

**ASSESSING THE IMPACT OF PUBLIC-PRIVATE  
PARTNERSHIPS IN THE WATER SUPPLY SCHEMES**

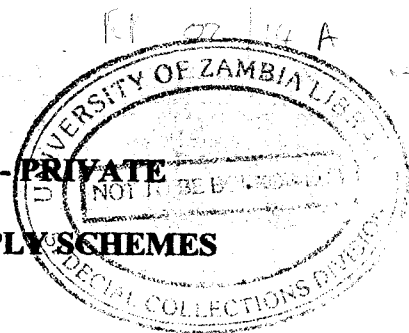
**IN LUSAKA :**

**THE CASE OF GEORGE COMPLEX.**

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**A project report submitted to the Department of Geography at the  
University of Zambia in partial fulfilment of the degree of B.A.Ed.**

**NOVEMBER, 2002.**



**DECLARATION**

“I Vincent Mwanza declare that this report has been composed and compiled by me and the work recorded has been done by me, that the sources of all materials referred to have been specifically acknowledged, and that the project report has not been accepted in any previous application for academic award.”

Signature :  .....

Date : 13<sup>th</sup> September, 2002 .....

**DEDICATED**

**TO**

**My parents, Hon. Justice N.M. and Mrs. G. Mwanza**

**For**

**Everything.**

## ACKNOWLEDGEMENTS

No one ever writes a project report or a book "all by oneself," and in my case this is particularly true. Therefore I am eternally indebted to the following persons and organisations.

I wish to extend my heartfelt gratitude to my research supervisor, Mr. I. Masialeti, whose continued guidance, advice and professional criticism made it possible for me to complete this project. I thank the current Geo 474 Coordinator, Mr. G. Hampwaye, for ~~he~~ <sup>he accorded me</sup> advise and data on public private partnership (PPP). Also, great thanks to the Geography Department as a whole for helping me study as a single subject major (physical) student.

I am greatly indebted to Lusaka City Council (LCC) Management and the department involved in peri-urban development. The LCC Resident Development Committee Officer stationed at George Complex Office: Mr. Masumba, Ms Anne Tembo and Ms Mary Palangwa, for the background information concerning my study area.

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My sincere thanks to Muleya for the encouragement to aim high and not despair when the situation(s) seemed unbearable.

Above all, I thank God for the gift of His grace and wisdom.

*God!*

## ABSTRACT

Due to the fact that the concept of Public, Private Partnership (PPP) and Community Based Partnership in particular is relatively new in Zambia, the study aimed at assessing the impact of the water supply Public Private Partnership on George Complex residents.

Central to the study was to find out whether as Walker (1993) put it that the community based PPP can increase cost recovery, promote sustainability and respond more to the needs of the users in peri-urban areas (like George Complex).

Both primary and secondary sources were used. Primary data was got from the residents in the study area, Resident Development Officers, Officials from Lusaka City Council (LCC), Lusaka Water and Sewerage Company (LWSC), CARE International and Japan International Cooperation Agency (JICA). Method of data collection for the residents and LWSC a scheduled structured interviews (Questionnaires), was used while the rest of the organisations, a non-scheduled interviews was used. Secondary sources included the University of Zambia Main Library, Geography Department Library, The University of Zambia Institute for Social and Economic Research and the Research Unit at LCC. These sources helped in literature search as well as coming up with a literature review.

Data analysis was done both by quantitative and qualitative methods. Quantitatively, percentages and tables were used, while qualitative involved presenting data into categories of importance with regard to the impact of the partnership on the residents.

Results of the study revealed that with the introduction of the partnership in George Complex, cost recovery has been enhanced as consumers pay for the service before they use it. To ensure sustainability of the scheme, the concept of community participation was introduced, from which positive results have been recorded. It is also evident that the partnership has responded well to most of the needs of the residents.

Before the partnership, shortage of water, vandalism of water facilities and water borne diseases, especially during the rain season, was the order of the day. Since the partnership was established in 1995, residents have continued to enjoy a constant flow of clean, safe and adequate water supply. Hence reduction in the distance traveled to sources of water, especially <sup>by</sup> women and children. And more significantly, is the reduction in water borne diseases as well as vandalism of water facilities.

The way forward for PPP in water sector in the study area is to pay particular attention to the needs of the most vulnerable in George Complex. These include the elderly or aged as well as households headed by children so as to improve their livelihood.

*Good!*

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*how the two words differ?*

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*Typing?*

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*What is your view on geographical about this study?*

## CHAPTER ONE

### 1.1 BACKGROUND TO THE STUDY

Population change and concentration is an important phenomenon in any country especially when it comes to governments' capacity to provide adequate social facilities to its citizens. This is very crucial because population change directly or indirectly affects the availability and use of existing facilities like roads, energy and prominent among these being domestic water supply. Some factors that influence domestic water supply and consumption include the spatial distributing composition size as well as rate of growth of a given community.

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Governments, especially in the developing countries, have an obligation to meet their citizens' basic needs such as shelter, clothing, food, waste collection and provision of clean and safe water. Many governments are simply finding that their existing water, sanitation, and energy infrastructures are unable to service their rapidly expanding populations. In addition, these governments are finding that the limited financial resources are not sufficient to cover the needed expansion of these services. Even where governments do find the resource to subsidize public utilities, services are often still poor and sectors of the population largely unserved. Today, than ever before, it is increasingly clear that governments cannot meet the continually growing demand for water and other services on their own. This follows that new approaches to address these patterns, that involve collaboration among an increasing number of

private parties, are urgently needed. Public-private partnership (PPP) are one of the most promising forms of such collaboration. The term “public-private partnership” describes a spectrum of possible relationships between public and private actors for cooperative provision of infrastructure services (Cointreau-Levine 1994), used like solid waste management, water supply systems and other services. The private actors include private business, non-governmental organizations (NGO) and Community Based Organizations (CBOs).

Given that George complex is one of the rapidly growing peri-urban area in Lusaka, and with its origin as a squatter settlement, the inhabitants experienced many deficiencies and problems, in the area. Therefore, the PPP was established in the area to try and address these deficiencies and problems. George complex being the first area where a PPP was established, therefore, the research aimed at assessing the impact of water supply PPP in the residents, so that learning from this, experience one may be able to understand PPP performance better.

## 1.2 STATEMENT OF THE PROBLEM

The George complex water scheme, which serves seven residential areas namely George, Soweto, Kizito, Desai, Chikolokoso, Lilanda site <sup>five</sup> 5 and Paradise, is one the few projects in Lusaka and Zambia as a whole which is run on PPP. Many benefits are realised from the establishment of PPPs, for instance in Tegucigalpa, Honduras, according to Bennet (1998) that approximately one half of Tegucigalpa's population of 850,000 live in 225

peri-urban communities on steep hills surrounding the city centre. Due to steep topography and poor aquifer conditions, most of the city's potable water is imported. Residents of the peri-urban areas, have to rely on private vendors who charge exorbitant commercial rates of up to 30% of average household incomes. The Barrior Water Boards (PPP) are one of the only examples in Honduras where investment costs are being recovered in the water sector. In addition, one of the brightest results of localised water service provision is local empowerment. To maintain the current infrastructure system and sustain growth, the chamber of Commerce and the SANAA project have established Agua Para Todos (water for all) which conducts fundraising from domestic donors as well as international donor agencies to help with expansion of the program.

Source?

In view of this, the study focused on whether as walker (1993) noted that Community based Public-Private partnerships can increase cost recovery, promote sustainability and respond more to the needs of the users in peri-urban areas. In other words, the study looked at whether what has been reported about PPPs increase<sup>1</sup> in recovery of investment cost, promote sustainability, as people are involved in the planning of facilities in their own neighbourhoods and its flexibility to respond to the needs of the people especially the poor (James, 1998) was obtaining in the study area.

Problem statement  
Not very clear!

- 1.3 **AIM:** The aim of the research was to determine the impact of water supply Public Private Partnership on the George Complex residents.

### 1.3.1 OBJECTIVES:

- i. To investigate the nature of water delivery before the partnership was established in George complex;
- ii. To determine whether the water supply partnership in George complex is pro-poor;
- iii. To find out who the partners are and their individual roles in the delivery of water in George complex;
- iv. To verify the effectiveness (efficiency) of the partnership in the delivery of water in George complex; and
- v. To establish whether any measures are being undertaken to ensure sustainable use of domestic <sup>water</sup> resources by the users.

### 1.4 RESEARCH QUESTIONS

The research questions are as follows:

- a) Has the George Complex Community Based Public-Private partnership improved the cost recovery from the users, residents, of the water facilities?
- b) Has the George Complex Community Based Public-Private partnership promoted the sustainable use of the water and its facilities?
- c) Has the George Complex Community Based Public-Private partnership responded more to the needs of the users, of the water and its facilities?

## 1.5 RATIONALE OF THE STUDY

Given that the concept of Public-Private Partnership (PPP) and the Community Based Partnership in particular is relatively new in Zambia, there are no known studies in Zambia on the subject or problem, especially in water sector. However, studies conducted in the United States of America (USA) have shown that contracting of solid waste collection service was from 10% to 30% less costly than directly public service (Cointreau-Levin, 1994). Hence the outcomes of this study may provide valuable information on the roles and benefits of Community Based Partnerships.

Therefore, the results of the research will encourage the residents to participate actively in the activities of the community and foster a sense of responsibility in the activity and ownership of the water facilities. On the other hand the government will be encouraged to enter into Community Based Partnerships with other peri-urban residents with the view to improve services to its citizens. Studies conducted in the USA and elsewhere indicated that PPP create competitiveness and allow for more effective circulation of demands as they increase the well being of persons by reducing costs, meeting demands or rather achieving other benefits such as providing greater choice of service (Gidman, 1985). Therefore the results of the study will help assess whether such results as provided by Gidman (1985) could fit the Zambian context.

