly thank: Douglas Sing’anga for the support and the literature, Astrid, Kennedy and Beatrice for the insightful criticisms and guidance. Ba Maureen thank you for the encouragement and guidance in everything you are such a wonderful soul. To Lucy thank you for the encouragement, hospitality and generosity, Christine thanks for being an all weat her friend, Brimer thank you for the laughter, joy, love, encouragement and fun. Mervis my friend it’s a pity you will not be there to see the fruits of my labour. I also wish to thank all my colleagues in the Peri-urban Department for the support I hope this document will help us to help our beloved consumers in all the Peri-urban Areas of Lusaka.

My heartfelt gratitude goes to my family for their support and prayers. Most of all I want to thank my Sister Charity, brothers Howard and Chola for believing in me and for the support. To my beloved parents I only wish you were alive to see the dream you deposited in me. Thank you for your support, love and guidance and shaping me into the person I am. To my mum thank you for the sacrifices you made for me and for believing in me to you I will always be grateful just wish you were around to see my achievement rest in eternal peace. Last but not least I want say thank my course mates for all the support, guidance, fun and the wonderful experiences we shared especially in 18A Rydsvägen.

Above all I want to thank the Awesome God, King of Kings and Great Am for the abundant blessings, strength, wisdom, love and grace and for the rough but wonderful journey of life.

“And we know that all things work together for good to those who love God, to those who are called according to His purpose” Romans 8:28.

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<th>Full Form</th>
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>CARE</td>
<td>Cooperative for Assistance and Relief Everywhere</td>
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<td>CBOs</td>
<td>Community Based Organisations</td>
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<td>CSO</td>
<td>Central Statistics Office</td>
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<tr>
<td>CU</td>
<td>Commercial Utility</td>
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<tr>
<td>DCI</td>
<td>Development Cooperation Ireland</td>
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<tr>
<td>DISS</td>
<td>Department of Infrastructure and Support Services</td>
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<tr>
<td>DTF</td>
<td>Devolution Trust Fund</td>
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<tr>
<td>ECZ</td>
<td>Environmental Council of Zambia</td>
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<td>GRZ</td>
<td>Government of the Republic of Zambia</td>
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<tr>
<td>HIV/AIDS</td>
<td>Human Immune Deficiency/Acquired Immune Deficiency Syndrome</td>
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<td>IBT</td>
<td>Increasing Block Tariff</td>
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<td>JICA</td>
<td>Japanese International Cooperation Agency</td>
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<td>LAs</td>
<td>Local Authorities</td>
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<td>LCC</td>
<td>Lusaka City Council</td>
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<td>LWSC</td>
<td>Lusaka Water and Sewerage Company</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>MEWD</td>
<td>Ministry of Energy and Water Development</td>
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<td>MFNP</td>
<td>Ministry of Finance and National Planning</td>
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<td>MLG</td>
<td>Ministry of Local Government and Housing</td>
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<td>NGO</td>
<td>Non Governmental Organisation</td>
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<td>NWASCO</td>
<td>National Water and Sanitation Council</td>
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<td>NRM</td>
<td>Non Revenue Water</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PCU</td>
<td>Programme Co-ordination Unit</td>
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<td>PUAs</td>
<td>Peri-Urban Areas</td>
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<td>PUWSS</td>
<td>Peri-Urban Water Supply and Sanitation</td>
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<tr>
<td>PROSPECT</td>
<td>Program of Support for Poverty Elimination and Community Transformation</td>
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<tr>
<td>RDC</td>
<td>Residents Development Committee</td>
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<tr>
<td>SIDA</td>
<td>Swedish International Development Agency</td>
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<td>SSWP</td>
<td>Small Scale Water Provider</td>
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<td>SPSP</td>
<td>Small Scale Private Service Providers</td>
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<td>UFW</td>
<td>Un accounted For Water</td>
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<tr>
<td>WB</td>
<td>World Bank</td>
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<td>WATSAN</td>
<td>Water and Sanitation</td>
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<td>WDC</td>
<td>Ward Development Committee</td>
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<td>WSS</td>
<td>Water Supply and Sanitation Services</td>
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<td>WSP</td>
<td>Water and Sanitation Program</td>
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<td>WT</td>
<td>Water Trust</td>
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<td>WTM</td>
<td>Water Trust Model</td>
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<td>Willingness to Pay</td>
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<td>WB</td>
<td>World Bank</td>
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<td>ZESCO</td>
<td>Zambia Electricity Cooperation</td>
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1. INTRODUCTION
1.1 BACKGROUND
Water is one of the most important natural resources necessary for human survival after air. It is essential to the well-being of people especially for human health. With inadequate water man cannot fully progress in anything but improving access to safe water and basic sanitation enhances development and contributes to poverty alleviation. Access to water and sanitation has been deemed a fundamental need as well a human right as these are cardinal for dignity and well being of all the people (UNICEF/WHO, 2002). However, lack of water and sanitation seriously retards the prospects for people’s socio-economic development and health. About 50% of the population from the developing countries suffer from water related diseases which results in deaths especially those which are not well controlled. “The scarcity of portable water hinders preparation of food and imposes a heavy burden of time and effort on those who fetch water mostly women and children” (ADB, 2001: 7). This also affects the children’s welfare as they have no time to go school and also contributes to perpetuating poverty in already impoverished areas.

Considering the many dimensions of poverty many people in Africa especially the urban poor suffer from water poverty as they do not have access to adequate water supply and sanitation. Africa is known to have the lowest water supply coverage in that 1 in every 3 do not have access to improved water supply while for the large cities it is 1 in 6 (WHO/UNICEF, 2002). The living conditions of the water poor-people is affected by the long times spent to fetch water which decreases their opportunities to engage in other productive activities which could enhance their attainment of the socio-economic advancement. If the water poverty has to be alleviated it is imperative that all partners realise the clear linkages between access to portable water and health, nutrition levels, education achievement, labour productivity and economic growth (USAID, 2002). Zambia has therefore realised that “the fight against poverty requires that there be improved access to water and sanitation, as well as access to water for productive purposes that improve people’s livelihoods” (MLGH, 2005:3) hence coming up with strategies and reforms in the water sector.

With changes in the world the population has continued to increase especially in urban areas resulting in rapid urbanisation with “most of these poor people residing in unplanned settlements with limited access to affordable and reliable water supply and sanitation services” (PPIAF, 2002:1). It should be noted that population growth and urbanisation come with their own challenges especially in the area of provision of basic services like water supply and sanitation. Provision of these services to these areas is normally hindered by the following: their locations since they are usually found in the outskirts, lack of infrastructure which makes it difficult and expensive for providers to gain access, high connection costs and of course population increase which pauses a great challenge to the utilities as they fail to keep up with the growth pace.

Zambia is faced with two challenges regarding provision of water and sanitation services to the peri-urban areas, the first being meeting the high demand for clean, safe and potable water and second providing adequate and decent sanitation facilities. Access to adequate water and sanitation for most Zambians is still a challenge as the coverage is still low. By 2002, accessibility to water services at national level was at 64%, 88% and 48% for urban and rural areas respectively (MOFNP, 2005). The Government of Zambia has been striving to achieve universal water and
sanitation coverage in line with the Millennium Development Goals (MDGs) though the achievement is still far fetched. The demand for water in many cities which has outstripped the supply has led to government coming up with strategies and alternatives to public provision of water and sanitation services to enhance service provision. This has seen the birth of different services providers from utilities to community managed water schemes.

Lusaka Water and Sewerage Company (LWSC) is the commercial utility mandated to supply water and sanitation services to all the residents within the jurisdiction of Lusaka City. It provides water to 80% of city population while the other 20% is provided by community managed systems, private boreholes and untreated shallow wells. In peri–urban areas the utility provides to 43% of the urban poor, the Water Trusts (who are more like small scale providers) provides to 37% while 20% is regarded as an unserved population, (Tremolet & Halpern 2006). The Company still faces a huge challenge of providing adequate water and sanitation services to the informal settlements areas due to high population increase, continuous mushrooming of unplanned settlements, lack of funds to invest in service extension, lack of political will and low priority given to water and sanitation provision among others. The failure to extend the services to the un served areas has also been caused by the aged infrastructure since the company inherited a water and sewerage system which was dilapidated, rundown, unreliable and ill maintained (LWSC, 2005). The company provides sanitation facilities as follows: 38% of the conversion areas have water borne sewer system and of the 62%, 20% use septic tanks, 7% pit latrines and 5% rely on bucket system (ibid). The remaining 30% who are mostly PUAs residents rely on latrines found at communal places especially markets and taverns

Accessibility to the peri-urban areas has been poor, inadequate, unreliable and has been made worse by the lack of funds to extend the services to the un served areas. To address this situation, the “Government of the Republic of Zambia (GRZ) embarked upon a sector wide restructuring exercise in 1993 which provided an enabling policy environment for International NGOs to develop and implement innovative management models that would embrace the interests of communities and Government” (Mwanamwambwa et.al 2005:214). As a result of this some international donor agencies like CARE, JICA, Irish Aid and World Vision came in to fund the water supply projects in the various settlements. CARE established community managed water systems called Water Trusts which are regarded as SSWP in this study. These Water Trusts are independent from the utility. However, though the Water trusts are known to fill the gaps they are not legally recognised by the Regulator National Water and Sanitation Council (NWASCO). In countries where they are operational the SSWP have been found to be playing an important role in reaching the poor and communities that the utility fail to reach adequately (Kariuki & Schwartz, 2005).

It is against this background that this research tried to find out how partnership between the utility and the water trusts can be used to improve water supply and sanitation services to the peri-urban areas in Lusaka.
2. STATEMENT OF THE PROBLEM AND RATIONALE OF THE STUDY

The rationale behind this study stems from the realisation that with a multiplicity of public and private agencies, as well the presence of numerous donors and NGOs, coordination of water and sanitation services is required to derive the greatest benefits from limited budgets in peri-urban areas where the challenges are very great. LWSC also called utility\(^1\) being the major actor and license holder has been given the mandate to coordinate the activities of provision of water and sewerage services within the jurisdiction of Lusaka City. LWSC has tried out different management approaches to the water service delivery in the peri-urban areas and still the desired results have not been achieved. Though the SSWPs run independently and end up competing with the water utility, they play an important role as they provide water to the urban poor who are mostly considered not to deserve the services as most of these areas are not legalised. Sometimes these areas cannot be reached by the utility thereby making them to rely on other service providers who eventually become a necessary link to service delivery. Considering the constraints faced by the utility of lack of adequate working capital and inadequate water supplies it is felt that sustainable provision of water to peri-urban areas will only be achieved if LWSC realises the role small scale providers play in providing water to the urban poor and bridging the gap between the unserved and served population especially in areas where LWSC has failed to deliver the service. Like other utilities in Zambia, LWSC faces many challenges in its service provision like:

- Escalating operations and maintenance costs
- Old age of inherited infrastructures,
- Uncontrolled urbanization compounded with the reduced yields from the underground sources that have resulted from poor rainfall patterns and
- Cost recovery problems that result from the bad attitude of customers towards payment of bills coupled with the poor performance of the nation’s economy in which it operates (LWSC, 2005).

It is assumed that the small scale providers have succeeded in terms of increasing accessibility, sustainability and revenue collection compared to the water utility mostly because of the strategies implemented like expansion of the water supply network to the unserviced areas, equal distribution of metered water points and use of appropriate technology like kiosks, use of a flexible payment system, consistent operation and maintenance and community participation.

It is against this background that this study of service delivery to the poor should be carried out with more focus on how the water utility can work with the small scale providers to provide water and sanitation services to the peri-urban areas sustainably, equitably and efficiently by increasing access and improving cost recovery. This study therefore looked at how the small

\(^1\) Here utility means a private or public entity charged with providing water supply and or sanitation services to urban areas including informal settlements.
scale providers are contributing in providing water to the peri-urban areas and how LWSC can partner with these SSWPs in improving the accessibility and service provision to these areas. The study was able to bring out the legal, social, economic and political contributions that are necessary for the implementation of this partnership to enhance sustainable, efficient and equitable water services provision to the peri-urban areas.

3.1 AIM AND OBJECTIVES OF THE STUDY
In view of the numerous challenges the objective of this study is mainly to find out how the partnership between LWSC and small scale providers can be implemented so as to provide sustainable water and sanitation services to the peri-urban areas, improve access and financial sustainability by emulating the strategies used by the small scale water providers.

3.2 SPECIFIC OBJECTIVES
1) Evaluate and compare the current service provision to the peri-urban areas by LWSC and small scale providers in terms of technical, social and institutional arrangements.

2) Determine what LWSC can learn from the small scale water providers in achieving financial sustainability.

3) Understand how partnerships can contribute to meeting the water and sanitation needs for the peri-urban areas.
3. STUDY AREA- COUNTRY PROFILE

3.1. LOCATION
Zambia is a landlocked country located in the southern part of Central Africa and is bordered by Democratic Republic of Congo to the north, Malawi on the east, Angola, Tanzania to the north-east, Mozambique, Zimbabwe, Botswana and Namibia to the south and Angola to the west (Figure: 1). It lies between 8 and 18 degrees south latitude and longitudes 22 and 34 degrees east. Zambia has a total land area of 752,612 square kilometres with a total population of 9.9 million and annual growth rate of 2.3%. Zambia is one of the most urbanised countries in sub Sahara Africa with 45% of this population living in urban areas (CSO, 2006).

3.2. CLIMATE
Zambia has a sub-tropical climate with three seasons namely cool dry which is from May to August, hot dry season from August to November and rainy season from November to April. The temperature ranges from 16 to 27 degrees in the cool and dry season while in the hot and wet seasons it ranges from 27 to 38 degrees. This weather pattern has led to two climatic conditions that is semi arid western region and swampy area in the North-Eastern region. The annual rainfall ranges between 1000mm to 600mm in the Northern and Southern parts while the mean annual temperature ranges between 18 and 20 degrees with the highest and lowest annual temperature being 32 and 4 degrees respectively (ECZ, 2001).

3.3. ZAMBIA’S WATER RESOURCES
Zambia is endowed with adequate surface and underground water resources required to meet the demand for the natural resource. Groundwater is well distributed while surface water is unevenly distributed which results in some areas experiencing shortages especially the southern part despite receiving the highest annual runoff (Ibid). The available surface water exceeds the total consumptive demand in a year. Zambia has two major river basins the Congo and Zambezi basins into which all the rivers discharge. The river network is dense apart from those of the west and the water availability in the small rivers varies due to the changes in the precipitation. The main sub-basins include Luangwa, Kafue, Chambeshi, Tanganyika, Upper Zambezi, Middle Zambezi and Lower Zambezi.