On the whole the outcomes of this study will act as a database for future researchers who may want to investigate Community Based Partnership. In

Zambia and thereby expand on the study to areas that have not experienced PPP.

## 1.6 SCOPE OF THE STUDY

This study was mostly concerned with investigating whether the George Complex water supply partnership has responded to the needs of the residents, of George complex, promoted sustainable use of the water facilities and whether it has promoted an increase on cost recovery. Therefore the following activities were carried out:

1. Visiting the study area to observe the use of the water facilities by the residents as well as verifying the storage tanks used by Lusaka water and Sewerage Company (LWSC) to distribute to public faucets in the study area;
2. Attending workshops organized by one of the partners (CARE INTERNATIONAL) for community empowerment;
3. Conducting interview schedules with some partners in the George complex water supply (JICA, LCC and CARE).and
4. Administering Questionnaires to residents and Lusaka Water and Sewerage Company.

*No problem statement!*

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## 1.7 OPERATIONAL DEFINITIONS

The terms below have been used in this study:

1. **Public-Private Partnership (PPP)** This term describes a spectrum of possible relationships between public and private sector for the cooperative provision of infrastructure services. The Public refer to a government, while private sectors may include private business, non-governmental organizations (NGOs) and community based organizations (CBOs)
  
2. **Environment** The forces and conditions that surround and influence living and non-living things. The conditions can be natural or social in which people live (World Bank, 1987:260).
  
3. **Household** A group of persons who normally eat and live together, make common provisions for food or other essentials for living and they have only one person whom they all regard as the head (Central Statistics Office, 1993)

## 1.8 PREVIEW OF THE ORGANIZATION OF THE REPORT

This study on the impact of Public-Private Partnerships in the water supply schemes in Lusaka 'the Case of George Complex' is discussed in six (6) chapters, each with a relevant heading.

Chapter One includes an Background to the study, Statement of the Problem, an Aim, study Objectives, Rationale of the Study, Scope of the Study, Operational Definitions and the Organization of the Report.

Chapter Two looks at the available literature on the subject, while Chapter Three <sup>is</sup> identify and describes the study area. Chapter Four is the Methodology section which highlights the source of data, sample size and sampling procedure and problems encountered in the study.

Chapter Five presents research finding as well as Chapter Six with analysed information. Ultimately, Chapter Seven brings out the Conclusion arising from the finding. Recommendations have been made on areas of concern in the study area.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 THE NEED FOR PPP

Cities in the world are growing at an unprecedented rate. Over the past three decades, the number of people living in cities of developing countries has more than tripled. In Latin America, an estimated 85% of the population will live in urban centers by the year 2005 (Bennet, 1998). This urban growth is continually accompanied by an alarming increase in the number of people living in poverty.

The rapid concentration of hundreds of millions of people in urban areas has placed an extraordinary strain on governments -both national and local - to meet their cities' basic needs. Many governments all findings that their existing water, sanitation and energy infrastructures are unable to service their rapidly expanding population. Moreover, governments' limited financial resources are not sufficient to cover the needed expansion of these services.

The low income population is usually the most affected by the poor and unreliable infrastructure services because it has the fewest acceptable options but also business production costs rise substantially as firms contend either inadequate public infrastructure services (Gidman, 1995).

It is increasingly clear that governments cannot meet the continually demand for water, waste and energy services, no doubt new ways to address the problems that involve collaboration among an increasing number of private parties are urgently needed, PPPs are one of the most promising forms of such collaboration.

## **2.2 EXPERIENCES FROM PPP**

The term “Public-Private Partnership” (PPP) describes a spectrum of possible relationships between public and private sectors for the cooperative provision of Infrastructure Services (UNDP, 1999). In this context, private sectors may include private business as well as non-governmental organizations (NGOs) and Community Based Organization (CBOs). CBOs represent directly one or several communities, NGOs are intermediaries between governments and communities and often provide communities with technical and financial assistance for the development of their projects through PPP the advantages of the private sector - innovation, access to finance, knowledge of technologies, environment awareness and local knowledge of the public sector in an effort to solve urban problems (Leipman, 1999).

In most cities throughout the world, private firms have demonstrated their ability to help improve the operation<sup>4</sup> of infrastructure services. Infrastructure services can be defined as those services derived from the set of public works traditionally supported by the public sector to enhance private sector production and to allow for household consumption (Fox, 1994). Defined in

this manner, this, includes roads, transport, solid waste management and water supply system. An example of private firms improving the operation of infrastructure services can be found in Kuala-Lumpur. In Kuala Lumpur it was found that the private firms made more trips per vehicle per day and collated more waste on each trip the result was that private firms collected 85 tonnes per vehicle per day while the public service collected 5.7 tonnes per vehicle per day (Cointreau-Levine, 1994).

One scholar theorised that the causes of past poor performances and source of improved performance, lie in the incentives facing providers of services. That is, to ensure efficiency, responsive delivery of infrastructure services there is need to change through the application of three instruments -commercial management, competition and stake-holder involvement (Wolzer, 1998)

### 2.3 PPP AND ITS ROLE

Bennet (1998) is of the view that there are basically five (5) common spectrum of PPP namely service Contracts, Build - Operation -Transfer (BOT) contracts, concessions, joint ventures and community - based provision.

Under a service contract, the public sector essentially hires a <sup>Meaning</sup> privatergанизation to carry out one or more specified tasks or service for periods of five to seven years. The public sector remains the primary providers of the infrastructure service and only contracts out portions of its operation to the private organization (Bennet, 1998).

Build Operate Transfer (BOT) contracts are designed to bring private investment into the construction of new infrastructure plants. Here the private sector finances, builds and operates a new facility according to performance standards set by the government.

Under a concession, the government awards the private contractor (Concessionaire) full responsibility for the delivery of infrastructure in a specified area including all related operation, maintenance, collection and management of activities. The public sector under the arrangement establishes performance standards and ensures that the concessionaire meets them (Bennet, 1998).

Joint venture PPP involves the government and private companies assuming co-responsibility for the delivery of infrastructure at services.

Community based provision starts when financial limitations prevent the government from providing adequate waste and water services to particular sectors of the population (like George complex) forcing residents to find their own means of meeting their needs (Ideloritch, 1995). Community based providers might buy water in bulk from the local utility and then sell in their community <sup>near</sup> in buckets. These providers might help install “group taps” to provide a service to three or more, up to six, households using only one tap. Other water options include “communal water point service” where two to 30

households install metered taps off the main system and regulate their own water use, paying the bill collectively.

## 2.4 PPP IN ZAMBIA

Some of the PPPs in Zambia are service contracts and Joint Venture. An example of a service contract is one between Lusaka City Council (Public Sector and Yemen Company Limited (Private Company). Yemene Company Limited has been contracted by Lusaka City Council to sweep some of Lusaka Cities roads. One of the roads is Addis Ababa Drive. An example of a Joint Venture PPP is the Zambia-China Mulungushi Textile, where the Zambian and Chinese government hold equal shares in the textile industry. *(source?)*

Officially LCC's position is to promote PPP in domestic waste removal road maintenance, street lighting, health service delivery, water and sanitation, municipal markets, slaughter houses and bus terminals,

The PPP in the study area is the community based partnership where two main actors are LWSC and George RDC, who are the representative of the people of George Complex. This partnership started in 1995 and covers an area of *Source?* 4,774 km<sup>2</sup>. In the past before the partnership was established, the LCC provided water on stand points and a few house connection. The capacity was below demand and the water facilities were inadequately maintained, extensively vandalised and no effort was made for cost recovery (Mwanza, 2001). Due to this scenario residents especially women and children walked

long distances looking for water. In addition there were high incidents of water borne diseases. According to data of 1994 while the mortality rate caused by diarrhoea was ~~3~~<sup>three</sup> per 1000 persons in the whole of Lusaka City, in George Complex it was the highest with a figure of ~~7~~<sup>seven</sup> per 1000 persons (CARE International, 2000).

Therefore many developing countries are exploring innovative options for increasing overall drinking water as well as economic efficiency and cost recovery. The trend in these countries is to view water as an economic as well as a social good, one capable of paying for itself in a demand-driven market (ADB, 1987).

Meaning!

Literature Review is rather scanty!

## CHAPTER THREE

### DESCRIPTION OF THE STUDY AREA

#### 3.1 LOCATION

George Complex which consists of seven (7) Compounds, namely, George, Soweto, Kizito, Desai, Chikolokoso, Lilanda Site 5, and Paradise is located to the North-west of Lusaka's Central Business District (CBD) with a distance of, about, six (6) kilometers from Lusaka's City Centre and covers an area of 4.772 km<sup>2</sup> (Fig 1.) while Lusaka Urban lies between latitudes 15 25's and 15 30's and longitude 28 15'E and 28 20'E.

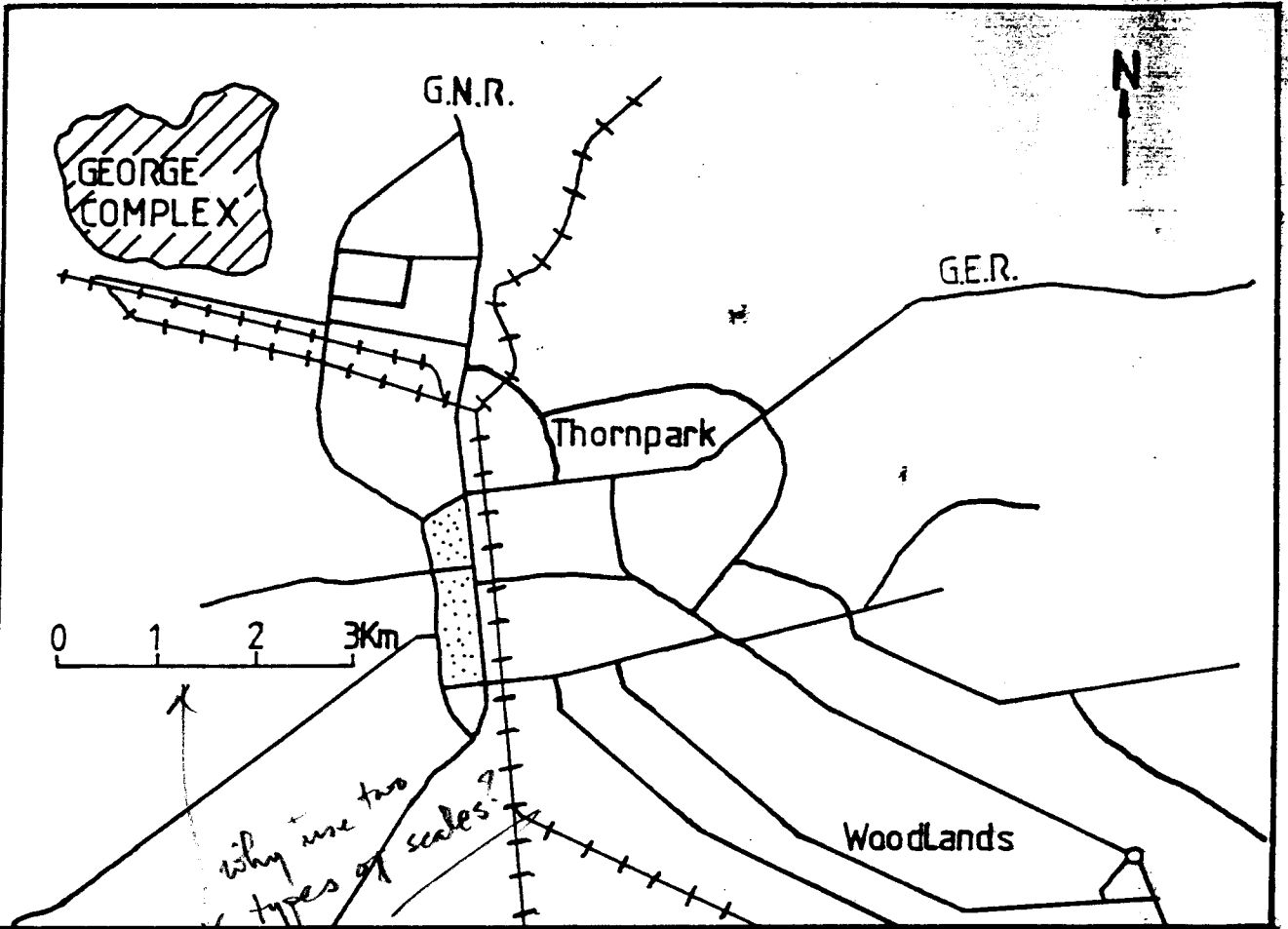
#### 3.2 BACKGROUND OF THE STUDY AREA

George Complex derives its name from Mr. George, a British white farmer who lived in the area between 1940-1950. Other farmers included Mr. Scot and Mr. Desai, the area was sparsely populated with few farm workers while most of the land was undeveloped.

*Sources?* After the death of Mr. George in the 1950s, people started to settle with the farm workers and their families. This situation lead to an increase in population which lead to a lot of vices such as crime and prostitution.

Lusaka City Council in 1976, began an upgrading programme of squatter areas. This saw the introduction of water systems in the study area, at the same time people were given occupant licences for the plots. This attracted

FIG.1- MAP OF LUSAKA SHOWING SAMPLE AREA.



*why use two types of scales?*

Scale 1:75,000 (approximate) *why?*

Legend





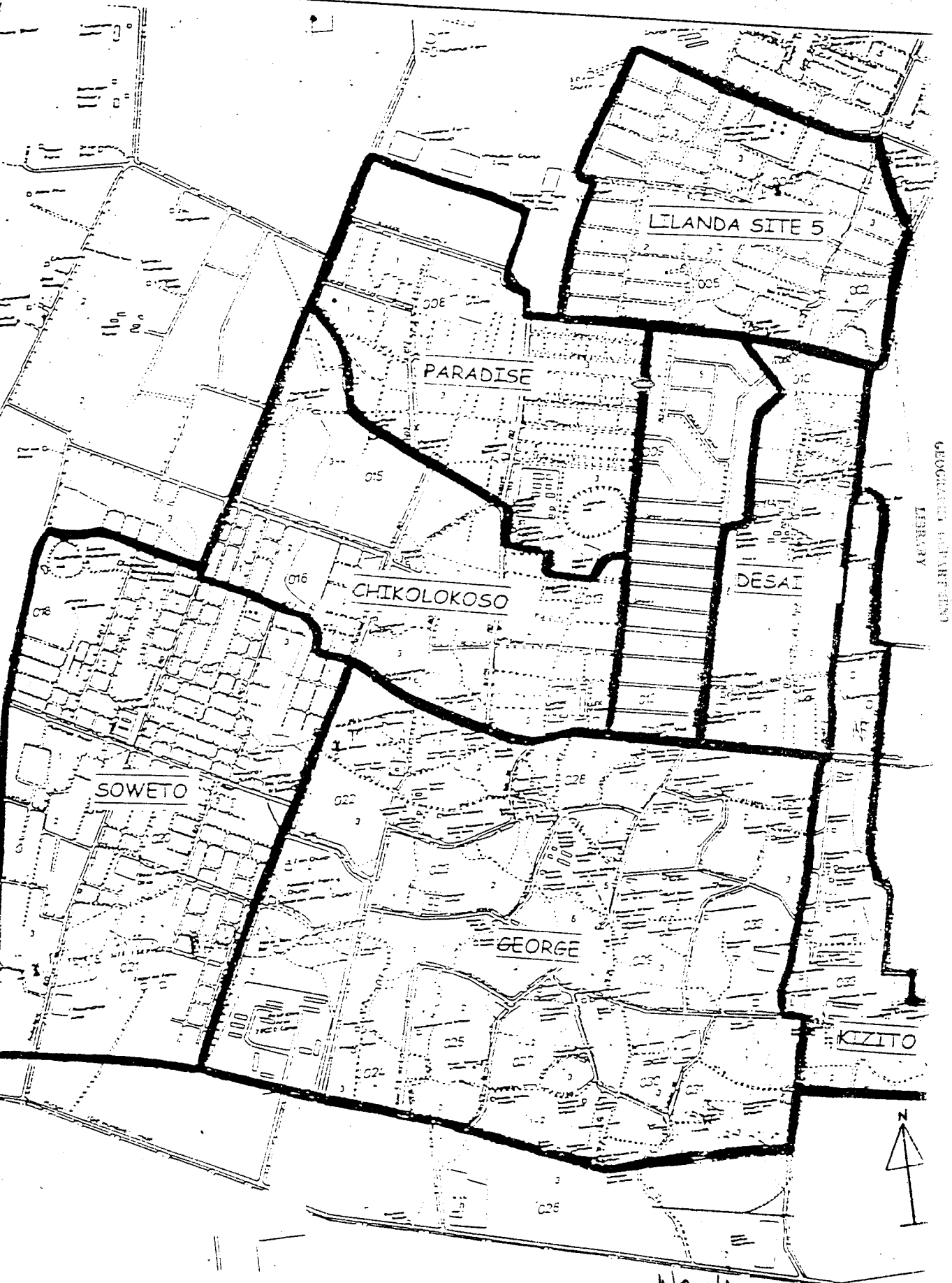
-  Study area
-  Central Business District (CBD)
-  Main road network
-  Railway
- G.E.R. Great East Road
- G.N.R. Great North Road

Fig. 2 - George Complex with Compound Demarcation



SOURCE: JICA (when?) This was just reproduced. Name  
SCALE 1:5,000

people in the surrounding residences to come to George. The 1977 World Bank funded housing scheme improved the housing structures of the residents and lead to the electrification of the compound. Muchinga Primary school was also built. With these developments the population continued to increase, for instance in 1967 it had 11,040 people to 1969 with 19,406 people.

*By what proportion did the population increase?*  
Unfortunately vandalism of these water facilities was rampant and the community was faced with severe water shortages coupled with water borne diseases such as diarrhoea. For instance in 1991 there was an outbreak of cholera and many people in the compound died.

In response to this, in 1992, a project was introduced by CARE which was mainly Food For Work Project. The approach adopted by the project was community participation and this assisted in promoting community ownership in development processes. Various projects like road maintenance and garbage removal were initiated.

Following the CARE projects, the JICA water projects was initiated in 1995 and residents now have a regular source of safe and clean water (CARE International, 2000).

### 3.3 POPULATION DYNAMICS

Lusaka has a population of about 1.2 million of which George Complex contributes 102,075 persons (Appendix 5). George Complex is one of the fastest growing and highly populated areas in Lusaka urban. For instance, Chawama and New Kabwata had a population of 69,777 and 11,986 each in

1996 (CSO, 1996). However, George Complex <sup>attained</sup> reached these numbers in the 1960s (Table 1).

The study area is densely populated because of the rapid population growth which is mainly attributed to the immigration of the people around George Complex following various development the area experienced. George Complex was formally incorporated into the City of Lusaka in 1970 by then the population was about 25,000 (Table 1), which continued to increase to 102,075 in the year 2000 (Appendix 5). It is this rapid population growth which caused, among others, aggravated water shortages.

**TABLE 1: POPULATION GROWTH IN GEORGE COMPLEX 1953-1978**

Year	Number of Population
1958	570
1967	11,040
1968	12,000
1969	19,406
1970	25,000
1972	31,900
1973	41,358
1978	56,000

Proposed ?