3.4. ADMINISTRATION AND POLITICAL
Zambia being a former British Colony became independent in October 1964 and since then it has undergone different political phases of governance: (i) post independence era of multi-partisim up to 1971, (ii) One party rule from 1972 to 1991 and (iii) multi- partism from 1991 to date. Zambia is divided into nine provinces which are further divided into 72 districts. The provinces are Central, Copperbelt, Eastern, Luapula, Lusaka, Northern, North-Western, Southern and Western (ibid). Each province has an administrative headquarter and the four major cities are Lusaka, Ndola, Kitwe and Livingstone.

3.5. POPULATION AND DEMOGRAPHIC
Zambia’s population has continued to rise from 5.7 million in 1980, 7.8 million in 1990 to 9.9 million in 2000 with the annual growth of 2.3% per year and average population density of 13 persons per square kilometer (CSO, 2006). According to the Vision 2030 report the Zambian population now stands at 11.7 million with an annual growth of 2.9% (GRZ Vision 2030, 2006). About 40% of Zambia’s population is concentrated in urban areas on the Copperbelt and Lusaka and two thirds of the total urban population residing in peri-urban areas.

3.6. ECONOMY
Zambia’s economy currently is mostly private sector driven with shares in most industries. However, Zambia’s economic policies have undergone the following changes:
1964 -1972 there was free market where there was little state control but with much emphasis placed on infrastructure and service provision,
1973 – 1984 there was state control with government placing much effort on promoting a public sector led economy and instituting state controls, parastatal monopolization, pro-urban and anti agricultural bias,
1985 – 1990 this period saw the introduction of structural adjustment policies and

3.7. LOCAL STUDY AREA
Lusaka Province accommodates a population of 1,319,329 with 81% in urban areas while 19% live in rural areas making it to be a province with the second largest population size. It is estimated that 60 – 70% of the urban population reside in low cost and low income settlements which where initially developed as squatter or illegal settlements but were later legalised (CSO, 2000). Lusaka District accommodates the largest number of people at both provincial and national level. Administratively Lusaka province houses four districts namely: Chongwe, Kafue, Luangwa and Lusaka and the later being the provincial headquarters and capital city of Zambia (CSO, 2004).

Figure 1: Map showing Zambia’s Neighbours and River system
Figure 2: Map of Lusaka City showing the townships/Peri-urban Areas
4. WATER SECTOR REFORM IN ZAMBIA

Since independence Zambia has experienced rapid urbanisation as a result of the economic expansion which has in turn led to the mushrooming of the unplanned and informal settlements. This culminated in the inadequacies in infrastructure and housing development which mostly lacked water supply and sanitation services. This prompted the Government of the Republic of Zambia (GRZ) to embark on the water sector reform in 1993 under the auspice of the Programme Co-ordination Unit (PCU)\(^2\) which was initially an inter-ministerial committee made up of 10 government institutions to make recommendations on the reorganisation of the water supply and sanitation sector. In order to restructure the water sector the PCU was therefore guided by the following seven principles (MOFNP, 2006):

- Separation of water resources functions from water supply and sanitation
- Separation of the regulatory functions and executive functions within the water supply and sanitation sector
- Devolution of authority to local authorities and private sector
- Achievement of full cost recovery for the water supply and sanitation services in the long run through collection of user charges
- Human resource development leading to more effective institutions
- Technology appropriate to local conditions and
- Increased GRZ spending priority and budget spending to the sector.

After the achievement of the set objectives the PCU was then transformed into a statutory body now called the National Water and Sanitation Council (NWASCO) which also happens to be the regulator of water and sanitation provision in the country.

\(^2\) Programme Co-ordination Unit (PCU) being a temporally institution that was created to provide policy direction to the water supply and sanitation sub sector.
4.1.1 POLICY FRAMEWORK
There was no coherent water policy in Zambia for a long time until mid 1990s when the government initiated the formulation of the policy for purposes of planning, management and development of the water resources at all levels. Initially “the water sector operated on ad-hoc user objectives which merely provided principles for the often crisis prone management and uncoordinated development purposes” (Nyambe et. al, 2007: 24). This resulted in the deterioration of the water supply infrastructure. However, the realisation of the importance of water in social economic development prompted the government to come up with National Water Policy whose emphasis is on water resources management, water use and private enterprise participation in the event of the liberalisation. The policy also aims at promoting sustainable water resources development to enhance economic productivity and poverty reduction. In order to achieve long term sustainability of the water resource the policy is based on the following key strategies (MEWD/NWP, 1994):

- Recognising the important role of the water sector in the overall socio economic development of the country
- Vesting control of water resources in the country under state control
- Promoting water resources development through an integrated management approach
- Defining clear institutional responsibilities of all stakeholders for effective management and coordination.
- Developing an appropriate institutional an legal framework for effective management of the water resources
- Recognising water as an economic good.

4.1.2 PERI-URBAN WATER SUPPLY AND SANITATION SERVICES STRATEGY
In addition to the national water policy, the Government in 1997 formulated the Peri-urban water supply and sanitation (PUWSS) strategy to address the need for improvement of services specifically to the Peri-urban areas. The major goal of this strategy was to ensure that “adequate, accessible, sustainable and safe water supply and improved sanitation services are available and effectively used in all peri-urban areas in Zambia thereby reducing the incidence of water borne related diseases” (MLGH/PUWSS 2001: v) and its overall objective is to “establish a framework for effective and efficient planning implementation and management of water supply and sanitation in peri-urban areas” (Ibid: 13). The strategy was to guide business houses on how to improve water and sanitation service delivery to the peri-urban areas so as to reduce incidences of water borne related diseases. This strategy therefore acts as a cornerstone for service delivery to peri-urban areas and is based on the following policy strategies:

- Demand responsive approach
- Community participation and management
- Integration of sanitation
- Commercial utility responsibility to community
- Regularisation of informal settlements
- Consideration of women and children

To cater for legal deficiencies which hinder service delivery in peri-urban areas the PUWSS strategy provides for the following:
• Regularisation of the informal settlements
• Ownership of community water supply and sanitation facility
• Legal framework for community based institutions
• Publicising of regularisation process

4.1.3 LEGAL FRAMEWORK
The legal framework which anchors the water sector is the Water and Sanitation (WSS) Act number 28 of 1997 which gives the local authorities power either through the commercial utilities or private sector to provide water and sanitation services within the jurisdiction of the local authority. In other words the National Water Supply and Sanitation Act is the one that provided for commercialization of urban water supply and sanitation service delivery. It advocates for the local authorities being supported by the Ministry of Local Government and Housing (MLGH) through the Department of Infrastructure Support Services (DISS) which provides technical support, mobilisation and coordination of financial resources required for infrastructure development. This legal framework is anchored on the following major strategies WSS Act (1997):
• Incorporation of utilities as companies
• Obligation of the utilities to provide water and sanitation services
• Licensing of the water utilities and service providers
• Powers of utilities and service providers

It’s this act which facilitated the establishment of the National Water and Sanitation Council (NWASCO) in 2000 as a regulator for water supply and sanitation services countrywide. NWASCO is basically responsible for the following WSS Act (1997):
• Licence utilities and service providers
• Develop sector guidelines
• Establish and enforce standards
• Disseminate required information to the consumers
• Set and regulate the tariff

4.1.4 INSTITUTIONAL FRAMEWORK
The institutional arrangement for water supply and sanitation provision especially to the urban areas is more elaborate as provided for in the PUWSS strategy. Initially water supply and sanitation provision was the responsibility of the local authorities which culminated into the deterioration of services as the authorities had not capacity to manage the services until 1994 when the government implemented the reform process of the sector. This commercialisation of water and sanitation provision eventually facilitated the birth of the commercial utilities in 1997(Figure: 3).
4.2 INSTITUTIONS WITH INFLUENCE ON PERI-URBAN WATER SUPPLY AND SANITATION

Due to the magnitude and numerous challenges paused by the lack of adequate service provision to the peri-urban areas the government has realised that to meet the water and sanitation demand there is need for concerted effort from all the stakeholders. This involvement has been found to cut across from the users to the politicians. The roles and responsibilities played by the different stakeholders in improving water and sanitation service delivery to the low income areas are highlighted in Table 1.
### TABLE 1: INSTITUTIONS INFLUENCING PERI-URBAN WATER SUPPLY AND SANITATION

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Level</strong></td>
<td></td>
</tr>
<tr>
<td>Ministry of Energy and Water Development</td>
<td>Water resource development, management and formulation of the national policy on water resource utilisation.</td>
</tr>
<tr>
<td>Ministry of Local Government and Housing</td>
<td>Water supply ad sanitation provision policy development, strategy, standards and guideline elaboration and conferring legal status of peri-urban and facilitate service provision</td>
</tr>
<tr>
<td>Ministry of Finance and National Planning</td>
<td>Capital and development fund and investment priorities.</td>
</tr>
<tr>
<td>Ministry of Community Development and Social Services</td>
<td>Development of NGOs and social welfare policies</td>
</tr>
<tr>
<td>National Water and Sanitation Council</td>
<td>Regulation of service providers on provision of water supply an sanitation services playing the advisory role</td>
</tr>
<tr>
<td>Commercial Utilities</td>
<td>Water supply and sanitation service provision to urban and peri-urban areas as well as implementation of the investment measures</td>
</tr>
<tr>
<td><strong>Finances</strong></td>
<td></td>
</tr>
<tr>
<td>Co-operating Partners</td>
<td>Providing finances and execution of water supply and sanitation programmes and projects by the NGOs</td>
</tr>
<tr>
<td>Local Authority</td>
<td>Legalising of settlements, formation of commercial utilities and Ward Development Committees and coordinating WATSAN activities with other interested groups</td>
</tr>
<tr>
<td><strong>Community Based Institutions</strong></td>
<td></td>
</tr>
<tr>
<td>Peri-urban Communities</td>
<td>Beneficiaries of the water supply and sanitation services, participation, maintenance and management of the WATSAN facilities</td>
</tr>
<tr>
<td>Ward Development Committees</td>
<td>Facilitate the identification of community needs and coordinate community based activities</td>
</tr>
</tbody>
</table>

Source: Nyambe et.al, 2007 – modified
4.3 CHALLENGES OF SUPPLYING WATER AND SANITATION SERVICES TO THE PERI-URBAN AREAS

The PUAs constitute a significant social group in urban areas with far reaching impacts in public health, urban economy, labour and security. Their nature and location has made the water and sanitation provision to be poor and more often not well coordinated as they are mostly located on the outskirts making it difficult for the extension of the water infrastructure. The set up of the 33 PUAs (Figure: 2) has also continued to make the supply of safe water and sanitation services to be an enormous challenge. As a result water and sanitation provision to most of the peri-urban areas is inadequate and non existent especially in the newly developed areas. The increase in population in Lusaka has been attributed to the high and rapid rural to urban migration, an influx of retirees and retrenches as a result of privatisation of the mines and other parastatal companies which has further resulted in the mushrooming of unplanned settlements. (GRZ-MLGH, 2001: 1-5). The inadequacies in formal housing for the urban population has forced most of the population to settle in unplanned housing units which are referred to as “illegal”, “shanty” or “squatter” compounds which are normally located on the periphery of the formally planned settlements. These areas are also referred to as peri-urban areas (PUAs) defined as “an initially unplanned informal or formal settlement within the area of jurisdiction of a local authority” (DTF, 2005:3). They are mostly characterised by the following (Nyangbe et.al, 2007):

- High incidence of poverty and population density accommodating over 60 percent of Zambia’s urban population.
- Inadequate or non-existent basic service infrastructure like water and sanitation services, roads and solid waste management and poor environmental conditions that present an ever present danger to water borne diseases.
- High population growth rate with 42% of these areas getting more densely populated and extending.
- Poor water quality and supply, lowest service coverage for WSS and hence highest service deficiencies
- Pit latrines, which frequently collapse as the main sanitation facilities and poor public health situation with constant outbreak of water borne diseases.
- Low-income levels and high unemployment levels resulting in low effective demand services.
- Haphazard lay out of housing infrastructure (Figure: 4)

*Figure 4: Plot layout in Chawama Compound*

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3 Inadequacies in formal housing as a result of government empowerment policy where most government houses have been sold to individuals and those remaining are too expensive for the majority to afford. Hence people have resorted to building their own in undesignated places leading to the mushrooming of informal compounds
4.4 LUSAKA WATER AND SEWERAGE COMPANY CURRENT SITUATION

4.4.1 INSTITUTIONAL ARRANGEMENT
Lusaka Water and Sewerage Company (LWSC) is a quasi-government institution formerly a department of water and sewerage under Lusaka City Council who is the major shareholder. It was established in 1988 under the Companies Act but only started operating in 1990 and it is answerable to the government through the regulator (NWASCO). LWSC is a commercial utility mandated to provide water and sanitation services (WSS) to all areas within the jurisdiction of Lusaka at a commercially sustainable level. It has a customer base of over 44,000 with the daily water production of about 215,000m$^3$ while unaccounted for water is around 50%, metering ratio is at 40 % and the non revenue water stands at more than 50% especially in peri-urban areas, (LWSC, 2005).

LWSC was not obliged to provide water to the PUAs until recently due to the change in policy, legalisation of most areas and response to water borne disease outbreaks. The planned PUAs are provided with well coordinated services while in the unplanned settlements the services are almost non existent as they rely on the supply from the entrepreneurial local residents. Statistics show that about 65% and 72% of the residents of Peri-urban and low cost areas do not have access to sustainable supply and acceptable sanitation respectively (NWASCO, 2006). However, LWSC has responded positively to the challenges of water and sanitation services provision to low-income communities by addressing policy issues through establishment of the Peri-urban Department and formulation of the Peri-urban policy which stipulates the roles to be played by the different stakeholders$^4$ involved in water service provision and how LWSC will coordinate

$^4$ Stakeholders in this case include Community Based Organisations, consumers, Private Sector, Cooperating partners, NGOs and all the line Government Ministries.
the activities. LWSC like many utilities faces a huge challenge of providing water supply and sanitation service to the large un-serviced population in peri-urban areas as a result of the following as highlighted by Coates et al., (2001).

- The water and sewerage infrastructure of LWSC is, to a large extent, old and is susceptible to many leaks and bursts thereby affecting its coverage.
- Perception of low income areas as being financially unreliable, transient, difficult to identify and expensive to reach.
- High levels of poverty faced by the majority which affects cost recovery and sustainability of the water supply and sanitation services.
- Inadequate service coverage i.e. serving less than 80% of the total population.
- Inadequate supply of water with most parts of the city receiving rationed service (in most cases less than an average supply of 8 hrs daily).
- High non-revenue water due to leakages and non payment of user fees.
- Frequent interruptions of supply and insufficient financial resources to meet the basic operation and maintenance costs.

4.4.2 WATER SUPPLY AND SERVICE COVERAGE

The demand for water and sanitation services has surpassed the supply hence putting a strain on the utility. At least 56% of the population in PUAs have no access to safe water supply while 90% have no access to proper sanitation services, (Robinson, 2001). However, in trying to meet this demand, the Company encounters shortfalls especially that it inherited the dilapidated infrastructure after the services were de-linked from the local authority. “The municipalities and councils lacked the resources and the management skills to operate and maintain the water and sewerage systems, resulting in continuous deterioration in the infrastructure, high levels of losses and frequent disease outbreaks when water was inadequately treated due to shortages of chemical” (Ibid:313).

Coverage and levels of water supply services vary from one compound to another apart from being inadequate; with the best few supplied areas receiving 24 hours, others receiving an average of 12 hours, but most of them between 6-12 hours per day. The main sources of water supply to peri-urban areas are extensions of LWSC network with piped water distributed mainly through communal taps and individual house connections while stand alone boreholes specifically supply outskirt areas. In a few areas the supply is metered at the system delivery point, or at the local borehole. The facilities in the areas usually consist of a rudimentary distribution system. Other PUAs are supplied by the community managed water schemes called Water Trusts (WT) who mostly supply through kiosks.

4.4.3 SANITATION PROVISION

Technically LWSC is only tasked to provide conventional sewerage and water borne sanitation to planned areas while the local authority is responsible for the provision of on site sanitation and storm water drainage. Basically the on-site sewerage disposal systems, such as pit latrines and septic tanks, are considered to be a responsibility of the individual property owners. Sanitation has for a long time been viewed as a household affair and has hence received less attention and support from all the actors (NWASCO Report, 2006). About 90% of the peri-urban population in Zambia do not have access to decent sanitation as most of them rely on pit latrines and half of them use communal or shared facilities (MOFNP/FNDP, 2005). These pit latrines are often unsanitary especially in the densely populated areas (Figure: 5). With the nation trying to achieve
the MDGs, LWSC has now been mandated to bring on board sanitation following which special on site sanitation methods have been considered and LWSC has opted for double vault pit latrine (Figure: 6). It is believed that once adopted, this is likely to reduce the water borne disease outbreaks linked to poor sanitation.

4.4.4 COST RECOVERY SYSTEMS

Peri urban areas are generally not perceived to be viable as far as financial gain is concerned hence they are accorded less priority when it comes to water supply and sanitation provision. This is exacerbated by the perception that these areas are just a money drainer with very low returns due to none payment for the services. The non payment has sometimes been fostered by the non availability of the water services. The inadequate water supply levels have resulted in consumers not being satisfied and not willing to pay for the inadequate services. The general apathy and bad attitude towards water supply services because of the background and culture of most residents has also affected the cost recovery. Initially the water services were being provided by the local authority and payment for water was embedded in the ground rates. With the coming of the utilities the users started paying for water services separately which most of them have failed to appreciate due to the influence of attitude and culture.

Most of the residents of the peri urban areas are poor as they live on less than a dollar per day hence they have to outstretch the little resources between paying for water and buying food for their sustenance. The other factors which have affected cost recovery include lack of incentives for the community leaderships that assist with community sensitizations, lack of proper monitoring mechanisms (meters on stand posts etc), which sometimes leads to pilferage at the taps by the attendants. Other factors are high wastage and political interference especially in election years and estimated consumption. However, the utility has put in place policies which have assisted the improvement of cost recovery (Figure: 7) like decentralisation of the cash offices, employing qualified people from the communities and involvement of Community Based Organisations (CBOs) in awareness programs.
In its quest to meet the high demand in peri-urban areas LWSC has realised and upheld the need and importance of community involvement in all the projects. LWSC works with the community based committees called Ward Development Committees (WDC) formerly Residents Development Committee (RDC) in areas recognised by the local authority and water committees in areas not fully recognised by the local authority. The WDC are coordinated by the local authority to oversee developmental projects in the peri-urban areas. Therefore LWSC has given them some responsibility in water projects in order to foster the much needed sustainability. Some of their roles include sensitization of the residents, identification of illegal connections, and delivery of bills and monitoring of standpipes among other roles. “These committees develop strategies for the improvement of the water and sanitation conditions and addresses day-to-day problems and issues as they arise in connection with on going development work by various agencies and donors in the Peri-urban areas” (PU Policy, 2005:5). The utility in conjunction with the WDC employ water vendors from within the community to man the communal taps.

4.5 OTHER PROVIDERS - SMALL SCALE PROVIDERS WATER TRUSTS

The realisation that LWSC is unable to provide adequate water supply and sanitation services to the peri-urban areas has prompted a number of donor agencies to come in and assist with the provision of water and sanitation services to PUAs. These donors initially collaborated with the Community Based Organisations (CBOs) which were already working in the areas to co-ordinate the community activities. The first NGO to assist in improving water supply was CARE International through the Program of Support for Poverty Elimination and Community Transformation (PROSPECT) and established a model to manage the water systems called Water Trust Model (WTM) which was later implemented in six peri-urban areas of Lusaka .Community participation, partnership, gender mainstreaming and monitoring and evaluation formed the major cornerstones of the water project (Nyambe et. al 2007).
These Water Trusts are made up of a management team which is answerable to the Board of Trustees with the aim of empowering the community through promotion of community participation and management. The board of trustees is represented as follows: 1 from Lusaka Water and Sewerage Company (Manager Peri-urban Department), 2 from Lusaka City Council (Head Peri-urban Unit and Group Accountant), 1 from Ministry of Community Development and Social Services and 5 from the community (3 from Ward Development Committee and 2 from local Community Based Organisation). The management team on the other hand is made of the Scheme Manager, Revenue Officer, Cashier, Plant Operator, Plumbers, Meter Readers, Security Guards, Secretary and Gardener. All these are on permanent while there are water vendors who have been tasked to man the water points. These are paid on commission depending on the number of customers they serve.

Figure 8: Water Trust Model

4.5.1 Water Trust Board Composition and Responsibilities

This model was later adopted by the other donor agencies that had an interest in supporting water and sanitation projects. Japanese International Cooperation Agency (JICA) and Irish Aid have emulated the CARE Trust model and implemented it in eight compounds and handed over to the community for management and sustainability. The Water Trusts are in charge of operation and maintenance of the project and collection of revenue to enhance sustainability. For the sake of the study the water Trusts will be referred to as Small Scale Water Providers (SSWPs). The operations of the water Trusts has not been smooth due to some constraints which include:

- Lack of access to credit and unpredictable funding for capital investments which results in their failure to expand to the unserved areas.
- Lack of transparency procedure for handling money and ensuring accountability.
- Embezzlement of funds due to lack of strong monitoring measures.
- Not able to perform up to required standards due to lack of regulation.
- Lack of technical expertise which compromises the quality of service especially in terms of water quality and availability of limited qualified human resource capacity to run the water system.
- Inability to manage large areas due to rapid population growth which fail to correspond
with the expansion in water infrastructure provision.

- Political interference from the local leadership because they have misunderstood the symbolic ownership aspect.
- Sometimes there is poor operation and maintenance of water supply facilities.

5. LITERATURE REVIEW
5.1 WATER SERVICE DELIVERY AND MANAGEMENT
Even though water is considered to be a major priority for the urban poor, most water utilities have not managed to deliver the services efficiently and meet the demands. The services provided usually favour the already connected but fail to increase the coverage to cater for the unserved (Mwanza, 2001). The failure has been worsened by the major challenges faced by the water utilities. The failure by the water utilities to perform is usually exacerbated by the management and institutional weaknesses which is portrayed in their inability to levy for the services and collection of user fees. When the institutional arrangements are weak the utility fails
to meet clients’ needs (Schertenlieb, undated). The utilities therefore need to embark on management approaches which can enhance viability and sustainability in their service provision especially to the poor. Cross and Morel (2001:53) found that “experiences from a number of countries show that it is possible to significantly improve services to low income urban areas through innovation in management and finance mechanism and by building on community and private initiatives.” The small scale providers play a very important role in providing services to the urban poor especially to areas where services are not fully provided hence become the main service provider. Generally public utilities in most African have failed to provide adequate service on their own due to “low willingness to pay by customers, insufficient funding for maintenance leading to deterioration of assets and political interference” (PPIAF, 2002:8). All these factors among others lead to the utilities facing downward spiral of weak performance which eventually affect service delivery (Figure: 9).

**Figure 9: The Vicious Spiral of Performance Decline of Utilities**

- Low tariffs, low collection
- High usage and system losses drive up costs
- Services deteriorates
- Utility lives off state subsidies
- Efficiency keep dropping
- Utility can’t pay wages, recurrent Costs or extend system
- System assets go “down the drain”
- Crisis, huge rehabilitation costs

Sometimes small-scale private service providers have stepped in to bring basic services to unserved often poor communities. Due to the rapid urban population growth especially in peri-urban areas the provision of services to these areas have been lagging thus giving an impetus to the government and donor communities to recognise the critical role played by the small scale providers in service provision. A small scale provider refers to “small private operators who provide a complimentary or alternative service to the dominant operator whether this latter is
public or private,” (Valfrey-Visser et al, 2006:4). These SSWP are independent since they have their own water source which is not connected to that of the utility network. The SSWP normally distributes water through standpipes and individual connections.

Studies in Paraguay show that there are 350 – 600 small scale providers and they have provided water connections to half a million people in two cities (Troyano, 1999). Metro Manila is another area where studies have shown how the small scale providers have improved water service provision to the low cost area (WSP-EAP, 2006). (Kariuki & Schwartz, 2005) in their study have explained that there are about 10,000 SSWPs in 49 countries world wide. These SSWPS are normally operational in areas where the coverage is low, the utility is ineffective, regions difficult to access and low income or conflict affected areas (ibid). Kibera in Kenya is another area where small scale providers have contributed in alleviating problems associated with inadequate water provision. Kibera the largest informal settlement in Sub Sahara Africa has a population of 500,000 people who rely on small scale providers for their water services (Mehrotra & Morel, 2003).

5.2 WATER SERVICE ACCESSIBILITY
Access to an improved source means the population has reasonable access to an adequate amount of water from an improved source such as household connection, public standpipe, borehole, protected well and rain water collection. Reasonable access has been defined as the “availability of at least 20 litres a person a day from a source within one kilometer of the dwelling” (Sansom 2003: 7). According to the findings of the Baseline study carried out in Zambia (GKW 2005) accessibility is achieved when customers are able to fetch water nearby without restrictions, do not have to wait too long and they can afford to pay for the water. Water supply and sanitation coverage is measured in terms of the following (MLGH/RWS, 2007: 11):

- Access that is the availability of water from the source all day.
- Amount which is the quantity per capita.
- Safety which encompasses the chemical, physical and bacteriological quality and
- Convenience which is the distance to source and time required to draw specified amount.

According to (ibid p:11) “access to safe water means the percentage of proportion of the number of people accessing a minimum of 25 l/c/d of water from a protected source every day of the year within a distance of 500m from point of use.” However by these definitions one would conclude that Zambia still has a long way to go in providing accessible water services.

5.3 COST RECOVERY AND SUSTAINABILITY
Improved cost recovery to ensure sustainability and improvement of service delivery is the major cornerstone for successful provision of services. This is because the survival of any utility depends on its ability to generate sufficient internal cash to enable it to meet the expected expenditure. Cost recovery has been defined differently by different scholars. Vandemoortele, (1996) associates cost recovery to contributions made by users for services which are paid in cash, in kind or in form of labour. These contributions are not necessarily assessed per unit service delivered. For Cardone & Fonseca (2003:15) cost recovery means “recovering all of the costs associated with a water system, programme or service to ensure long-term sustainabilit”. Cost recovery basically implies realising the full cost of providing services and Stallard (2004) explains the costs as:

- production costs (input costs, operating costs);
- a competitive operating margin
- depreciation / provision for future investment; and
- a competitive return on capital.

Stallard (2004) further explains for cost recovery to be achieved the tariff has to be sufficient to facilitate long term economic sustainability. In the long term the revenue collected should be able to cater for maintenance and replacement of the assets. For the water and sanitation delivery to be sustainable the consumers should be provided with the services they want and willing to pay for and the management of these activities should take place at the lowest appropriate level, (Miller, 2001). The ability of the utility to continue providing water and sanitation services over a long period of time is combination of managerial, social, financial and technical issues and the capacities of the institutions and infrastructure designed to support the community (Sugden, 2001).

The failure by the water utility to meet the demand in the provision of water to the peri-urban areas has greatly affected the aspect of the cost recovery. “Without finances the provider will not be able to maintain the system adequately, quality of services deteriorates, finally the system collapses, people drink unsafe water or pay more to vendors while the rich receive more water at subsidized rates” (Savenije & van der Zaag, 2000:100). This notion is further expressed by Cardone & Fonseca (2003) who emphasizes that without cost recovery a financially crippled utility will be unable to provide funds to be used in the expansion of the network in the peri-urban areas or to maintain the existing services adequately. Where cost recovery is not fully achieved water is wasted, utility fails to maintain the infrastructure and this pause health risks for the community as they resort to drawing water from unsafe sources thereby being affected by the outbreak of diarrhea diseases (Ibid). Figure 10 illustrates how lack of cost recovery may lead to poor service delivery.

*Figure 10: showing the impact of Low Cost Recovery*

Source: Komves & Prokopy, 2000

In order to deliver the water sustainably the utility incurs some costs which are financial, economic and these are same costs which have to be recovered. Service providers can only achieve cost recovery if the users are willing to pay for the services and have the ability. Therefore most service providers have put in place measures to make the people more willing to pay for the services by providing adequate services. Willingness to pay is defined as “the maximum amount a given customer or group of customers is prepared to pay for infrastructure
services of a given quality” (Stallard, 2004:6). When consumers express their willingness to pay for service it shows their income, ability and how they value the received service.