## • CHAPTER FOUR

### RESEARCH METHODOLOGY

#### 4.1 SOURCES OF DATA AND METHODS OF DATA COLLECTION

*A statement was needed here!*

##### 4.1.1 PRIMARY SOURCE OF DATA AND DATA COLLECTION

The primary sources of data included George Complex Residents, the George Resident Development Committee officials, key officials from LCC, LWSC, CARE and JICA. The methods of data collection used ware scheduled structured with views, Non-scheduled interviews and Field observation.

*Meaning?*

##### 4.1.1.1 SCHEDULED STRUCTURED INTERVIEWS

Two different scheduled structural interviews were administered to George Complex residents and Lusaka Water and Sewerage Company (LWSC). The questions for the residents were to provide information that would help highlight the situation before and after the water supply partnership was established in the study area (Appendix 2). The questions to LWSC was basically to collect data on the total domestic water consumption levels and how the delivery of water is done and what it takes to supply water in the study area (Appendix 1).

The scheduled structured interviews, for the residents, were researcher administered because questions had to be translated from English to Nyanja and Bemba, which was not a problem for the researcher. This was so because

as shall be seen in Chapter Five, most people interviewed in the study area had a very poor education background.

#### 4.1.1.2 NON-SCHEDULED STRUCTURED INTERVIEWS

A non-scheduled structured interview was prepared and administered to JICA, CARE and LCC <sup>which is</sup> being the other partner in George Complex water delivery scheme (Appendix 3).

#### 4.1.1.3 FIELD OBSERVATION

While in the field, the researcher carried out observations to quantify the number of taps, boreholes and verified how water was delivered to the consumers, in the study area. Moreover, the researcher attended some workshops, during field observation, which were basically for community empowerment. <sup>How did you benefit from these?</sup>

#### 4.1.2 SECONDARY SOURCE AND DATA COLLECTION

Secondary sources were from various institutions holding relevant documented literature. These were, the University of Zambia Main Library, Geography Department Library, the University of Zambia Institute for Social and Economic Research and the Research Unit at Lusaka City Council (LCC). <sup>what type of data sources no information was found here</sup> Data from these institutions assisted the researcher come up with literature review and maps. Moreover, it was clear that there was little information on the study theme from a Zambian context.

## 4.2 SAMPLING METHOD AND SAMPLE SIZE

The sampling procedure used in the study was systematic or interval sampling. And the sampling frame was 10 households per compound. The length of the interval was determined by the Ratio.

$$K(\text{Interval}) = \frac{N}{n} = \frac{\text{Size of population}}{\text{Size of Sample}} = \frac{8,200 \text{ households}}{70 \text{ Sample households}}$$

$$K = \frac{8,200}{70} = 117.14$$

$$K = 117$$

The first house in each compound was selected using purposive or judgement sampling. That is, the first house to the right, met by the researcher, in the initial road of each compound. The starting household for each of the seven compounds was one (1) then 118th household, followed by 235th, 352, 469, 586, 703, 820, 937 and 1054th household. In each compound Ten (10) households were sampled. This was done with the help of Fig. 2 and appendix <sup>5</sup> that show the main road networks which the researcher followed. The researcher started the research in Soweto Compound, then George, Chikolokoso, Paradise, Lilanda Site 5, Desai and Kizito compounds. This method was quicker, simple as well as convenient when undertaking research that involves <sup>ed</sup> sampling houses.

The sample size as earlier stated, consisted of seventy (70) households. Only seventy (70) households, out of 8,200 households (CARE) in the study area

were selected to represent households in the study area due to limited time and finances. Of the seventy (70) households ten (10) respondents in each of the seven (7) compounds, that make up George complex, George, Soweto, Kizito, Desai, Chikolokoso, Lilanda Site 5 and Paradise. For the officers, these were selected from JICA, CARE International and LCC.

One of the main reasons for selecting this sampling method is the non-availability of aerial photographs on which other procedures could have been

*would they have used or analysed.*

Other sampling methods were ruled out due to such factors as non-systematic numbering and irregular spatial pattern of houses. The major

limitation is that the results cannot be generalized to the whole complex due to

*So how reliable are your results?*

the sampling technique used. It was not easy to have a perfect objective

sample due to haphazard house numbering as well as the pattern of houses.

#### 4.3 Data Coding, Analysis and Presentation

Field data were coded and analysed manually by the researcher. Data analysis was done both by quantitative and qualitative methods.

*? is this a qualitative approach*

Data was analysed quantitatively using percentages and tables as shall be

presented in the next chapter. Qualitative methods were used to present data

obtained into categories of importance. This category was based on the impact

the water delivery partnership had on residents.

Data presentation was done mainly through the use of tables, figures and graphs.

#### 4.4 LIMITATIONS

During this research a number of problems were faced. The first being resources, especially financial as the study required travelling to the study area and making follow ups on people to be interviewed. The haphazard house numbering and irregular house pattern was also a limitation.

Some respondents were not co-operative, insisting that many people interviewed them concerning their living condition, even promising them improvements but little had been done, especially on the problem of garbage littering the streets of the study area. Also some key officials for the scheduled structured interviews were rarely found in their offices and the questionnaires took more than four (4) weeks to be completed. In case of the non-scheduled interviews, these were conducted with alternative respondents.

## CHAPTER FIVE

### RESEARCH FINDINGS

#### 5.1 SOCIAL CHARACTERISTICS OF RESPONDENTS

→ Introduction of this section.

##### 5.1.1 Sex of Respondents

From the total of seventy (70) respondents, the sample consisted of 29 males and 41 females representing 41.4% and 58.6%, respectively. Therefore, the distribution shows that the majority of respondents were female, from all the compounds.

##### 5.1.2 Age of Respondent

Field data indicate that 39% (27) of the seventy respondent did not indicate their age while 61% (43) of them indicated their age. The age range was from 18 to 61 years old, inclusive. Of the 43 (61%) respondents who indicated their age, it was discovered that more than 50% of these respondents were between 21-30 years of age (table 1).

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**Table 2: Age Distribution In George Complex**

Age (years)	Number of Respondents	(%) Percentage
≤ 20	02	4.7
21 - 30	15	34.9
31 - 40	10	23.2
41 - 50	08	18.6
51 - 60	07	16.3
≥ 61	01	2.3
Total	43	100.0

### 5.1.3 YEAR SETTLED IN GEORGE COMPLEX

Results show that the earliest settler had lived over 40 years in the study area.

This respondent settled in the 1950s, and accounted for 14% (1) of the seventy (70) respondents. Results further indicate that the number of people settling in the study area continued to increase from <sup>the</sup> 1950s to 10% (7), 20% (14), 21.4% (15), 33%(23) and 14.2% (10) in 1960s, 1970s, 1980s, 1990s, and the year 2000, respectively.

### 5.1.4 MARITAL STATUS

As can be seen from <sup>Table</sup> 3 below, of the total seventy (70) 74% (52) were married, 17% (12) single, 3% (2) separated, while other (widows and widowers) accounted for 6% (4).

**Table 3: Marital Status In George Complex**

Compound	Single	Married	Separated	Divorced	Other	
Kizito	1	8			1 (W)	
Paradise	4	5	1	?	?	
George	1	6	1	?	2 (W) (W <sub>F</sub> )	
Chikolokoso	2	8	?	?		
Soweto	1	8	?	?	1 (W)	
Lilanda Site	1	9	?	?	?	
Desai	2	8	?	?	?	
Total	12	52	2	- ?	4	70
Percentage	17%	74%	3%	- ?	6%	100

Key

W = Widow

W<sub>F</sub> = Widower

*What do the  
gaps in your table  
stand for?*

### 5.1.5 HOUSEHOLD SIZE

From <sup>Table</sup> four (4) below, the majority of the households live as a family of between 4-6 people (37%), followed by those living in 1-3 persons (24%) and

*Not a well constructed sentence!*

more than or equal to ten (10) people (9%). In view of this, the average household size was six (6).

**Table 4: Household Size Of Respondents In George Complex**

Compound	People				
	1 - 3	4 - 6	7 - 9	≥ 10	
Desai		4	3	3	
Lilanda Site	3	4	2	1	
Soweto	3	3	4		
Chikolokoso	3	3	3	1	
George	2	2	5	1	
Paradise	3	5	2		
Kizito	3	5	2		
Total	17	26	21	6	70
Percentage	24%	37%	30%	9%	100

### 5.1.6 EDUCATION STATUS OF RESPONDENTS

The numerical data <sup>(see)</sup> Table 5 below, showed that out of the sample size of seventy (70), the highest education attained was university level accounting for 3% (2) people, each from Paradise and Chikolokoso compounds.

However, <sup>the</sup> bulk of these respondents have attained secondary education, that is 44% (31) of the total respondents, followed by primary education amounting to 34% (24) <sup>what is the meaning of the table sample?</sup> of the table sample.

**Table 5: Level Of Education Of Respondents**

Compound	Primary	Secondary	College	University	
Kizito	7	2	1		
Paradise	1	6	2	1	
George	5	5			
Chikolokoso	4	4	1	1	
Soweto	1	5	3		
Lilanda Site	1	6	3		
Desai	5	2	3		
Total	24	31	13	2	70
Percentage	34%	44%	19%	3%	100

## 5.2 SCENARIO BEFORE THE PARTNERSHIP WAS ESTABLISHED

→ *Introductory remark of this section.*

### 5.2.1 SOURCE OF WATER

The results in Table 6 below indicate that there were four (4) main source of water in the complex before the partnership was established, namely Matero township shallow wells within the complex, tap within the house and World Bank Boreholes.