5.4 PRIVATE SECTOR PARTNERSHIP (PSP)

Provision of WSS to the PUAs has been a challenge to most countries especially in Africa however; those which have achieved have used the Private Sector Partnership (PSP) as one way of improving access and service to the poor. PSP basically entails involving large operators, local businesses, entrepreneurs, informal operators in finance and operation of infrastructure especially water, electricity, telecommunication and transport (ibid). Though the PSP approaches have not been universally successful studies have shown that in some areas they have led to efficiency improvement mostly through cost reductions, improved collections and improvement in quality and reliability of services like in Argentina, Bolivia, Buenos Aires, Gabon and Guinea (Ibid). However, sometimes PSP is affected by poor project designs, lack of regulation and lack of commitment by the operators and the failure may result in the customers incurring high costs while service coverage may stagnate. The mounting pressure for the utilities to increase service provision calls for sound management approached which sometimes leads to contracting out the services to other operators. Sansom et.al (2003) suggests that contracting out of service through service and management contract between the utility and the private operator has the potential to deliver the benefits. He further clarifies that contracting involves the use of external agencies through agreements to carry out activities that are supposed to be carried out internally by the authorised agency while partnership involves all operators acting and deciding together (ibid). Stallard, (2004) points out that sub-contracting of services to PUAs coupled with strong incentives can lead to an effective partnership between the formal service provider, alternative providers (SSWP) and community organisations and this has been successful in Manila where there has been an improvement in access. Sometimes these alternative providers are not accepted by the governments and regulators and this affects the partnerships and eventually service delivery.

5.4.1 ALTERNATIVE PROVIDERS - SMALL SCALE WATER PROVIDERS (SSWP)

Peri-urban communities mostly do not just depend on the utility for their water services they choose different providers to suit their changing needs and budgets. In these areas the providers include: standpipes and water kiosks, water resellers, water carriers and independent network providers or small scale water providers, (Plummer, 2002). These alternative providers help in ensuring that service provision is maintained. The utilities need to consider how they can integrate these providers to create a partnership that has an expanded range of options and coverage, a partnership that promotes and does not eliminate choice, a partnership that develops service through incremental and sustainable action (Ibid).

Provision of water to peri-urban areas in most developing nations has continued to pause a substantial challenge. This has resulted in policy makers coming up with several management options so as to improve water and sanitation service provision. One such option is the recognition of the role played by the SSWP in this regard respectively. Mostly the SSWP are perceived as informal service providers performing tasks which the Commercial Utilities have failed to perform. Cross & Morel (2005) categorized the SSWP as private water kiosks, water vendors, private borehole operators, water tankers, Non Governmental Organizations (NGOs) and Community Based Organizations (CBOs). Sansom et al, (2003:7) highlight that the SSWP are sometimes perceived as “informal concessionaires, investing in service provision and
delivery that service in exchange for revenue from customers, complete with monopoly rights acquired within the local power structure.”

For the sake of this study private water providers with their own network will be focused on commonly referred to in Zambia and Lusaka in particular as Water Trusts. These are water projects established in six PUAs of Lusaka namely Garden, Chaisa, Kanyama, Chibolya, Chipata and Chazanga to manage the water projects. There are alternative providers in the PUAs like house connection owners who re sell water to other consumers, mobile vendors and people with boreholes. Though these also provide a service others they are not recognised as these activities are considered illegal by the policy makers. The major objective for CARE was to come up with a water project which community will be able to own and run sustainably using a multi sectoral programme with interventions in infrastructural development, social empowerment, and personal empowerment. This programme was also underpinned by community participation, partnership and gender mainstreaming (Nyambe et. al, 2007). This model has since been replicated in other areas by other donors like JICA, Irish Aid and World Visions in other PUAs. These projects were also implemented to curb problems faced by women like walking long distance, rape, battering in trying to search for water as they came at the time the local authority water infrastructure was vandalised. This was done at the time government had introduced user fees and job loses were high however, it was targeted for the poorest of the poor and community participation especially for the women was made to be the cornerstone.

The SSWP therefore complement the CUs in trying to serve the areas which are not easy since they are prevalent in areas with low coverage levels, the utility is ineffective and the area are inaccessible. Kariuki & Schwartz, (2005) found that the SSWP play three major roles as gap filler where there is high coverage and low service quality, pioneer providing service where there is no service but there is high demand and sub-concessionaire where they buy water from the utility in bulk and resell it customers. Plummer, (2002) found the SSWP to have other roles which have more to do with the improvement of the livelihood of the poor SSWP as follows:

- To allow flexibility of consumption
- To provide flexibility in payment
- To promote security and personal safety
- To provide services in informal and problematic conditions
- To provide options for vulnerable households
- To provide affordable services and expand the choices available.

Several studies on the importance of the SSWP have been done by different people to show their importance. The OECD Report (2006) highlights some the studies done and their findings.

- Collignon and Vézina (2000) performed a comprehensive analysis of the situation in ten countries of Sub-Saharan Africa. They figured out the considerable economic weight of small private operators in peri-urban areas, which contain between 30-60% of the total urban population.
- Solo (2003) studied six countries in Latin America. He concluded, suggesting that small enterprise could and should be a part of the solution, and that government policies ought to promote instead of hinder the scale and quality of their offer.
- Conan (2003) did a similar job for ADB, reviewing the situation in eight Asian cities. In Asia as well as in Africa or Latin America, the presence of small private providers is
significant where connection rate is low or where utility service is weak. SPWPs\(^5\) deliver water to 6% of the population in Delhi, 10% in Dhaka, 5% in Kathmandu, 36% in Cebu, 19% in Ho Chi Minh City, 44% in Jakarta and 13% in Ulan Bator. In a city like Jakarta with a population of 9 million, this means that approximately 4 million people depend on SPWPs to meet their daily water needs, despite the fact that small private providers were not considered in the strategies to increase the water supply coverage in the Indonesian capital. The majority of these SPWPs remain informal and work without recognition from the local authorities or the water utility.

- More recently, among a growing number of case studies, other relevant studies are contributing to a better understanding of the SPWP market and the supporting policies they could deserve:

- Kariuki and Schwartz (2005) made an important contribution to the general understanding of SPSP\(^6\), both in water and electricity delivery. They reviewed over 400 documents covering analysis in 44 countries (49 including electricity), where around 10,000 small private water providers were identified. Roughly half of the cited occurrences are in cities, and the other half in rural areas. They found strong indications of a sensible increase of SPWP activities over the last decade, stressing on the importance of their offer to basic service provision to the poor.

\(^5\) SPWPs- Small Scale Private Water Providers as call by the author but in actual sense same as SSWP
\(^6\) SPSP- Small Scale Private Service Providers in this case is the same as Small Scale Water Providers(SSWP) except the SPSP also include electricity providers
6. METHODOLOGY

6.1 AREA OF STUDY

The study was carried out in the following compounds of Lusaka; Bauleni, Chaisa, Chibolya, Chipata, Garden, Kalikiliki, Kanyama, Ngombe whose water services are provided by the Water Trusts and Chawama which is supplied by LWSC. The nine areas were selected because their water services provided by different service providers, the first eight are under the water trusts while the last one is under the utility. Initially all the eight areas were under LWSC but were handed over to the community after donor intervention and are now being managed by the SSWP. On the other hand these areas are identical in terms of population size, geographical location, layout and their socio-economic status. They are therefore representative of most peri-urban areas in Zambia in terms water supply and sanitation. The areas were selected for comparison of the different management styles and replication of the strategies.

TABLE 2: CHARACTERISTICS OF THE STUDY AREAS

<table>
<thead>
<tr>
<th>Compound</th>
<th>Plot layout</th>
<th>Pop</th>
<th>Service provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauleni</td>
<td>haphazard</td>
<td>Dense</td>
<td>LWSC, JICA Project, DCI project</td>
</tr>
<tr>
<td>Chaisa</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust</td>
</tr>
<tr>
<td>Chibolya</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust</td>
</tr>
<tr>
<td>Chipata</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust</td>
</tr>
<tr>
<td>Garden</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust</td>
</tr>
<tr>
<td>Kalikiliki</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust</td>
</tr>
<tr>
<td>Kanyama</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust/LWSC</td>
</tr>
<tr>
<td>Ngombe</td>
<td>haphazard</td>
<td>Dense</td>
<td>Water Trust</td>
</tr>
<tr>
<td>Chawama</td>
<td>arranged</td>
<td>dense</td>
<td>LWSC</td>
</tr>
</tbody>
</table>

TABLE 3: POPULATION STATISTICS OF THE STUDY AREAS

<table>
<thead>
<tr>
<th>AREA</th>
<th>POPULATION</th>
<th>NO. OF PLOTS</th>
<th>NO. OF HOUSEHOLDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauleni</td>
<td>26,142</td>
<td>2,790</td>
<td>6,166</td>
</tr>
<tr>
<td>Chipata</td>
<td>84,979</td>
<td>6,326</td>
<td>18,683</td>
</tr>
<tr>
<td>Kanyama</td>
<td>198,696</td>
<td>10,791</td>
<td>46,212</td>
</tr>
<tr>
<td>Chaisa</td>
<td>32,512</td>
<td>2,519</td>
<td>7,473</td>
</tr>
<tr>
<td>Chibolya</td>
<td>31,498</td>
<td>1,544</td>
<td>7,428</td>
</tr>
<tr>
<td>Garden</td>
<td>64,397</td>
<td>7,385</td>
<td>15,656</td>
</tr>
<tr>
<td>Kalikiliki</td>
<td>21,165</td>
<td>1,959</td>
<td>4,827</td>
</tr>
</tbody>
</table>
6.2 STUDY DESIGN
6.2.1 DATA COLLECTION
The information was collected from respondents using different methods which included household interviews, focus group discussions, key informants interviews, observation of water infrastructures and literature review. In order to obtain primary data, household interviews were conducted using semi-structured questionnaire (both open ended and closed questions).

6.2.2 Household Interviews
Semi structured questionnaires with open and closed questions (refer to appendices) were used so as to get opinions, perceptions and views of the people on the service provision. This type was used to allow the researcher probe and find out the underlying meaning and reasons to the responses given by the respondents. A total of 28 users from six compounds were interviewed mostly the heads of the households, landlords and tap owners.

6.2.3 Key Informants Interviews
The key informants were drawn from the following organisations LWSC, Water Trusts, NWASCO (Regulator), Ministry of Local Government and CARE an NGO. These included members of staff from LWSC, Water Trust Scheme Managers and from NWASCO. Others are National Coordinator for Peri-urban Water Supply at the Ministry of Local Government and Housing and the Programmes Manager for CARE.

6.2.4 Focus Group Discussion
To complement the information obtained from the direct observations and interviews, focus group discussions with water drawers in the selected compounds were conducted by using guiding questions in order to collect in-depth qualitative information on the group’s perception, attitudes and experiences on the service provision. Focus group discussions were also used for cross checking and promoting participation especially for the women who are not usually free to speak in the presence of men. This method was also found to be convenient since the questionnaires were found to be time consuming considering the numbers involved. To capture all the issues raised in the discussions the researcher recorded all the proceedings using an audiotape recorder and this information was later transcribed and analysed by using the key themes. These discussions lasted between one to one and half hours.

6.2.5 Assessment of water infrastructure
Observation method was used to monitor how the service providers run the standpipes, their status, accessibility and distribution. This was used to collect data on aspects which could easily be

<table>
<thead>
<tr>
<th></th>
<th>Ng’ombe</th>
<th>Chawama</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>64,928</td>
<td>67,901</td>
</tr>
<tr>
<td>Users</td>
<td>6,382</td>
<td>7,608</td>
</tr>
<tr>
<td>Tap owners</td>
<td>12,553</td>
<td>8,179</td>
</tr>
</tbody>
</table>

(Source: GKW, 2005)
observed physically (Appendix H).

6.2.6 Secondary Data
To get a complementary perspective on service provision to the peri-urban areas, various literatures especially reports from the utility, regulator, Government ministries and the small scale providers were studied. This review was done to capture secondary data from the various reports and publications about cost recovery, sustainability and service provision to the urban poor and operations of both utility and small scale providers. By using the different methods to collect the data the different respondents, triangulation was used by cross-checking the responses and scrutinizing the information obtained. This helped in identifying and correcting the misunderstandings.

6.3 SAMPLING TECHNIQUE
Purposive sampling technique was used to select the Scheme Managers. The Researcher asked from the Utility where information could be collected and eight areas where water supply is managed by the Small Scale Water Providers were identified so as to get a broader understanding or perspective. After which the scheme managers were interviewed.

Simple random sampling was used to select the respondents mostly users who were categorised in two; the public standpipe users and the house connection owners. For stand pipe users the criteria used was the length of someone’s stay in that area and this was done with the help of the local authority’s areas office and the community leadership. Those who have lived there for over three years were mostly considered since they seemed to be well informed about the water supply situation. For public standpipe users the serial numbers of the water points were used while for the individual connections account numbers were used. For the house connection owners the criteria used was the existence of a connection and their availability at home. These were also selected using the simple random sampling and it was achieved with the help of the respective managers for both the Water trusts and utility.

For the Focus Group Discussions the participants were selected with the help of the community leadership in the various zones. These were carried out at the communal taps since the people were not willing to attend the sessions at a central place. This was done to allow them discuss whilst drawing water as mobilising them to a central place proved futile. This was done to make them feel free to express themselves and enhance their participation and also instil in them a sense of belonging. Taps with the highest number of customers were selected using the strategic sampling technique from the lists obtained from the WDC showing number of customers per zone as well as the number of households benefiting from a particular water point. The groups comprised of 10 – 15 participants and mostly were women. It was not easy to mobilise the men as most of them claimed to be busy while others were not interested since there was no incentive.

The key informants who were mostly the key personnel interviewed, were strategically selected since they were few and were drawn from; NWASCO as a regulator, Ministry of Local Government and Housing, LWSC, NGOs - CARE and CBOs.

6.4 ETHICAL CONSIDERATION
Assistance was sought from the community leadership through the WDC to inform the people about the study and explain to the people what it meant to be involved in interviews or participating in focus group discussions. The WDC were informed in advance prior to the interviews to make the people aware. The roles of the WDC mainly included acting as a local guide to the researcher, identifying the people to be interviewed or participate in the focus group discussion and arrange logistics for the infrastructure to be observed and venue for all the activities pertaining to the study. The participants and respondents were informed about the expectations prior to interview and were also assured that the study was purely academic research. They were also assured of anonymity and confidentiality apart from being requested to go through the issues raised for confirmation and clarification.

6.5 PRE TESTING

A pilot study was carried out to determine whether the questions to be asked were practical, correct, not leading or sensitive. The pre test was used on respondents from the same study areas but who were not part of the actual research. This was done for the groups to be interviewed after which the researcher was able to identify the flaws in the questions and to make the necessary corrections where necessary.