**Table 6: Source Of Water Supply In George Complex**

Compound	Matero	Shallow Wells	Matero and Shallow Wells	World Bank Boreholes	Tap within home	
Kizito	2	4	4			
Paradise	1	3	1	5		
George	6	2		2		
Chikolokoso	3	2	2	3		
Soweto	1	4	2	3		
Lilanda Site	2	4	3		1	
Desai	6	2		2		
Total	21	21	12	15	1	70
Percentage	30%	30%	17%	22%	1%	100

From Table 6 it is clear that Matero and shallow wells were the most popular source of water, each contributing 30% (21) of the sample. These were followed by World Bank Boreholes with 22% (15), Matero and shallow wells accounting for 17% (12) and the least source being tap from within the houses 1% (1) of the total respondents.

### 5.2.2 DISTANCE TO SOURCE OF WATER

44.4% (31) respondents got their water outside the complex, for example five Matero township which is about 5 kilometres from George Complex, 31.4%

(22) from within George complex (100 metres at most), 21.4% (15) within the yard (<sup>five</sup> 5 metres at most), while those who sourced water within the house and other sources (like shallow wells), within and outside the compound accounted for 1.4% (1) of the respondents. It was discovered, then, that most of the respondents had to travel long distances, from the complex to sources of water, to almost ten (10) kilometres to and fro source of water.

### 5.2.3 PROBLEMS BEFORE PARTNERSHIP

The major problems during this time were the prolonged shortage of water, inadequacy of water, outbreak of water borne diseases, vandalism of water facilities lack of security especially at night and the long distances travelled to sources of water. The prolonged shortage of water was attributed to the unreliable shallow wells that dries during summer which also contributed to the inadequacy of water for the day to day use. More than 50% of the sample were aware that the water from shallow wells was dirty and impurities, like worms and human excreta, were sometimes seen in the water. In due course diseases like cholera and diarrhoea claimed a lot of lives, especially children.

About 50% of the sample were of the view that vandalism of water facilities was one of the major problems which contributed to the reduction in the number of communal taps and this was compounded by lack of maintenance of broken taps by the local authority - LCC.

### 5.3 SCENARIO AFTER THE PARTNERSHIP WAS ESTABLISHED

→ Introduction of the section.

#### 5.3.1 WHEN AND WHY THE PARTNERSHIP WAS ESTABLISHED

The non-scheduled interview administered to JICA, CARE and LCC (Appendix 4) revealed that the partnership was established in July 1995. Due to the persistent cholera outbreaks especially between 1991-1992, the Zambian government requested for a Grand Aid from the government of Japan for the implementation of water supply project. This was aimed at alleviation of the incidence of water borne diseases. For instance, as the 1996 statistics show where the mortality rate caused by cholera was ~~3~~<sup>three</sup> per 1000 persons in the whole of Lusaka, George Complex had the highest figure of ~~7~~<sup>seven</sup> per 1000 persons. In view of this, the government of Japan made a positive response to the Zambian government which in turn facilitated the initial creation of the partnership.

#### 5.3.2 WATER CAPACITY AND ITS TRANSMISSION IN THE WATER SYSTEM

Due to the large expanse of George complex, the area was divided into eight (8) water supply areas (**Appendix 6**), each of which has an independent water supply system (**Appendix 6**). Each water supply system consist of: a borehole as the water source, transmission pipelines for transmission of water from the borehole to the elevated water tank, water treatment facilities (chlorinators), elevated water storage tank with a capacity of 300m<sup>3</sup> distribution pipelines from the elevated water tank to the various supply points, public faucets and laundry facilities.

With the water facilities in place, there has been an increase in ~~the~~ water consumption levels from 1996 to the year 2000 for the complex as a whole (Table 7). However, the current average water consumption per compound is about 16,000 m<sup>3</sup> per month, while that of the whole complex is about 120,000 m<sup>3</sup> per month. *(source?)*

**TABLE 7: TOTAL QUANTITY<sup>IES</sup> AND CONSUMPTION LEVEL<sup>S</sup> OF WATER (1996-2000) IN GEORGE COMPLEX**

Year	No. of Boreholes	Total Quantity Per Month
1996	02	10,000 m <sup>3</sup> /month
1997	03	20,000 m <sup>3</sup> /month
1991	04	60,000 m <sup>3</sup> /month
1999	04	60,000 m <sup>3</sup> /month
2000	03	120,000 m <sup>3</sup> /month

### 5.3.3 PARTNERS AND THEIR INDIVIDUAL ROLES

There are five (5) partners involved in the George Complex water supply scheme, namely Japan Cooperation Agency (JICA), CARE International, Lusaka City Council (LCC), Lusaka Water and Sewerage Company (LWSC) and the Community of George Complex through their Resident Development Committee (RDC). The LWSC and RDC are the main partners in the delivery of water to the Community.

### 5.3.3.1 Japan International Cooperation Agency (JICA)

The Interview conducted revealed that JICA was an implementing Agency, as opposed to a popular view that it was a Donor Agency. It implements programmes on behalf of the Japanese government.

This follows that JICA's main responsibility in George Complex was to put up the structures and infrastructures, boreholes, transmission pipelines, water treatment facilities, elevated water storage tank with a capacity of 300 m<sup>3</sup>, distribution pipelines to various supply points and public faucets as well as laundry facilities.

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SCHOOL OF DISTANCE EDUCATION

### 5.3.3.2 CARE INTERNATIONAL

The full name of the organization in question is CARE International (PROSPECT) for the George Community Empowerment project (GCEP). PROSPECT refers to program of support for poverty Elimination and Community Transformation.

CARE became a partner after signing a memorandum of understanding with other partners in 1996 concerning the management of the water project in the study area. Later in the year 2000 another contract was signed with JICA for GCEP program to last three (3) years (April 2000 to March, 2004) this was prompted due to CARE's interest to improve the livelihood of the people of George complex as well as Community participation in the activities of the study area.

Therefore CARE's main roles are to strengthen partnership between the residents and other partners, capacity building, education campaigns which also include health issues, trains interested residents in business skills and provides loans to members of a saving association and livelihood improvement at household level. Moreover, CARE trains community leaders in various fields, like Business skills financial management development, conflict resolution and many others.

#### 5.3.3.3 LUSAKA WATER AND SEWERAGE COMPANY (LWSC)

Information from LWSC indicated that LWSC's Engineering Section (**Appendix 3**), known as George Division Office of Lusaka Water and Sewerage Company (GDLWSC), has <sup>the</sup> full responsibility of all assets and liabilities. It undertakes major maintenance by repairing broken water facilities and preventive maintenance of pump houses to reduce break <sup>what are these</sup> downs, provides technical support to the water scheme, monitors the ground water levels, monitors major water facilities to ensure that the water provided is treated. It also collects tap user fees every month and account<sup>s</sup> for it as well as facilitate<sup>s</sup> community participation.

#### 5.3.3.4 GEORGE RESIDENT DEVELOPMENT COMMITTEE (GRDC)

From the beginning of the partnership, the importance of involving the community in the water delivery implementation and operation was recognized. Therefore, the concept of community participation was introduced

into the partnership in order to achieve this. Hence, the GRDC as well as smaller communities like Area water Forum and Tap Committee were formed. That major responsibilities in the partnership among other things are to carry out daily monitoring and inspection of public faucets laundry facilities, soakaways, septic tanks and their surrounding<sup>s</sup>.

~~The~~ GRDC is also responsible for ensuring that all households using the water supply facilities are registered users at GDLWSC. The GRDC mobilizes users and the Security Committee and institutes measures such as nigh patrols, to ensure that all forms of vandalism of the water supply facilities are prevented. In addition members of the GRDC are responsible for solving disputes among users of public faucets and laundry facilities.

#### 5.3.3.5 LUSAKA CITY COUNCIL (LCC)

LCC's main role is to provide manpower in the Community, as Community Development Officers. The Field Survey revealed that the Community Development Officers facilitated community participation as they organized with the residents workshops and general meetings were they planned with the residents, activities like education campaign concerning hygiene, of various areas or compounds.

These officers also act as workshop facilitators, as they educate the users to sustainably use the water facilities. They also resolve conflicts between residents, for example between the users and top leaders, as the case may be.

These conflict resolution meetings are normally held on Wednesday in each particular area, but if there is a serious problem, any day is usually arranged.

LCC further monitors the water delivery system to ensure that the residents receive clean, safe and adequate water. It also does the selling of user cards for each household. This card is used each time water is drawn. Each of the eight (8) areas has a different colour for the user card.

### 5.3.4 WATER COLLECTION AND HOUSEHOLD SOURCE OF WATER

#### 5.3.4.1 HOUSEHOLD SOURCE OF WATER

Information was obtained concerning the household source of water, it was apparent that most of the households get their water from communal taps which accounted for 87% (61) of the respondents, 9% (6) from other comprising communal taps and tap outside their houses. *(3% (2) sourced water from Boreholes, while 1% (1) sourced from tap outside their homes. It is interesting to note from table 8 that respondents from Desai, Lilanda Site 5, Paradise and Soweto Compounds totally (100%) sourced their water from communal taps.*

**TABLE 8: HOUSEHOLD SOURCE OF WATER**

Compound	(i) Communal Taps	(ii) Tap Outside House	(iii) Borehole	Other (i) and (ii)	
Desai	10	?	?		
Lilanda	10	?	?	?	
Soweto	10	?	?	?	
Chikolokoso	9	?	1	?	
George	7	2	?	1	
Paradise	10	?	?	?	
Kizito	5	?	?	5	
Total	61	2	1	6	70
%	87%	3%	1%	9%	100

*what do the gap stand for*

Information gathered from the field revealed that the number of households saved by any particular communal tap varied. Communal taps that saved more

than 41 households was 40% (28) of the respondents, then 21-30 households

per communal tap was 36% (25), followed by 11-20 households with a 13%

(9) response, while 31-40 households represented a 10% (7) response and then

communal taps with less than 10 households represented 1% (1) of the sample.