6.6 DATA ANALYSIS

The study is based on the hypothesis that small scale providers can contribute in providing water and sanitation services to the urban poor especially where the utility has failed to do so. Therefore both quantitative and qualitative methodological approaches were used to understand this phenomenon. The qualitative study aims to explore and understand the actions and behaviour of people and it is suitable for interpreting and representing the reality socially and understand behaviour (Magnusson 2005). Qualitative research also facilitates the understanding of the complex social aspects. Further it explains and comprehends various situations from the people’s point of view since they are able to explain and express themselves fully especially were they are allowed through interviews or using focus group discussions. Therefore “Qualitative research is used to analyse how the situation in a specific area agrees with a generally accepted conception of an issue” (ibid). In line with this, the inductive reasoning formed the basis of this study as generalisations were made based on specific observations made during data collection. On the other hand quantitative approaches facilitates the reporting of summary results numerically since it helps the researcher to “draw meaningful results from a large body of qualitative data and it also provides means to separate out the large number of confounding factors that obscure the main qualitative findings” (Abeyasekera, 2000). Quantitative analysis was also used as it was helpful especially since most of the information was collected in a structured way. However, this was a limited study due to lack of resources and time hence only twenty eight households were interviewed.

The collected data was analysed using the Statistical Package of Social Sciences (SPSS) where all the variables were coded for easy analysis and the mean and percentages were used. The data from the focus group discussions was categorised according to the themes and summarised for easier analysis since the summaries were complemented by the field notes taken by the observers during the discussions. Since the audiotape recorder was used, the information was transcribed and analysed accordingly. The research also used the analytical comparison method of data
analysis by comparing the responses of each respondent with others and also comparing the primary data with the literature review.

6.7 CONSTRAINTS OF THE STUDY
The following factors explain the constraints faced in undertaking this study.

1. The researcher faced a setback due to the suspicions from the community members as a result of the misinformation that had gone round that LWSC was taking over the Water Trusts following a directive by the government to allow the Licence holder to monitor the Water Trusts.

2. Lack of trust in the researcher by the community due to the fact that she works for the utility hence them thinking that she was collecting information on behalf of the utility.

3. Since the focus group discussions were held in open air at the taps it was difficult to maintain a manageable size as curious on-lookers and passers-by were also joining.

4. Most of the people were reluctant to participate in both interviews and focus group discussions due to lack of incentives and felt that the research would not impact their lives positively as most researchers do not give them feedback.

5. Since the study was limited the sampled population was quiet small to be representative of the whole population. However, the researcher used SPSS as an attempt to learn more and get the views of the population on issues concerning information which could be quantified.
7. PRESENTATION OF RESULTS
This chapter presents the findings of the study carried out to answer this research question how partnership between the commercial utility and the small scale water providers (wt) can contribute to the expansion of water and sanitation provision to the peri urban areas. To answer this question first findings from the water providers and regulator are presented followed by users’ perspectives regarding the following; water supply and sanitation services, community participation, cost recovery and sustainability and partnership between LWSC and the SSWP.

7.1 WATER SUPPLY PROVISION

7.1.1 Service Level
In terms of water supply service provision, the respondents from LWSC explained that most areas are supplied through house connections and a few communal taps. The failure to meter all the connections has led to high levels of unaccounted for water\(^1\) (UFW). The people interviewed attributed the UFW to high occurrences of commercial and physical losses as a result of non payment of bills and rampant illegal connections. This has an impact on the services provided to most areas, for instance Chawama most of the water points inspected were found to have low pressure. This was also confirmed in one of the focus group discussions where water users expressed concern that there were long queues at the taps because the pressure was low. They attributed the low pressure to too many unattended to leakages by the utility thereby making users spend a lot of time at the taps.

It was found that the SSWP were serving a population of about half a million through water kiosks and a few individual connections and all the connections were found to be metered except those for those under Bauleni water scheme. On non revenue water the respondents from the SSWP pointed out that was not very high as they had put in place measures to control like:

- Repair of leakages within the shortest period of time.
- Intensive monitoring through the staff and the community to curb illegal connections since any connection made by an individual without the authority from the scheme is regarded as vandalism,
- Metering of all properties to prevent illegal vending\(^2\) so if someone consumes more because of vending they end up paying much more.

They highlighted these as some of the ways through which minimal losses are encountered:

- Providing about 10% of the total for free water to the Police Station and to the aged as part of the social responsibility.
- 3-5% loss during rainy season as a result of communication breakdown between production and distribution in case of a major fault.
- 10% is discount of revenue as a result of spillage during sale and maintenance sometimes due to lack of valves in the water network.
- Losses as a result of customers damaging the meters and the pipes to distort the readings

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1 Un Accounted for Water (UFW here refers to the difference between the amount of water produced and that billed.
2 Illegal vending is referred to a situation where an individual tap owner re sells water to other consumers at either a higher or lower price than that charged by the recognized service provider without the authority of the provider.
7.1.2 Water Supply Improvement

When asked on the measures the utility has put in place to improve the supply, the respondents from LWSC mentioned the following:

- Continued sourcing for finances from government and other funding institutions like (DTF/WB) and collaboration with donors (WSP)
- Small scale rehabilitation of infrastructure using in house budget
- Extension of network where there is no service using local resources and rehabilitation of existing network to reduce leakages

The SSWP respondents mentioned the following as strategies. Three people gave:

- Opening of an investment account where all the revenue collected is saved in readiness for a major breakdown though Bauleni scheme was found not to have an investment account.
- Source for funds from government and donors to allow them improve the service provision.

The other five people felt that capital investment would contribute to water supply improvement through:

- Effective operation and maintenance
- Exploitation of new water bases and sinking more boreholes so as to increase the production

7.1.3 Assessment of service provision by the Regulator

Concerning service providers meeting the set standards the respondents from NWASCO revealed that the service provision was not up to standard especially the hours of supply and water quality. The other standards were summarised Table 4.

<table>
<thead>
<tr>
<th>Standard level</th>
<th>LWSC</th>
<th>SSWP</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage of service areas</td>
<td>65 %</td>
<td>Average 35 %</td>
<td>Coverage still below benchmark level</td>
</tr>
<tr>
<td>Quality of drinking water</td>
<td>81 % compliance</td>
<td>SSWP not able to fully comply in this aspect</td>
<td></td>
</tr>
<tr>
<td>Billing for services</td>
<td>Acceptable</td>
<td>acceptable</td>
<td></td>
</tr>
<tr>
<td>Client contact</td>
<td>Acceptable</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>INTERRUPTION OF WATER SUPPLY</td>
<td>May occur with notice to customers</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Pressure of water supply in the network</td>
<td>Dependant on area. Most areas have adequate pressure</td>
<td>Good</td>
<td>Most areas have elevated tanks which ensure reasonable pressure</td>
</tr>
<tr>
<td>Unjustified disconnections</td>
<td>Minimal with compensations</td>
<td>Supply is often through communal taps</td>
<td></td>
</tr>
</tbody>
</table>
7.2 COMMUNITY PARTICIPATION AND GENDER
Community involvement in any activity enhances the sense of ownership on the part of the people involved. Five of the SSWP Managers interviewed said they involved the community in the provision of water services through:
- Involving them when setting a new a tariff or during review.
- Employment of water vendors from within the community.
- Choosing five board members from the community.
- Giving a mandate to the community to report all the leakages in the area and safeguarding the infrastructure from vandalism.
- Community maintaining the surrounding around the water infrastructure especially the water points and labour provision.
- Payment for services.

7.2.1 Gender
Regarding the existence of the gender strategy in the provision of water services, two of the respondents from the utility mentioned that the gender strategy was in place to cater for the gender issues that arise in water. They said this was implemented through the employment of women as vendors. Out of the total vendors employed 25% were women. However, one respondent said that the strategy was non-existent.

For the SSWP all the respondents confirmed to have had a gender strategy in place which was implemented through employment of women as vendors and also including them in the committees. One respondent said more women were employed so as to reduce cases of theft of the money collected since women are more trusted.

However, the respondents from the regulatory body pointed out that there was no gender strategy in place regarding water service provision.

7.3 COST RECOVERY
LWSC uses the Increasing Block Tariff structure (IBTs) where communal tap users are charged K6,000.00 monthly for an estimated monthly consumption of 6m3 to an entitlement of 200 litres of water per day per household while customers with house connections are charged K37,800.00 monthly for a consumption of 30m3. Since the house connections are not metered it is obvious that the users consume more water than they pay for which is not the case with communal tap users. This therefore shows the disparity of using the IBT structure because the poor end up paying more than the rich. However, it was found that the Utility had introduced a daily payment system of K100 per 20 litre container to cater for people who cannot afford to pay the monthly subscription. This system was found to be used in Kanyama where taps are metered. During the focus group discussion most of the LWSC users expressed displeasure with the system of paying K100 claiming that it was too expensive and inconveniencing. They therefore opted for the monthly payment.

7.3.1 Tariff sufficiency
The LWSC respondents revealed that the tariff charged to the peri-urban consumers is not sufficient to meet the operation costs or extend the service. It was only able to meet one third of the required amount for the costs and moreover, these communities were too poor to pay more. It was also revealed that to supplement the costs, the utility and customers from high income areas were subsidising the peri-urban areas. It was pointed out that the unsustainable

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3 Kwacha Zambian currency 1US Dollar is equivalent to K3,860 as at 23/11/2007
charges have resulted in the utility having difficulties to extend services to the un served areas and engage in other capital investments. Seven of the Scheme Managers from the SSWP also revealed that the tariff charged was not sufficient to allow them meet the maintenance and operation cost and extend the service. However, only one manager said that the tariff was sufficient as the Scheme managed to pay the workers, energy costs and all the maintenance costs.

7.3.2 Strategies to enhance cost recovery
Two of the LWSC respondents revealed that the utility was using community participation through sensitisation and increasing cooperation with CBOs as one of the strategies to improve cost recovery. The other two gave improving water supply by improving the operational efficiency, metering all the connections and sourcing for funds for capital projects needed to improve water supply. The improvement in supply leads to the consumer being satisfied with the services received thereby enhancing their willingness to pay for the services received.

The other strategies given by the LWSC respondents include:
- Decentralisation of cash offices by opening pay points in all the areas to make it more convenient for the consumers.
- Changing assessment for properties with more than one household. This is as a result of new development where property owners are extending houses to accommodate more households so as to make more money from the rentals.

The eight SSWP Managers from the SSWP mentioned the following strategies:
- Carrying out enforcements like sending bills on time and making aggressive follow ups and disconnection of the defaulters.
- Charging a reasonable fare which would make the people more willing to pay and involving the community in tariff setting.
- Saving the money collected so as to build up security and have enough money to fall back on in case of a major break down.
- Carrying out intensive community sensitisation on the need to pay for the water services and this is done in conjunction with the WDC who mobilise the community.

Three SSWP respondents said burying shallow wells and sensitising the people on the need to use clean and safe water from the taps. Other measures include:
- Reducing the UFW by metering all properties and controlling loses within the network and at the taps.
- Rapid response to leakages and frequent operation and maintenance of the water infrastructure.
- Expanding the customer base by increasing the number of communal taps and thereby improving accessibility.

7.3.3 Factors that promote sustainability
From the findings there was some agreement among the respondents from the two service providers i.e. utility and SSWP on the critical factors that would enhance sustainability of the water supply and sanitation service provision. The most important factor identified was:
- Ability and willingness of the consumers to pay for the services,
- Timely and proactive network repair and maintenance,
- Efficient service delivery and
- Community involvement and participation.
Other factors mentioned were:

Utility
- Financial prudence by management
- Ring fencing resources generated from PU areas
- To be more customer focused
- Meet service standards and improve on the response time
- Good communication between the service provider and the users

SSWP
- Long term operations of the system with a sound financial base,
- Implementation of affordable cost recovery methods.
- Increased access to donors and government departments
- Commitment of the management team.
- Community involvement
- Good water levels and exploration of more sources.

7.3.4 Willingness to pay (WTP)
When asked on what the utility was doing to enhance the WTP for the services provided, the LWSC respondents gave responses as follows; three respondents strongly felt that community awareness and participation is a greater contributor to fostering the people’s WTP. When communities are involved in projects they develop a sense of ownership and this makes them feel obliged to pay for the service and make the project to be sustainable. One person also said that the consumer WTP for the services was enhanced through water supply improvement and devising workable investment strategy.

The SSWP gave the measures put in place to enhance WTP:
- Three people said delivering efficient services by treating the water to given standards, carrying out timely operation and maintenance and giving the people enough water as stipulated by the NWASCO guidelines.
- Two people said community involvement by consulting them on the best management practice through meetings. This makes them to have that sense of ownership and hence enhance their willingness to pay. The schemes view the community based organisations especially the WDC as the cornerstone of the water trust existence.
- The other three people said carrying out extensive community sensitisation informing the people on the goodness of using clean and safe water, maintaining good health and hygiene standards and making them aware of the costs involved in water production.

7.4 COLLABORATION BETWEEN LWSC AND SSWP
The respondents pointed out that there was some collaboration between the utility and the SSWP. They said the existence of the collaboration was exhibited through:
- Dialogue and consultation with the community
- Signing of the memorandum of understanding between the utility and the WT.
- LWSC being a board member on the water trust board of directors.
- LWSC offering technical support.
- LWSC supplying bulk water to some schemes and making interconnections from the LWSC network.
- LWSC coordinating developmental programs.

On the possibility of the existence of the partnership between the services providers to enhance service provision, the LWSC respondents expressed different opinions that:
- Partnership already exists between the SSWP and LWSC since LWSC provides bulk water to the SSWP who in turn pay 40% of the bill
• Partnership was too premature at the moment since the utility and the SSWP were at different levels and
• A lot needed to be consolidated first before the partnership could be considered.

Out of the eight SSWP Scheme Managers six felt that partnership was very possible because it would:
• Accelerate service provision
• Help the Water trusts to deliver the services efficiently
• Make it possible for the SSWP to be regulated since LWSC is a licence holder
• Give the utility an opportunity to learn from the water trusts since the trusts understand the network and have a strong relationship with the community.

The respondents from the NWASCO said the idea was good provided the terms and conditions of all the parties involved were clearly laid down and moreover the SSWP provided a solution when the utility failed to provide water in these PUAs.

7.4.1 Sub contracting
The LWSC respondents said the water trusts were a good arm to work with but the option of subcontracting was not feasible since the water trusts still had a lot to learn. One respondent added that the SSWP were managing in terms of collections, sensitisation and carrying out minor repairs though relying strongly on LWSC for technical requirements.

The respondents from the SSWP said subcontracting was a good idea as it was in the best interest of the water trusts and it would enhance their performance and lessen the utility’s burden of supplying water to all areas as well as speeding up the response time to work on leakages. However, one respondent did not see the need claiming that the current management was just alright and all they needed was to be helped in terms of capacity building. The other person was not sure stating that this depended on the conditions attached to the subcontract. He said that all that was needed was for the utility to monitor the operations of the water trusts, finances and the workers.

Both respondents from the regulatory body felt that it was a good idea provided the terms and conditions were clearly laid down especially with the management aspect to ensure sustainable service provision and adherence to standards.

8. LWSC AND SSWP USERS
8.1 Water Supply Provision and Cost Recovery
TABLE 5: SUMMARY OF LWSC/SSWP USERS RESPONSES

<table>
<thead>
<tr>
<th></th>
<th>LWSC users</th>
<th></th>
<th>SSWP users</th>
<th></th>
<th>All users</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Percentage</td>
<td>Actual</td>
<td>Percentage</td>
<td></td>
<td>Percentage</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td></td>
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<tr>
<td>&lt;100 m</td>
<td>3</td>
<td>60</td>
<td>16</td>
<td>70</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>&gt;100 m</td>
<td>2</td>
<td>40</td>
<td>4</td>
<td>17</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td><strong>Water Quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
<td>80</td>
<td>20</td>
<td>87</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>1</td>
<td>20</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
<td>3</td>
<td>13</td>
<td>11</td>
<td></td>
<td></td>
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<td><strong>Hours of Supply</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-7 hrs supply</td>
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<td>40</td>
<td>7</td>
<td>30</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>12-24 hrs supply</td>
<td>3</td>
<td>60</td>
<td>16</td>
<td>70</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliable service</td>
<td>3</td>
<td>60</td>
<td>18</td>
<td>78</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Unreliable service</td>
<td>2</td>
<td>40</td>
<td>3</td>
<td>13</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Service Coverage</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adequate coverage</td>
<td>1</td>
<td>20</td>
<td>7</td>
<td>30</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Inadequate coverage</td>
<td>4</td>
<td>80</td>
<td>16</td>
<td>70</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td><strong>Customer Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Consumer satisfaction</td>
<td>3</td>
<td>60</td>
<td>18</td>
<td>78</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Poor consumer satisfaction</td>
<td>2</td>
<td>40</td>
<td>3</td>
<td>13</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Tariff Affordability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordable tariff</td>
<td>4</td>
<td>80</td>
<td>17</td>
<td>74</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Too high tariff</td>
<td>1</td>
<td>20</td>
<td>4</td>
<td>17</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Community involvement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept involvement</td>
<td>2</td>
<td>40</td>
<td>20</td>
<td>87</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Not accept involvement</td>
<td>3</td>
<td>60</td>
<td>2</td>
<td>9</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

8.1.1 Water Accessibility
As shown in the table 40% of the LWSC users and 70% of the SSWP users have access to water facilities since the water points are located within a distance of less than 100 metres while 40% of the LWSC users and 17% of the SSWP users have to walk more than 100 metres to the water point.

8.1.2 Water Quality
On water quality 80% of the LWSC users and 87% of the SSWP users said the water quality was good since it was properly treated. 20% of the LWSC users felt that the water quality was fair especially in the rainy season while 13% of the SSWP users felt that it was poor.

8.1.3 Hours of supply and reliability
40% of the LWSC Users and 30% of the SSWP users said they received water supply for 6-7 hours while 60% of the LWSC users and 70% of the SSWP users said they had water for 12-24 hours on a daily basis.
On reliability of the service 60% of the LWSC users and 78% SSWP users rated the services received as reliable. 40% of the LWSC users and 13% of the SSWP users said the service was not reliable due to the low pressures experienced at sometimes.
8.1.4 Service Coverage
20% of the LWSC users and 30% of the SSWP users that the coverage was adequate while
80% of the LWSC users and 70% of the SSWP users felt that the coverage was inadequate
justifying that:
· The service does not cover the whole compound,
· The taps are not enough due to the high demand,
· The compounds have expanded and are not serviced. It was observed that increasing
  the number of taps will reduce the distance between the taps improve accessibility.

8.1.5 Customer satisfaction
When asked if they were satisfied as customers 60% of the LWSC users and 78% of SSWP
users said they were satisfied with the services they were receiving from the providers. The
LWSC users said that they had water all day, since the company had enough boreholes and
storage facilities hence was able to supply.
The SSWP users substantiated that supply was not interrupted, there was good response to
leakages and the complaints were attended to, the water was abundant coupled with good
employee conduct.
40% of the LWSC users and 13% of the SSWP users said customer satisfaction was poor and
the utility users gave long queues at taps and long response time to leakages as the reasons
while the SSWP users attributed this to inadequate water, use of poor quality pipes which
resulted in too many leakages and poor water quality in some areas where too much Chlorine
was added, the water had a bad smell if stored for 24 hours and irritates the skin.

8.1.6 Tariff Affordability
80% of the LWSC users and 74% of the SSWP users said the tariff charged was affordable
since it was minimal and moreover water was important. 20% of the LWSC users and 17% of
the SSWP users said the tariff was too high since was not affordable by many in the SSWP
areas while for the LWSC area they felt that the tariff was too high since most of the people
are not in employment.

8.1.7 Community Involvement
The study also revealed that 40% of the LWSC users and 87% of the SSWP users were happy
with the community involvement exhibited by the providers since:
· They were involved in meetings
· The water vendors are employed from within the community and
· They feel part of the projects by guarding the infrastructure and maintaining the water
  infrastructure surroundings.
It was also found that 60% of the LWSC users were not happy with community involvement
issues because the company was not involving them; moreover they pay for the services hence
did not see the reason why they should take part in anything and others said that they were too
busy to be involved.
The 9% SSWP users who were also not happy with community involvement issues claiming
that they pay for the service hence do not need to be involved and they are busy.

8.2 CATEGORISATION OF FOCUS GROUP DISCUSSION RESULTS
Focus Group Discussions were conducted in three areas two in Chawama, 2 in Garden and
one in Chaisa. The total number in each group ranged between 8 and 20. The issues raised
were categorised into four themes and summarised as follows:
<table>
<thead>
<tr>
<th>THEMES</th>
<th>CHAWAMA</th>
<th>CHAWAMA</th>
<th>GARDEN</th>
<th>GARDEN</th>
<th>CHAISA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service Provider</strong></td>
<td>LWSC</td>
<td>LWSC</td>
<td>SSWP</td>
<td>SSWP</td>
<td>SSWP</td>
</tr>
<tr>
<td><strong>Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Not satisfied</td>
<td>Not satisfied</td>
<td>Not satisfied</td>
<td>Not satisfied</td>
<td>Satisfied but they are happy with the conduct of the tap attendant who is sometimes rude and closes the tap before they finish drawing water</td>
</tr>
<tr>
<td></td>
<td>because there are too many people causing long queues</td>
<td>water comes out dirty, the tap is dilapidated, low pressure, long queues and too many people the tap serves more than 100 households</td>
<td>the water quality is bad. Too much Chlorine added making the water to taste like soda</td>
<td>there are too many people at the tap making them to spend many hours at the tap. The water has too much Chlorine which causes diarrhoea. The water has a bad smell</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Partnership</strong></td>
<td>They had no comment</td>
<td>They said partnership will only work if LWSC improves the water supply services</td>
<td>Partnership would be the best since they will be able to get the LWSC supply which is free since the taps are always open</td>
<td>They would want to benefit from the LWSC supply since taps are always open, LWSC will put up more taps</td>
<td>They would want to benefit from the LWSC supply as well hence welcomed the idea</td>
</tr>
<tr>
<td><strong>Health &amp; hygiene involvement</strong></td>
<td>The community was involved in health and hygiene issues since they contribute towards cleaning of the tap surrounding</td>
<td>They are not involved and are not happy the hygiene is bad and the drainage is too open</td>
<td>Not involved since they pay for the services the SSWP is responsible for hygiene issues. The tap surrounding is dirty</td>
<td>They are not involved cleaning of the tap surrounding is done by the Water Vendor</td>
<td></td>
</tr>
<tr>
<td><strong>Expectations</strong></td>
<td>They would want to have more taps to avoid long queues</td>
<td>They would want more taps with good pressure</td>
<td>They would want to have more kiosks to avoid congestion at the taps</td>
<td>They would want opening hours to be extended</td>
<td>Not too much expectations but would want to see improvement in the conduct of the water vendor</td>
</tr>
</tbody>
</table>

**8.3 SUSTAINABILITY**
To make the service provision more sustainable the stakeholders have to contribute in a way and below are the suggestions given by the LWSC and SSWP users:
Government

- Majority of the users (22) from both service providers felt that government should provide financial support to allow the SSWP extend the services, sink more boreholes and install more storage tanks.
- The other three SSWP users said government should contribute by assisting with new technology, buying power generators, pumps and dosatrons and above all should control political interference and the other two did not respond.

Lusaka Water and Sewerage Company

- Twelve of the SSWP users said the utility should support, supervise, monitor and advise the water trusts on management of water supply. They felt that the company should unite with the water trusts and provide capacity building.
- Seven said the company should provide technical support especially water quality testing and monitoring, work on leakages and water supply, extend service and carry out major repairs and maintenance.
- Four LWSC users said the company needs to extend the network, improve supply and build more water points, and supervise the tap attendants.

Small Scale Water Providers

- Eight SSWP users said that the schemes should extend the service especially the taps to reduce the distance between the taps, put up the reservoir and provide quality pipes to avoid leakages.
- Five SSWP users said the SSWP should manage the schemes by involving all the stakeholders, account for the money collected, and employ qualified people from the community and manage the scheme efficiently and involve community in all the activities and providing civic education.
- Three LWSC users said LWSC should extend the service by building more taps and managing them.

Community contribution

- Nine of the SSWP users said community should contribute by protecting and safeguarding the infrastructure, providing security to all the assets, identifying places where communal taps should be located.
- Seven said community should participate in all the activities and also pay bills, report all the complaints like leakages, from the water committees, provide labour and finance and symbolically own the schemes. The other seven did not give any response.
- Two of the utility users said community should protect and safeguard the infrastructure while three said community should participate by paying bills, reporting leakages, cleaning tap surroundings and attending all the meetings called by the utility

9. DISCUSSION OF THE FINDINGS
The conclusions drawn from the interviews with the service provider, users, government, regulator and NGO clearly indicate that service provision to the PUAs is still a challenge but
the enabling policy environment set by the government seems to be a step in the right direction.

9.1 WATER SUPPLY AND SANITATION PROVISION
The findings from the research show that users in low income areas yearn to be connected to a 24 hour supply of piped water which is conveniently located within their reach. By Zambian standards and according to the minimum service level requirements water service provision is said to be sustainable if it abides by the following parameters; water quality, price of water, pressure at taps, walking distance, waiting time at public outlets and continuity of service (GKW, 2005). Both providers were found not to conform to these standards due to gaps in their service provision.

Improvement in water supply is known to have multiple effects because when water supply is adequate the people will be willing to pay for the services and the provider will be able to sustain the production as resources will be available. Water supply ties strongly with cost recovery, meeting the demand and customer satisfaction. Therefore provision of water to the PUAs pauses a major challenge since the existing water supply and sanitation facilities have become inadequate to meet the ever increasing demand. As pointed out by the respondent at MLGH the study revealed that both the utility and the trusts do not have the capacity to extend services to the PUAs without external financial support. This shows that water supply is improved when there is an improvement in finances and management. The study found the SSWP to be managing in areas where there is already a service while the utility was struggling to extend the services and where they were extending it was at a very slow pace. This scenario coincides with the findings in the study carried out by Mwanza (2001) where it was found that the services provided by most providers’ favours those who are already connected but fail to increase coverage to cater for the unserved.

In terms of service coverage the SSWP have achieved in their areas of operation unlike the utility may be because the SSWP cover small areas while the utility is expected to cover all the areas. The major factor alluded to the inadequate coverage by the utility is the failure to cope with the increasing population and lack of financial capacity to extend the service. Even if the coverage levels for the SSWP are high they do not have the capacity to extend to areas which were not initially covered by the project as they lack the resources and capacity and thereby adding this burden to the utility by virtue of its mandate. According to Tremolet & Halpern (2006) the utility provides water to 43% of the urban poor and the Water Trust provides to 37% leaving the unserved population to be 20% which is assumed to be the ‘baby’ of the utility by virtue of being the licence holder.

9.1.1 Assessment of the service provision by the Regulator
To regulate the water and sanitation service provision, NWASCO uses the audit-based regulation approach which requires the service provider to demonstrate compliance to standards by providing information to the regulator on a regular basis. When the service provider complies incentives are given like positive tariff reviews, allocation of performance-based subsidies and good corporate image. For non compliance penalties like financial fees, suspension of a service provider and cancellation of a license are enforced (Kayaga, 2004). The assessment of the service providers by the Regulator shows some of the missing links in as far as water and sanitation to the PUAs is concerned. Kayaga (2004) found that the schemes are not regulated directly by the regulator because they are considered to be a stop gap measure and they are not viable enough to be a solution to PUAs water supply
improvement. The lack of recognition has resulted in the communities served by the schemes not to be beneficiaries of the regulatory regime. Therefore it can be concluded that both service providers contribute to service coverage and provision in their own way though it is difficult to compare considering the levels at which they are and the population served. This proves that if these service providers combine their efforts their will be an improvement in service provision as they will be able to complement each other where necessary. However, the SSWP have succeeded in terms of service coverage and this was also substantiated by the users who were satisfied with the services provided. The key informant from the MLGH explained that in terms of service provision the CU has so many areas and ideally it is supposed to provide adequate water services to the PUAs. On the other hand the Water trusts are small and are doing well because the infrastructure is still new. He further observed that in certain areas LWSC is providing services adequately while in some areas the service is below par especially in terms of water availability, distribution and actual management. Figure 11 shows some of the water infrastructure in Peri urban areas.

Figure 11: EXAMPLES OF THE LWSC AND SSWP FACILITIES IN PUAs

![Examples of LWSC and SSWP facilities in PUAs](image)

- LWSC Communal Water facility un-metered
- SSWP Communal water facility (metered Kiosk)
- LWSC Communal tap (un-metered)
- SSWP kiosk metered

9.1.2 Water Quality, Health, Safety
Though majority of the users from both LWSC and SSWP (80% and 87%) revealed that the water quality was good, LWSC was found to be doing far much better than the SSWP as shown in (9.1.2 Table 4) where NWASCO confirmed non compliance on the part of the SSWP and compliance for LWSC which had achieved 81%. This was attributed to LWSC having expertise in technical issues including water quality treatment and the mandate to meet the standards as laid down by the NWASCO guidelines. The study found that though the SSWP are operating under LWSC, it has no capacity to ensure their compliance to all the standards especially water quality. This gap results in the standards of the services being compromised in some SSWP operated areas. For instance in Garden Compound it was revealed in one of the discussions that the quality of the water is very poor it has a bad smell, brownish colour and causes diarrhoeal diseases though the consumers have continued using since they have no choice. This was confirmed by the management team attributing it to the breakdown of the Dosatron4 causing them to add the chemical mostly more or less manually. This clearly shows that there is need for the government through the Regulator to recognise and monitor the operations of the SSWP directly if the urban poor have to receive a quality service. Since unacceptable water quality may cause outbreaks of infectious water-related diseases and serious epidemic there is need for the government to take up this responsibility and provide financial assistance to the service providers to ensure that the urban population receive quality water. According to WHO, (2004:xv) “investments in water supply and sanitation can yield a net economic benefit, since the reductions in adverse health effects and health care costs outweigh the costs of undertaking the interventions”.