#### 5.3.4.2 WATER COLLECTION

Quantitative data indicate that 61.4% (43) of the sample used 20 litre containers to draw or collect water from the communal taps while the rest of the sample, 38.6% (27), used both buckets and 20 litre containers.

Of the respondents who used 20 litre containers that is 61.4% (43), to collect water 83% (35) used or collected more than nine (9) 20 litre container's per day, while 5-7 and 7-9 20 litre containers were used by 7% (3) of the 43 respondents from each range of the 20 litre containers per day. Less than 3 and 3-5 20 litre containers were used by 2% (1) of the 43 respondents for each of the range of 20 litre containers per day.

On the other hand, those 38.6% (27) who used both buckets and 20 litre containers, 85% (23) used more than ten (10) of the items to draw water per day, this was followed by 7% (2) of the 27 respondents who used between 3-5 items per day while 4% (1) accounted for each of the 5-7 and 7-9 range of Buckets and 20 litre containers used per day. Therefore, it is clear that the

common means of water collection, in the study area, are the 20 litre containers.

### 5.3.6 DOMESTIC USE OF WATER AND PAYMENT

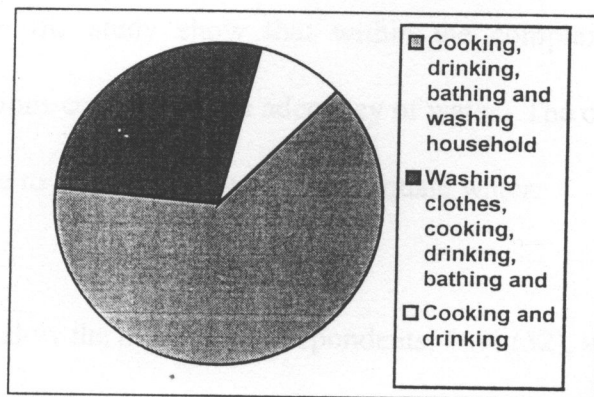
*Introduction for this section.*

#### 5.3.5.1 DOMESTIC USE OF WATER

Fig. 3 below shows that there were only three (3) main groups of domestic uses of water. The first, 8.6% (6), comprising of cooking and drinking. The second group, 27.1% (19) of the respondents, consists of washing clothes, cooking and drinking, bathing and washing household utensils. The third group comprise of cooking, drinking, bathing and washing household utensils.

*Poorly Presented!*

Fig. 3: Pie Chart Showing Domestic Use Of Water In George Complex



#### 5.3.5.2 PAYMENT FOR THE WATER USED

All the respondents (100%) confirmed that the water charge per household per month is 3,000 Kwacha (Zambian) which is about USA \$1.20 *based on which period?* per month. However, 94% (66) of the sample was of the view that they were able to pay this amount while 6% (4) of the sample used were not able or had difficult to pay the fee.

The reasons given by the 94% (66) of the sample were that some of them were working and hence had a steady income to pay for the water services. Others revealed that they had children who were working who paid the amount. While others had businesses that helped them to sustain the payment of the water fee. For most women or females revealed that their husbands were employed and were able to pay every month.

Those who were not able or had difficulties in paying cited the late release of salaries by the government of Zambia and that others were out of employment.

#### **5.3.6 RESPONDENTS' VIEW ON THE ADEQUACY OF WATER IN GEORGE COMPLEX**

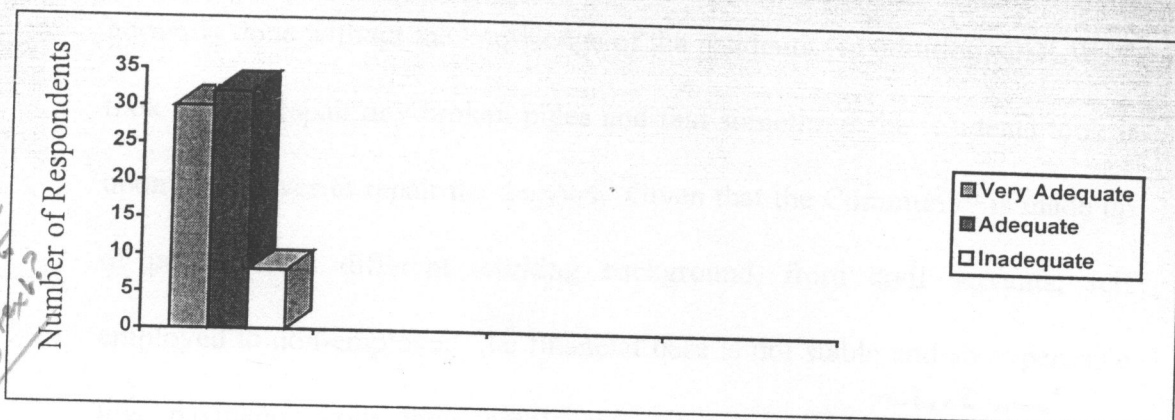
Results from the study show that within the complex, respondents have varying opinions concerning the adequacy of water. The opinions ranged from very adequate to adequate as well as inadequate water.

From Fig 4 below the majority of respondents, 46% (32), were of the view that the water was adequate, that is they were able to collect about five (5) 20 litre containers (5 x 20 litre = 200 litres) per day. They cited the continuous availability of water, enough taps for each household and the close proximity of source<sup>s</sup> of water (like communal taps) to their homes, ~~were the~~ <sup>as</sup> reasons ~~given~~ for their view on the adequacy of water.

On the other hand 43% (30) respondents were of the view that the water in George Complex was very adequate. That they were able to draw water in more than five (5) 20 litre containers. The reason given for their opinion is that they live near to the source of water (100 metres at most).

The rest of the respondent, 11% (8) were of the opinion that the water in George Complex was inadequate. This was so because they were only able to draw water in less than three (3) 20 litre containers per day which was not enough for home use. The inadequacy of water was mainly due to financial and human factors. Some respondents were not able or had difficulties to pay for the water services every month. Sometimes tap leaders did not open the taps on time due to <sup>of what?</sup> ~~overlapping~~ especially in the early morning. Moreover, the time allowed to draw water (1 hour) is too short to ensure enough water is collected because there were long queues at the water points.

Fig. 4: Views on the Adequacy of water in George Complex



### 5.3.7 PROBLEMS ENCOUNTERED IN THE PARTNERSHIP AND MEASURE USED TO ADDRESS THE PROBLEMS

The problems encountered in the partnership can be generally classified threefold: problems between the people and the GRDC as well as their committees like Area water Forum; George Division Office of Lusaka Water and Sewerage Company (GDLWSC) and the residents; and, the partners stationed in the study area. Some residents talked to revealed that some tap leaders were in the habit of opening the taps late, who on many occasions offered no explanation for being late. Some respondents complained that some tape leaders refused resident to draw water using buckets, for no apparent reason. Therefore, the water collected was not enough for the day's use. Also, the disciplinary committee of GRDC never consulted the residents concerning decisions to be made in relation to the developments of the complex.

One of the problems faced in the partnership between the GDLWSC and the residents is lack of communication. Respondents were of the view that there was no effective communication with GDLWSC. For instance, no notices

were given to the residents concerning the shutting down of water. This was normally done without the knowledge of the residents. In addition, GDLWSC took time to repair any broken pipes and that sometimes the residents took it upon themselves to repair the damage. Given that the Community is made up of people from different working background, from civil servants, self employed to non-employed, the financial base is not stable and so experience low payments from their employers. In spite of the <sup>which one?</sup> background, the respondents talked to said that GDLWSC did not give a grace period for residents in which to make their payment for the water services at each end of any one month. And one aspect that came out so strong<sup>ly</sup> was the notion that the residents were not shown any monthly financial report, by GDLWSC, so that they know how money contributed to the self sustainability of the water scheme was managed.

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The third level of problems can be seen between partners, like GDLWSC, LCC and CARE, stationed in the study area. The interview conducted with CARE officials revealed that there was occasional conflict of interest between stakeholders. For instance if incentives have to be paid to some people in the community for participating in developmental programs like garbage collective. Stakeholders may not agree on <sup>Meaning?</sup> who benefits from the incentives. And are problem hampering coordination between partners in George Complex is the lack of skills or capacity by some staff in some partner's organization to facilitate community development activities.

were given to the residents concerning the shutting down of water. This was normally done without the knowledge of the residents. In addition, GDLWSC took time to repair any broken pipes and that sometimes the residents took it upon themselves to repair the damage. Given that the Community is made up of people from different working background, from civil servants, self employed to non-employed, the financial base is not stable and so experience low payments from their employers. In spite of <sup>which one?</sup> the background, the respondents talked to said that GDLWSC did not give a grace period for residents in which to make their payment for the water services at each end of any one month. And one aspect that came out so strong<sup>m</sup> was the notion that the residents were not shown any monthly financial report, by GDLWSC, so that they know how money contributed to the self sustainability of the water scheme was managed.

GEORGETOWN GOVERNMENT  
LIBRARY

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The main process used to solve problems especially ones related to the organizations in the study area are the quarterly meetings between stakeholders to discuss, mainly the progress of the partnership. The response to plan for the activities, by stakeholders, in the study area is overwhelming. However, the question of skilled manpower for some of the stakeholders is never discussed, at these quarterly meetings. (why not?)

Measures used to solve problems at local level that have yielded positive response<sup>s</sup> from the residents and the GRDC are the door to door campaigns and workshops held from time to time. The door to door campaigns are mainly used to educate the Community on the sustainable use of the water facilities. For example, residents who leave near the water points discouraged or stop any person found playing around the water facilities. Workshops are held mainly to plan future activities of the complex.

## CHAPTER SIX

### DISCUSSION

#### 6.1 PARTNERS IN GEORGE COMPLEX

PPPs typically get started when there is a widely acknowledged crisis or problem.