The study also found that the in terms of hygiene a lot needs to be done by both providers especially in the way the water being handled by the consumers. The safety of the water was compromised in that water is drawn by children who sometimes are not careful. To avoid outbreaks of water borne disease and maintain acceptable levels of hygiene there is need to make clean and safe water available to the PUAs. Government should therefore put in place measures to ensure that the SSWP comply and this can only be achieved if the SSWP are regulated like any other formal service provider.

9.2 COMMUNITY PARTICIPATION AND GENDER

When community is involved in decision making or any activity there is more acceptance, greater participation, willingness to support and strong sense of ownership. Community participation becomes a process of partnership as those involved turn to develop a sense of responsibility. As understood by the policy makers at national level “Community participation is seen as a basic right of people, a fundamental principle of democracy, a prerequisite for service sustainability and a catalyst for community self reliance” (MLGH/PUWSS, 2005:16). The study found that community participation in water and sanitation services is becoming more understood and appreciated for instance both service providers were found to be working with the community leadership where the input of the community was required. The SSWP were found to apply community participation more in their management and this was confirmed by 87% of their users who expressed happiness with their involvement. This clearly shows the benefits of involving the community in all project phases for instance the community under the SSWP were involved by CARE right from inception of the project as a result this has had a positive impact on their willingness to sustain the project by paying bills and safeguarding the infrastructure. LWSC is also trying to involve the community in the water projects though 60% of their users were not satisfied. One would therefore conclude that since water is a community resource, community participation is needed at all levels if water and sanitation services have to be sustainable because without it the users will feel left

4 Dosatron this is the equipment used for adding water treatment chemical like Chlorine to the water
out hence may not be willing to pay for the services. Majority of the users mentioned safeguarding and protecting infrastructure from vandalism and payment for the services as ways through which they contribute in making the service provision more sustainable.

The women are perceived face the hardships associated with water due to poor coverage and quality of service. Their involvement in water issues was found to be at the lowest level. Out of the twelve water schemes only two are headed by women though on temporal basis and out the twelve Water Trust Boards only one is chaired by a woman. It was observed during the visits that the water points were mostly manned by women in both areas under utility and SSWP and women and children were also found to be the main collectors of water at most water points. During the discussion this was attributed to the upbringing of both women and men where women are expected to do all the household chores. This shows women involvement at community level. However, the case is not very different at national level as confirmed by policy makers in the MLGH. “It is acknowledged that although women are generally the key users of water, they are no always well presented in decision making over water issues in Zambia” (MLGH/RWSS, 2005:6). Another study revealed that “women are not adequately consulted when water supply and sanitation services are planned, designed, and implemented” (MLGH/PWSS 2001:6). However, it was interesting to find that up to now the gender policy in water and sanitation is still undefined. However it is consoling to note that the government has realised that enhance service delivery to PUAs at all levels both men and women should play an equal role in management and maintenance of water sources especially communal systems (MOFNP/FNDP, 2005). The SSWP strong inclination to community involvement has made the communities to have that sense of ownership which has made them to view the project as their own. This is confirmed by Reed (2001:3) who concluded that “since the international drinking water decade it has become accepted that if water and sanitation services to the poor are to be sustainable, the community must be involved in the provision of services.”

9.3 COST RECOVERY AND SUSTAINABILITY

The study found the tariff charged in PUAs to be insufficient especially for the utility since they were charging an IBT tariff which is too low considering the cost involved in providing water. As observed by Rodgers et.al (2002) the IBT tariff charged only allows the utility to provide lifeline to the poor at below-cost rate. This makes these areas to be highly subsidised by the company and users from the high income areas to meet the operation costs. As found by Stallard (2004) the IBT embraces cross subsidies from high volume users to low volume users with the aim of benefitting the poor people. Like any other utility LWSC is struggling to recover costs from these areas as people are not willing to pay since the service provision is quite poor due to inadequate water. In the Sector report of 2005/2006, the Regulator attributes the low and unsustainable levels in terms of Operation and Maintenance and cost coverage for commercial utilities to low collections, low tariff and increasing operational costs (NWASCO, 2006) and LWSC has not been spared by this. Though the majority of the Scheme Managers said that the tariff is not sufficient however, the study revealed a different scenario. The water trusts are relatively new so is the infrastructure with no major breakdowns making their operational costs to still be low. They were also found to have a small number of employees. The research also found that they all have investment accounts for saving towards capital replacement. This just proves that the tariff for the SSWP is sufficient since they are able to save the excess after meeting all the costs. For instance from the monthly reports it was found that Chipata Water managed to buy a gene set and a transformer using the savings, Chaisa has managed to save about K52m since 2002 and Garden managed to save K22m in three months April to June 2007.
9.3.1 Cost Recovery Strategies
The study found that though both service providers had strategies to enhance their cost recovery the SSWP were a step ahead of the utility and are on the way to attaining financial sustainability. It’s interesting to note that some of the strategies are the same like community involvement and, improvement of water supply though the implementation has been different. The implementation of these two strategies confirms what Macdonell (2001) suggested that technical cost recovery solutions must be combined with extensive social facilitation since technology alone cannot be a solution. However, the study revealed that the SSWP are mostly using community involvement through the community leadership who assist with mobilisation. This was also confirmed by 87% of the users who expressed happiness with their involvement. Since the schemes are more demand driven more emphasis has been placed on financial sustainability through community participation which has also resulted in them having strong sense of ownership. This therefore confirms the assertion that community participation improves willingness to pay for services which in turn impact positively on the cost recovery as found by Ntengwe (2004).

The Trusts have managed to improve the cost recovery by carrying out the following:
- Successful metering of all connections leading to efficient and effective monitoring.
- Effective and timely operation and maintenance leading to efficient service delivery
- They are more customer focused which has been enhanced by their being closer to the community
- Introduction of investment accounts
- Schemes are more demand driven than supply
- Emphasis on community participation, sensitisation and sustainability
- New infrastructure

The results show that both the service providers are aware that cost recovery is essential for the attainment of sustainability and efficient provision of the services. In my opinion the SSWP have an upper hand in issues related to cost recovery as they are able to collect for the water supplied. Metering and payment on demand has also contributed to this achievement. The utility is still lagging behind in cost recovery because the services provided are not up to peoples’ expectations. This has in turn affected the WTP of most consumers because users of any service are only willing to pay for a service if they are satisfied. The WTP for the SSWP users has been enhanced by continuous supply, good water quality, quick and timely response to complaints as well as fair and affordable tariff coupled with the flexible payment system. The results of this study confirmed that users are made to be willing to pay for the service when they are fully involved and this has been proved with the water trusts where community is fully involved. This was also confirmed by the utility which has experienced an improvement in revenue collection since the communities in these areas where brought on board in the provision of the services unlike the way it was when LCC was in charge of the water supply delivery as indicated in (4.4.4 figure 7).

It is therefore obvious that though the SSWP are operating on a small scale, they are doing far much better in achieving financial sustainability than the utility. This aspect can be attributed to the management style for instance all the water points are manned and well secured and all users pay.

9.3.2 Sustainability of Service Providers
For a water service provision to be sustainable the provider should be able to meet the following conditions; it should be able to collect enough money to meet all expenses and maintainance costs, the users should accept the service level and be willing to pay, the water must be adequate and the infrastructure must be in good shape (The Mvula Trust, 1999). Going by this it would suffice to say that the SSWP are on the right tract to attaining sustainability as they are able to meet these conditions though still in short term. In the long term this might not be feasible considering that currently the infrastructure is still new and one wonders whether they will be to sustain the schemes when they start facing serious operational problems. The utility on the other hand has chances of attaining sustainability because of the comparative advantage in form of subsidies and accessibility to external finances.

On the other hand the issue of sustainability from the utility’s side is still far fetched as a lot has to be done. Though the respondents pointed out community participation as one of the strategies to sustainability this was not the case on the ground. Their implementation of community involvement is not very well cemented and a lot needs to be done if what is being done by the SSWP has to be emulated. It was also found that the coordination with the community leadership was quiet weak hence hindering the participation of the community as a whole. On the commitment of the staff the utility has adequate staff but the response time to complaints was found to be very long if not indefinite. It was learnt in one of the discussions that at a certain water point in one Zone the pressure was low which was resulting in long queues. This had been going on for a long time and a report had been made to the utility but there has been no action for over three months.

From the findings it can be concluded that the SSWP are on the right track in terms of their provision of sustainable services as compared to utility in that with the SSWP the results can be seen. What has made service delivery for the utility to stand the test of time are its size, capacity, recognition, experience and monopoly. This therefore calls for concerted effort and improvement in the approach if sustainability has to be achieved. Other studies found that if water service has to be considered sustainable the following elements must be fulfilled; collection of revenue to meet the recurring costs, frequent repair works, customer acceptance of the service, source of supply for the service (Abram et al undated).

9.4. COLLABORATION BETWEEN SERVICE PROVIDERS

According to CARE the management of the SSWP is successful considering that they are still operating under community management despite donors pulling out. It is clear that they have achieved the objective of providing water to the urban poor. Other studies also found the SSWP management to be successful because of some of their achievements which according to Luanga (2006) include; increase in the asset base, development of a computer based financial and technical monitoring system, recognition from the Zambian Government as a potential service provider and presentation of models at different conferences. The successful performance of the management teams is attributed to their link with other stakeholders on the board of directors who play different roles to provide checks and balances for the smooth running of the schemes and also ensures that transparency and accountability is maintained at all levels.

Though CARE claims that the trusts are ready to be fitted in the water sector, however, it was found that the water trust do not have the capacity to run independently yet because of the gaps in technical and financial management. Their reliance on the utility for technical know how and LCC for financial guidance is obviously one of the reason why NWASCO still regards the water trusts to be unsustainable despite their contribution in the provision of water.
services. However, if long term sustainability has to be achieved the capacity of the management team in these aspects should be developed to make them more independent.

The findings from the study show that there is collaboration between the utility and the SSWP since they are both involved in the delivery of the same service to the low income areas. This is also attributed to the fact that the SSWP operate under the umbrella of the utility as a licence holder which has the mandate to provide water to all the residents within the jurisdiction of Lusaka City. The two providers were found to be complementing each other in that the SSWP are providing services to the areas where the utility had failed to thereby lessening the burden. The utility on the other hand assists the SSWP to operate efficiently through provision of technical assistance and in some cases bulk water is supplied. This clearly shows that both providers are needed to meet the high demand for water supply services as already explained. However, this collaboration has not been fully endorsed by the government as there is no policy to provide guidance and stipulate specific roles to be played by each party. As other studies have indicated the government has not put in place a policy on partnership with CBOs and community managed schemes (Mwandawande, 2005). All in all for this collaboration to be cemented there is need for the Water Trust to have a direct working relationship with the utility and this will only be achieved if the government and all the stakeholders recognise the role the WT play in providing services to the urban poor.

It has been noted that where there are more than one service provider there is competition and antagonism which if not well handled can affect service delivery. In order to curb this problem the utilities and private operators have adopted subcontracting where some responsibilities are shared. With sub contracting the role of the utility is transformed from being a direct service providers and manager to that of a service planner in terms of defining work to be done by private operator and letting and managing the contract (Sansom, 2003). The utility has more access to finances from the government and external financiers and have greater capacity to manage large infrastructure and cover greater population. But for it to be more effective the utility has to establish formal relationships with other players especially the SSWP. Since the utility and the SSWP both serve the same purpose of WSS provision to PUAs a well defined partnership can help in ameliorating the challenges associated with WSS provision.

9.5 FUTURE OF THE WATER AND SANITATION PROVISION IN ZAMBIA
Zambia has made progress in the provision of water and sanitation especially with implementation of the water sector reforms which has culminated in the formation of a regulatory body and commercial utilities. The setting up of a department to handle per-urban water supply is another positive step coupled with formulation of various policies. Government has created various partnerships among the stakeholders to facilitate capacity building and management of services at various levels. Though service coverage is still less than 100% there has been an improvement especially with the coming of MDGs though much still needs to be done. By 2015 Zambia is expected to meet target of 74 and 42% for water and sanitation accessibility in urban areas. These target can only achieved once service provision is improved and more is invested in the PUAs (NWASCO/DTF, 2005). The government and donors have therefore begun to focus on the importance of creating an environment that enables providers to supply good quality service as they step in to fill the gap by providing the necessary resources. According to the study by WSP (2006:99) “Zambia has the potential to achieve the MDGs for water supply. It has a sound enabling environment of reformed institutions, policy and strategy, and commitment to developing coherent WSS programmes.
However, success will depend on whether the current policies and strategies are implemented and momentum maintained, particularly as relates to sector financing and cost recovery.”
10. CONCLUSION AND RECOMMENDATIONS

10.1 CONCLUSION

Peri-urban areas can be perceived as a sign of homelessness and as long as governments in developing countries fail to provide housing they will continue to grow. Therefore solutions have to be found as to how basic services should be provided to these areas. Provision of water and sanitation services to low income areas results in the improvement of lives of the urban poor since it is an effective way of combating poverty.

From the study it’s clear that Service Providers can only gain from Peri-urban areas, if they invest and provide adequate services. It has also been proved that low-income areas have the capacity to sustain the water and sanitation projects as portrayed by the Water Trusts. However, the challenges in low-income areas will only be dealt with effectively if an integrated approach among stakeholders is used and private sector partnership as shown could be the only solution to providing adequate water and sanitation services to the urban poor in Lusaka. The improvement of the service provision should therefore be driven by a combination of institutional and technological innovations which increases participation of the community.

The study has also shown that the two service providers have competence in different areas therefore it is obvious that they can learn from each other. Despite the experience, magnitude and expertise LWSC can learn a lot of lessons from the SSWP which can enable the utility to provide cost effective and quality services to the urban poor.