Problems which many groups acknowledge as affecting their core interest. The major problem in the study area was lack of water. This problem was against a background of an ever increasing population, for example, from 11,040 in 1967 to about 102,075 in the year 2000. *An increase with what proportion?* Inadequate and shortage of water was the order of the day. It meant that people especially women and children, had to travel long distances to find water. *inadequacy*

However, some residents opted to use water from shallow wells which was not clean and *measurement!* safe for use. This led to an out break of water borne diseases, prominent among these being cholera. For instance, in 1991 and 1992 cholera did not only claim lives, but the illness caused expenses for medical treatment and other unnecessary costs.

*poor sentence*  
However, with the establishment of a community based PPP, whose partners are JICA, LCC, LWSC, CARE and GRDC, in 1995 helped to reverse the above trend. The PPP

water supply scheme supplied clean cheap and reliable water. In comparison to the shallow wells, the water from the scheme is free of pollution as it is pumped from deep *is all the water which is pumped from boreholes* boreholes. In addition the water is treated by chlorination. The water appears to be *pure?* adequate as residents can draw water up to or more than 200 litres (5x20 litre containers) per day. This is made possible by the close proximity (100 metres at most) of the communal taps from the users homes.

With the reduction of distance to source of water, time for other activities has been saved. Such activities include going to school, income generating ventures and visiting relatives. Clean treated and reliable water implies that there is a general reduction in the water shortages and occurrence of water borne diseases.

One problem that may arise and hence affect the water delivery is the issue of voluntary community participation. With the current adverse economic conditions, widespread hunger and poverty, people in due course may demand a wage or salary for the work they contribute. If this need is not met some people may withhold their labour and hence affect the smooth running of the water supply. Therefore, there is need to economically empower the people, especially the Resident Development Committee Officers since they act as a bridge between the residents and other partners.

## **6.2 NATURE OF WATER DELIVERY**

In the past, stand posts provided by LCC and a few house connections were the main sources of water supply. However, these facilities were limited in capacity. To make matters worse, these were poorly maintained, extensively vandalised and there was no effort made for cost recovery. This state of affair resulted in a number of leakages and breakdown<sup>s</sup> of the water supply facilities. As a consequence, a number of people in the community depended on other water sources. At the time, the immediate alternative source of water was from shallow wells. The water supply from most shallow wells was unreliable because most of them dried up in the dry season.

Under the partnership, the study area was divided into eight (8) water supply areas (Appendix 6) each of which has an independent water supply system. Therefore, each

water supply system consists of a borehole as the source, transmission pipelines for transmission of water from borehole<sup>s</sup> to the elevated water tank, water treatment facilities (Chlorination), elevated water storage tank with a capacity of 300m<sup>3</sup>, distribution pipelines from the elevated water tank to the various supply points and public faucets and laundry facilities.

Therefore, in comparison to past water delivery system, the PPP water delivery system has taken clean, safe and reliable water, almost to the door steps of the users, as no one user can walk more than 100 metres without finding a communal tap. What this means, also, is that the water supply has expanded to meet the demand compared to the system before the partnership.

However, an analysis of this increased water supply capacity that has apparently met the demand, seem<sup>s</sup> only to be a short term solution. This is so because each of the eight (8) boreholes for each areas or compounds has a capacity of 15,000m<sup>3</sup> of water per month.

*Sources?  
if you can refer us back to your earlier report!*

While the consumption level per month per compound is about 16,000m<sup>3</sup>. Already, the consumption level excides the water capacity. With an average population increase of 2,800 people per year, as shown by a population increase of 11,000 in 1967 to 102,075 in the year 2000, there is no doubt this water system will not handle future water demand.

This is so because the population in the study area is expected to grow to about 116,075 by the year 2005 and consumption levels are also expected to rise.

### 6.3 EFFECTIVENESS OF COMMUNITY BASED PPP IN GEORGE

Gidman (1995) is of the view that rapid population growth contributes to poverty and environmental strain. This was particularly true in George complex before the partnership. Shallow wells were dug in many places to meet the water demand. No effort was made for cost recovery. Hence the entire water supply system was poorly maintained. The facilities were roughly used and vandalized because of lack of ownership by the community, as a consequence the system became unreliable.

Therefore, from the beginning of the partnership, the importance of involving the community in the water supply scheme was recognized and the concept of community participation was introduced in the partnership. Community participation through the formation of GRDC and its small committees like Area Water Forum and Tap Committee have contributed positively to the water scheme. They have helped in mobilizing the community for the water scheme activities like carrying out regular education for the community. They also carry out assessments and take part in the decision making on various issues affecting the operation of the project. They facilitate cost recovery at water points. At the same time they initiate the exercise for the prevention of vandalism.

Many shallow well owners charge money for collecting water from their wells. The charge vary from K30.00 per bucket to K50.00 per bucket. The average number of buckets required for domestic use is 10 per day. Although shallow well users spend K300 per day in case of K30.00 per bucket and K500.00 per day in case of K50.00 per

*what do you mean?*

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*what do you mean?*

bucket, it brings the total to K9,000.00 (USA \$3,60) per month (that is K30 per bucket x 10 buckets x 30 days) in case of K30.00 per bucket. *using the exchange rate for which period.*

In comparison to water supplied by the partnership which charges K3000 (USA \$1.2) per month, water from shallow wells are more costly. Yet some residents seem to consider K3,000.00 to be too much as compared to K50.00 per bucket. They do not immediately realize that the K50.00 is required for many buckets per day whereas the K3,000.00 is per month. In reality the current water scheme charges K100.00 per day for uncountable number of buckets.

One may think that the presence of shallow wells might have created competition to the partnership's water supply system. This competition may have contributed to the low cost of the water monthly fee. One may argue that if the current water supply scheme was the only source of water, a monopoly of water services could have emanated and this could have led to exorbitant water charges, therefore, the presence of shallow wells is a welcome feature in as far as pricing is concerned.

A critical analysis of the roles of the partners reveal that they have a high level of resource commitment to increase their interest in seeing that the partnership is pro-poor. For instance CARE International Invested human and financial resource. CARE provides, among others, capacity building, education campaigns and provides loans to members of a saving association. The latter has seen people being empowered socially and economically.

#### 6.4 MEASURE TO ENSURE SUSTAINABLE USE OF DOMESTIC WATER

Water being a scarce resource, there is need to ensure long-term sustainable use of the water and to ensure environmental responsibility .

Before the establishment of the partnership, the water facilities were roughly used and vandalized because of lack of sense of ownership by the community. Leakages and breakdown of water facilities were not attended to or repaired.

To address these past problems, LWSC, is in charge of the major maintenance of the whole water system, while the George Resident Development Committee (GRDC) bring in the community participation so that special attention should be paid to meeting the needs of the people. Field observation verified that the following measures were ~~under~~ undertaken by individuals as a form of contribution towards the sustainable use of the water facilities. Household pay for the water used every month. Tap leaders make sure they open taps twice daily, once in the morning (06-07 hours) and once in the evening (18-19 hours). Tap leaders also ensure that only paid up members draw water by presenting a user's registration card, each time. They draw water they also carry out door to door education campaign to educate fellow residents on the importance of their participation in the activities of the community.

GEOGRAPHY DEPARTMENT  
2004/05

From the above it is clear that in the past some residents had little or no knowledge as to who was responsible for the delivery of water. Presently it appears that all the respondents know whose responsible, among others, for the delivery of water and

Meaning?

maintenance of the water facilities. In other words, there seem<sup>s</sup> to be a well defined operational structure (Appendix 3) in as far as water delivery is concerned as compared to a non-existent operational structure, experienced in the past.

However, this structure creates a lot of Bureaucracy. This causes unnecessary, delay in decision making. For instance, when there is a leakage, say in Lilanda Site 5 or area 8 (Appendix 6), the fault has to be reported to the Engineering section of George Main Division near ZECCO Camp (Appendix 6) about three (3) kilometres away from the fault. Therefore, without decentralization, a compromise on the smooth running of the system will emanate.

## CHAPTER SEVEN

### CONCLUSIONS AND RECOMMENDATIONS

#### 7.1 CONCLUSION

The study has shown that community based PPP has had a positive impact among the residents of George Complex. This is because with the partnership in place, the water supplied is free from pollution as it is pumped from deep boreholes. Moreover, this water is treated by chlorination. In addition this water is brought close to the users' home through pipes to communal taps and hence a reduction in distance to source of water. This means that the water delivery system has expanded to meet the demand as compared to a system that existed before the partnership. And these were a few stand posts, provided by LCC, and few house connections.

In the past water facilities were used roughly, and in some cases were vandalised as well as stolen. This was due to lack of a sense of ownership by the users. With the initiation of the partnership, the importance of community involvement in the water scheme was recognized. Therefore, the residents among other things carry out assessments and takes part in the decision making on various issues affecting the operation of the project.

As a means towards cost recovery, users of the water facilities pay a monthly fee of K3000.00 Kwacha (Zambian) per household which is about USA \$1.20. This fee has proved to be cheaper compared to other sources of water like shallow wells. For instance, shallow well owners charge K50.00 per bucket with an average of 10 buckets

per day one spends K500.00 per day and K15,000.00 per month. Compared to the water supplied by the partnership, the water from shallow wells are expensive. Not only expensive but also not clean and safe for home use.

The previous water supply scheme delivered water with no regard for the social and economic status of the users. However, the community based PPP has recognised this fact. Therefore, the partnership provides, from a long list, capacity building, education campaigns and provides loans to members of a saving association.

Unlike the past the study area today has a well organised structure that looks at the affairs of the water supply. For instance LWSC has an engineering section that deals with the major maintenance of the water facilities.