The findings on the users’ show that 68% of users have access to water points as they cover a distance of less than 100 meters which is promising. In terms of water quality 86% appreciated that the quality is good except for some areas. The tariff is affordable as pointed out by 75% of the users. However, much needs to be done in terms of coverage as 71% said it was inadequate. The study also revealed that 79% were happy with the community involvement exhibited by the providers though 60% of the LWSC users showed dissatisfaction as compared to the SSWP Users.
10. 2 RECOMMENDATIONS
The following recommendations are made based on the findings of this research:

- The SSWP are doing better than the utility in terms of cost recovery and community involvement hence the utility can draw a lot of lessons from the approaches used by the SSWP.
- LWSC should open investment accounts for each area but this can be done well if a cost benefit analysis is done for each area to ascertain the excess revenue to be saved. This will boost the WTP as community will be able to see their money being used in water supply. It will also enable the utility to collaborate with other stakeholders as PUAs will be detached from the plan and budget.
- The government should provide financial support to the service providers to allow the Service Providers extend services to the unserved areas.
- Government through NWASCO should recognise the role being played by the SSWP and put in place measures to regulate them like any other service provider. However, it is a fact that as long the utility fails to meet the demand and the PUAs continue to emerge and exist the services of the SSWP will always be handy hence the need to grant them the operating licences. This recognition will facilitate the licence issuance and regulation especially where water quality is concerned and improvement in the service delivery.
- To harmonise service provision in the PUAs government should show commitment and political will to city planning issues so as curb the mushrooming of illegal settlements.
- The government through the utility should provide capacity building to the management teams especially in the areas of technical know how as this will make them more efficient and run independently.
- Since the two providers have strengths in different aspects a partnership is the best approach if service delivery has to be improved. However, there is need to look at the different approaches in partnership which should be based on a well defined contract stipulating the roles to be played by each party. Under the public private partnership there are different contracts which can be applied to the Lusaka situation.
- I therefore propose that the service providers consider using one of the contracts to enhance service delivery.
- Service Contract which is a simple form of Private Sector Partnership where the utility can be in charge of O & M and the SSWP can be in charge of personnel and service delivery. In this case the SSWP can also handle revenue collection and management of the staff.
- Management Contract where the utility can give the SSWP some responsibilities like minor O & M, management of the water points, customer care and revenue collection. This contract can run between three to five years after which a review can be made. This contract has been implemented in South Africa, Kenya, Mexico and India (Sansom, 2003).
- To increase coverage the service providers should offer grants, loans or subsidies for new water connections.
- More studies should be carried out to find out how the SSWP can contribute to sanitation provision.
The study has therefore shown that the two service providers have strengths in different areas which if combined through partnership could contribute to the expansion of water and sanitation services to the urban poor. It is also clear that the utility has competence in water supply, technical installation and water quality testing while the SSWP have competence in community involvement, cost recovery, quick response to repairs and they are demand driven. This clearly shows that the partnership could work between the two since they are able to complement each other where necessary since their interdependence is mutually beneficial and they can no operate separate entirely.
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APPENDICES

A. WATER UTILITY

PERSONAL DETAILS
1. Name of Respondent
2. Name of organisation
3. Designation

SERVICE COVERAGE
4. How many peri-urban areas are serviced by the Water utility?
5. What is the population for the utility service area?
6. What is the number of the following in the peri-urban areas:
   a. House connections
   b. Communal standpipes
   c. Shared connection
7. How many of the serviced population are metered and how many are un metered
   a. Metered
   b. Un metered

SERVICE PROVISION
8. What is the percentage of non revenue water as a result of the following?
   a. Leakage
   b. Illegal connection
   c. Illegal sale
   d. Others (Please specify)
9. What is the tariff for water in Peri-urban areas?
   a. House connection
   b. Stand pipes
   c. Commercial
   d. Others
10. How is the mode payment?
    a. Daily
    b. Weekly
    c. Monthly
    d. Others (Please specify)
11. Is the tariff sufficient to recover the cost (i.e. Operation and maintenance, energy, replacement, personnel). Please elaborate
12. Is the tariff sufficient for the service extension to the unserved areas?
    a. Yes
    b. No
13. What is the total amount of money billed per month in peri-urban areas for:
    a. House connections
    b. Stand pipes
    c. Commercial
    d. Others (Specify)
14. How many new connections were installed in the last 12 months in Peri-urban areas?
    a. House connections
    b. Stand pipes
    c. Others
15. How much is the new connection fee what are the terms of payment?
    a. Daily
    b. Weekly
    c. Monthly
**d. Other (Specify)..................................**

16. What is the water utility doing to improve the cost recovery in the Peri-urban areas?

17. What mechanisms has the water utility put in place to make the people more willing to pay for the water and sanitation services?

18. What strategies have the LWSC put in place to improve the water supply and sanitation services in Peri-urban areas?

19. Are there other ways the water utility can improve and accelerate service provision to the peri-urban areas? Please elaborate

**MANAGEMENT**

20. Who are the other stakeholders involved in providing water and sanitation services to the peri-urban areas?

<table>
<thead>
<tr>
<th>NO.</th>
<th>NAME OF PROVIDER</th>
<th>AREA OF COVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water Utility</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Trusts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community managed</td>
<td></td>
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<tr>
<td></td>
<td>Others</td>
<td></td>
</tr>
</tbody>
</table>

21. How would you describe the management system of the SSWP?
   a. Water Trusts
   b. Community managed
   c. Others

22. How do you rate the management of water supply system/performance by the SSWP?
   a. Successful
   b. Fair
   c. Unsuccessful.
   d. Poor

23. What is the utility currently doing to help the SSWP improve their performance in water and sanitation services provision to the peri-urban areas?

24. What role did LWSC play in setting up the water trusts?

**SUSTAINABILITY**

25. What factors make service provision to peri-urban areas more sustainable?

26. What measures has LWSC put in place to ensure long term sustainability in the provision of water and sanitation services to the peri-urban areas?

27. Could you please comment on the sustainability of the services provided by the SSWP in terms of quality of service, reliability, technical and financial sustainability?

28. How does LWSC rate the SSWP in terms of them achieving sustainability?

**COORDINATION/PARTNERSHIP**

29. How is the coordination between the service providers i.e. Water Utility and SSWP?

30. What support is the water utility providing to the SSWP?

31. Could you kindly comment on the Water Utility partnership with the SSWP in the provision of water and sanitation services to the poor?

32. Does LWSC consider sub contracting of the water supply management to the SSWP as an option?

**GENDER**

33. Does the Company have a strategy for gender issues that arise in the water service management?  
   a. Yes...........  
   b. No...........

34. If (Yes) could you please elaborate further?
B. SMALL SCALE PROVIDER

COMPOUND

PERSONAL DETAILS
1. Name of Respondent.
2. Name of organisation
3. Designation

SERVICE COVERAGE
4. What is the approximate population of this compound
5. What are the other (alternate) sources of water for this area?
6. Which service provider supplies water in this compound?
7. What is the population served by these service providers?
8. How is the water supplied to area? Please explain.
   a. House connections
   b. Communal tap
   c. Others
9. What is the population served by:
   a. House connections
   b. Communal taps
   c. Other (options)
   d. Not served
10. How many connections are metered?
   a. Domestic
   b. Communal
   c. Commercial
   d. Not metered
11. What is the percentage of non revenue water as a result of the following?
   a. Leakage
   b. Illegal connection
   c. Illegal sale
   d. Others (Please specify)
12. What is the tariff for water in this area?
   a. House connection
   b. Stand pipes
   c. Commercial
   d. Others
13. How is the mode payment?
   a. Daily
   b. Weekly
   c. Monthly
   d. Others please specify
14. Is the tariff sufficient to recover the cost (i.e. Operation and maintenance, energy, replacement, personnel
15. Is the tariff sufficient for the service extension to the unserved areas?
   a. Yes
   b. No
16. What is the total amount of money billed per month in the area for:
   a. House connections
   b. Stand pipes
   c. Commercial
   d. Others (Specify)
17. How many new connections were installed in the last 12 months in the area?
   a. House connections: ................................
   b. Stand pipes: ............................
   c. Others: .............................
18. How much is the new connection fee and what are the terms of payment?
   a. Daily
   b. Weekly
   c. Monthly
   d. Other (Specify): .............................
19. What is the water scheme doing to improve the cost recovery in the area?
20. What mechanisms has the water scheme put in place to make the people more willing to pay for the water and sanitation services?
21. What strategies has the water scheme put in place to improve the water supply and sanitation services in the area?
22. Are there other ways the water scheme can improve and accelerate service provision to the area?

**SUSTAINABILITY**
23. Could you please describe the management system of the water scheme?
24. How do you rate the management of water supply system/ performance by the Scheme?
   a. Successful
   b. Fair
   c. Unsuccessful.
   d. Poor
25. What is the utility currently doing to help the SSWP improve their performance in terms of monetary, technical, capacity building support in water and sanitation services provision to the area?
26. What role did LWSC play in setting up the water trusts?
27. What factors make service provision to peri-urban areas more sustainable?
28. What measures has the water scheme put in place to ensure long term sustainability in the provision of water and sanitation services to the area?
29. Could you please comment on the sustainability of the services provided by the SSWP in terms of quality of service, reliability, technical and financial sustainability?

**COORDINATION/PARTNERSHIP**
30. How is the coordination between the service providers i.e. Water Utility and SSWP? 31. What support is the water utility providing to the SSWP?
32. Could you kindly comment on the partnership with the Water utility in the provision of water and sanitation services to the poor?
33. How does the water scheme perceive sub contracting of the water supply management to the SSWP as an option?
34. Can the SSWP manage a large area if the water utility subcontracts the water supply management?
35. Is the community involved in the management and sustainability of the SSWP? If yes please explain how.

**GENDER**
36. Does the Company have a strategy for gender issues that arise in the water service management? a. Yes……… b. No………
37. If (Yes) could you please elaborate further?
C. WATER USERS / CONSUMER
1. Location..................................................................................................................
2. Who supplies your area?
   a. LWSC
   b. SSWP.............
   c. Shallow well......................
   d. Stream....................... 
3. How far do you go to access water <100m......................... >100m...................... 
4. How is the water quality?
   a. Good..............b.Fair..................c.Poor..........................
5. How many hours is the water available.........................Reliability..................
6. How is the service of the SSP/Utility?
   a. Good.............
   b. Fair............... 
   c. Poor...........
7. What is your mode of payment?
   a. Daily..............
   b. Weekly...........
   c. Monthly...........
8. Do you think the money you pay to the provider is equivalent to the services provided? Please explain.
9. What should be done by the stakeholders for services to be improved?
   a. Government
   b. LWSC
   c. Water Trust
   d. Community
10. What is your view of the performance of the water provider in terms of the following
    a. Coverage
    b. Tariff levels
    c. Customer satisfaction: Service to the poor
    d. Are you satisfied with the services you receiving, please elaborate
11. Are you happy with the involvement of the community in water supply and sanitation provision?
12. What role should the community play to ensure that the service is sustainable?
D. REGULATOR
1. How many service providers are providing water to the peri-urban areas? ……………
2. Are they all licensed service providers? Please elaborate
3. How do you describe their performance?
4. What do you think of the SSWP as an option for peri-urban water supply and sanitation services?
5. Does NWASCO have plans of giving the SSWP a licence and what would prompt the regulator to do that? Please explain.
6. What regulation exists in relation to the tariff being charged by the SSWP? Please explain
7. How does NWASCO regulate the tariff set by the SSWP?
8. What role or part do the customers play in arriving at the tariff?
9. Are the services being provided to the peri-urban areas by the various providers in line with the service standards?
10. Achievement levels in terms of meeting the standard levels

<table>
<thead>
<tr>
<th>Standard level</th>
<th>LWSC</th>
<th>SSWP</th>
<th>REMARK</th>
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<tbody>
<tr>
<td>Coverage of the service areas</td>
<td></td>
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<tr>
<td>Drinking of water quality</td>
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<tr>
<td>Billing for services</td>
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<tr>
<td>Client contact</td>
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<tr>
<td>Interruption of water supply</td>
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<tr>
<td>Pressure in the network for water supply</td>
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<tr>
<td>Unjustified disconnections</td>
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</tbody>
</table>

11. With the money they collect are the service providers able to meet the management and operation costs?
   a. LWSC ……………
   b. SSWP

12. How does NWASCO perceive the aspect of the Water Utility partnering with SSWP?
13. What is your view on the CU sub contracting the management of customers in PUAs to the SSWP?
14. Does the Company have a strategy for gender issues that arise in the water service management?
   a. Yes………
   b. No………
15. If (Yes) could you please elaborate further

E. GOVERNMENT
1. What is the policy on the PU WSS service provision?
2. What do you think of the existence and operation of the SSWP? Is their any specific policy on their existence? What is the policy on the same?
3. How do you rate the service coverage to peri-urban areas by the various service providers?
   a. LWSC
   b. SSWP
   c. Others
4. What is your view on the financing of? 1. CU  2. SSWP.
5. To what extent do you see the partnership between utility and SSWP
6. What is your view on the CU sub contracting the management of customers in PUAs to the SSWP?
F. DONOR/NGO- CARE, JICA & IRISH AID
1. Name of Respondent
2. Name of organisation
3. Designation
4. Has your organisation been involved in water supply projects in urban areas in the last 6 months?
5. What was the purpose of funding the water projects in peri-urban areas and how much was pumped in?
6. What mode of management style was used and how was it implemented
7. How is the coordination with government and what support was provided in the water and sanitation provision?
8. How is the coordination/cooperation between the utility and the SSWP?
9. What is your role in the management of the scheme?
10. How does the organisation monitor and evaluate the projects.
11. How has been the performance of the small scale providers and have the objectives been met
12. Did CARE put in place the exist strategy for the SSWP (Water trust)
13. How is the coordination/cooperation between the utility and the SSWP?
14. In your view should the partnership between the small scale and the water utility be done?
15. How do you feel about LWSC subcontracting the management of water supply to the SSWP?

G. FOCUS GROUP DISCUSSION
1. How is the water service provision in your area?
2. Who is providing the service, are you satisfied with the services being provided.
3. What are expectations and how are the payments.
4. Which provider do you prefer and how do you look at the partnership between WU and SSWP
5. How are you involved in the health and hygiene practices?

H. INFRASTRUCTURE INSPECTION CHECKLIST

<table>
<thead>
<tr>
<th>No.</th>
<th>Issue</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Tap no.</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Tap attendant present</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Monitoring system</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Number of customers</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Pressure</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Locking gadget</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Meter</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Drainage or soak away</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Cleanliness</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Distance from nearest latrine</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Attitude of tap attendant</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Litres of water to be drawn</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Leakage</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Repair works</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Response time</td>
<td></td>
</tr>
</tbody>
</table>