Finally it is clear that with the inception of the partnership in the study area, the partnership has had positive effects on the lives of the residents. For example, the reduction in time spent and distance covered fetching water for domestic use, means that people in the study area have more time to dedicate to other household chores.

More importantly is the general decrease in the incidence of water borne diseases. And that so far no vandalism of the water facilities have been reported. However, issues of communication and coordination between stakeholders need to be addressed.

## 7.2 RECOMMENDATIONS

Based on the above conclusions, and the results in general, the following recommendations were made:

- a) Coordination between partners, JICA, LCC, CARE, LWSC and GRDC need to be addressed for the sustenance of the water scheme. One way that may help coordination, is through capacity building for members of staff so that they can be on the same level of thinking for the sake of development in George Complex. *Why else is coordination important?*
- b) There is need to enhance communication, especially, between the service providers, LWSC, and the community. For instance, if LWSC is to shut down water supply, the community need to be informed in advance through a mobile unit, announcing the development so that the residents can store enough water.
- c) With full knowledge that the community is made up of people with ~~a~~ different financial background, there is need for LWSC to introduce a grace period in which people can pay for the water services at the end of each month.
- d) There is an urgent need to introduce some form of social scheme for the Old and terminally ill people who cannot afford to pay ~~for~~ such that they can be exempted from paying for the water services.

- e) The study revealed that some water points experience over-crowding when drawing water. Therefore, there is need to decongest these water points by having a maximum number of households. Moreover there is need to increase the time allowed to draw water from one (1) hour to two (2) hours per season or opening period.
  
- f) Following the many positive effects of the public private partners on the livelihood of the residents in George Complex, there is need to expand or introduce more of such partnerships in other peri-urban areas so that the poor of the poor in the cities can also benefit from the urban environmental services.
  
- g) GDLWSC has to come up with a monitoring system of the water distribution so that water leakages, bursts can easily be detected and repairs done before a lot of water is lost and offsetting the water delivery system.

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APPENDICES.

APPENDIX 1:

The University of Zambia  
Geography Department  
Geo. 474 Research Project.

Questionnaire for: Lusaka Water and Sewerage  
Company (LWSC).

Questionnaire No. \_\_\_\_\_

Project Title : Assessing the impact of Public-Private  
Partnerships in the water supply schemes  
In Lusaka: the case of George Complex.

Instructions : Please tick against the answer of your choice or write  
answers in the space provided against each question. Where non of the  
answer(s) given is correct, specify in the space provided.

Date \_\_\_\_\_

- 1(a). Office held .....
- (b) When was the partnership with George Complex residents started?.....  
.....
- (c) What are reasons for establishing such a partnership?  
(i) .....  
(ii) .....  
(iii) .....  
(iv) .....  
(v) .....
- (d) When was the domestic water supply system established?  
(i) Pipeline from stream (Kafue river) [ ]  
Year started ..... Quantity .....

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answers in the space provided against each question. Where non of the  
answer(s) given is correct, specify in the space provided.

Date \_\_\_\_\_

1(a). Office held .....

(b) When was the partnership with George Complex residents started?.....

(c) What are reasons for establishing such a partnership?

- (i) .....
- (ii) .....
- (iii) .....
- (iv) .....
- (v) .....

(d) When was the domestic water supply system established?

- (i) Pipeline from stream (Kafue river) [ ]  
Year started ..... Quantity .....

- (ii) Boreholes [ ]  
 Year started .....  
 Total quantity.....  
 No of Boreholes .....  
 How are they distributed .....
- (iii) Well [ ]  
 Year started .....  
 Average household per Well .....

- 2(a) For how many compounds was the water supply system originally meant? .....
- (b) What was the average amount of water the system was able to provide? .....
- (c) What was the level of domestic water consumption per day for all compounds then? .....

- 3(a) Have you expanded the capacity since then?  
 YES [ ] NO [ ]
- (b) If the answer to 3(a) above is YES, why have you expanded? .....

GEOGRAPHY DEPARTMENT

- (c) Specify the total quantity and consumption level of water over the years.

(iv) Pipelines from stream

Year	Total Quantity	Total consumption
1996	.....	.....
1997	.....	.....
1998	.....	.....
1999	.....	.....
2000	.....	.....

(v) Boreholes

Year	Number of Boreholes	Total Quantity
1996	.....	.....
1997	.....	.....
1998	.....	.....
1999	.....	.....
2000	.....	.....

(vi) Wells	Year	Number of household per Well	Average consumption
	1996	.....	.....
	1997	.....	.....
	1998	.....	.....
	1999	.....	.....
	2000	.....	.....

4. What is the current average water consumption per compound?.....

5. Where do these compounds get their regular supply?

- (i) Communal taps [ ]                      (ii) Tap outside the house [ ]
- (vii) Piped within the house [ ]      (iv) Boreholes [ ]
- (viii) Others (specify) .....

6(a) What is your opinion about the current domestic water supply in George complex?

- (i) Very adequate [ ]                      (ii) Adequate [ ]
- (iii) Inadequate [ ]                      (iv) Very inadequate [ ]

(b) Please explain your answer in 6(a) above. ....

7(a) What are some of the problems encountered in the partnership?.....

(b) What measures are put in place to solve the problems mentioned in 7(a) above. ....

8(a) Please list in order of importance the advantages that the partnership, between Lusaka Water and Sewerage Company And George Complex community, has brought to the residents of Gorge Complex.

- (i) .....
- (ii) .....
- (iii) .....
- (ix) .....

- (x) .....
- (xi) .....
- (xii) .....
- (xiii) .....
- (xiv) .....
- (xv) .....

(b) Please list in order of importance the disadvantages that the partnership, between Lusaka Water and Sewerage Company And George Complex community, has brought to the residents of George complex.

- (xvi) .....
- (xvii) .....
- (xviii) .....
- (xix) .....
- (xx) .....
- (xxi) .....
- (xxii) .....
- (xxiii) .....
- (xxiv) .....
- (xxv) .....

---

**Thank You Very Much For Your Time  
GOD BLESS YOU.**

APPENDIX 2:

The University of Zambia  
Geography Department  
Geo. 474 Research Project.

Questionnaire for: Residents of George Complex. Questionnaire No \_\_\_\_\_

Project Title : Assessing the impact of Public-Private Partnerships in the Water supply schemes in Lusaka: the case of George Complex.

Instructions : Please tick against the answer of your choice or write answers on the space provided against each question. Where non of the answers given is not correct, specify in the space provided.

Date: \_\_\_\_\_

Section A: Personal Information.

- 1(a) Gender (i) Male [ ] Female [ ]  
(ii) Age [ ]
- (b) Name of the compound you are staying in is .....
- (c) When did you settle in this compound .....
- (d) Marital status:  
(i) Single [ ] (ii) Married [ ]  
(iii) Separated [ ] (iv) Divorced [ ]  
(v) Other (specify) .....
- (e) Size of your household: .....

- 2(a) Education Level:  
(i) Primary [ ] (ii) Secondary [ ]  
(iii) College [ ] (iv) University [ ]

(b) Occupation: .....

Section B: Situation Before Partnership

3(a) Where did you get water from, before Lusaka Water and Sewerage Company started supplying water in your compound? ...

.....  
.....

(b) How far was the source of water from your house?

(i) Within the house [ ]

(ii) Within the yard [ ]

(iii) With the compound [ ]

(iv) Outside the compound [ ]

(v) Other (specify) .....

(c) Was the water sourced, in question 3(b) above, enough for the whole day?

YES [ ] NO [ ]

(d) Please explain further your answer you gave to question 3(c) above.

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

(e) What problems did you experience before (the partnership ) Lusaka Water and Sewerage Company (LWSC) started supplying water to your Compound?

- (i) .....
- (ii) .....
- (iii) .....
- (iv) .....
- (v) .....

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Section C: After The Partnership was Established

4(a) What do you use to collect water?

(i) Buckets [ ] (ii) 2.5 litre containers [ ]

(iii) 20 litre container [ ] (iv) Other (specify) .....

(b) How many of the item(s) (e.g. Buckets) selected in question 4(a) above do you use to collect water per day? .....

.....  
.....

(c) What is your household source of domestic water supply?

- (i) Communal tap [ ]                      (ii) Tap outside the house [ ]  
(iii) Borehole [ ]                      (iv) Other (specify) .....

(d) If communal tap, how many households are served by a tap? .....

.....

5. For what domestic purposes do you use the water?

- (i) Cooking and drinking [ ]  
(ii) Bathing [ ]  
(iii) Flushing the toilet [ ]  
(iv) Washing household utensils [ ]  
(v) Other (specify) .....

6(a) Do you pay anything for the water used?

Yes [ ]                      No [ ]

(b) If yes to question 6(a) above how much do you pay per month?

.....

(c) Do you manage paying the amount mentioned in 6(a) above?

Yes [ ]                      No [ ]

(d) What could be the reason for your answer given to question 6(c) above? .....

.....

7(a) What is your opinion about the availability of domestic water in George Complex?

- (i) Very adequate [ ]                      (ii) Adequate [ ]  
(iii) Inadequate [ ]                      (iv) Very inadequate [ ]

(b) Please explain your answer you gave to question 7(a) above.

.....

8(a) Who does the maintenance work on the water facilities in the community?

.....

(b) What are your duties as residents of this compound in the water supply scheme? .....

.....



Lusaka City Council

Director of Housing and Social Services

Lusaka Water and Sewerage Company  
Head Quarter

Managing Director

Director of Human Resources

Director of Engineering

Director of Finance

Water Supply Manager

Area Accountant

Project Engineer

Technician

Area Foreman

Plumber

Engineering Section

Accounting Assistant

Cashier

Data Controlling Clerk

Casual Worker

Financial Section

Field Community Development Officer

Assisting Field Community Development Officer

Service Section

George Division/

Lusaka Water and Sewerage Company

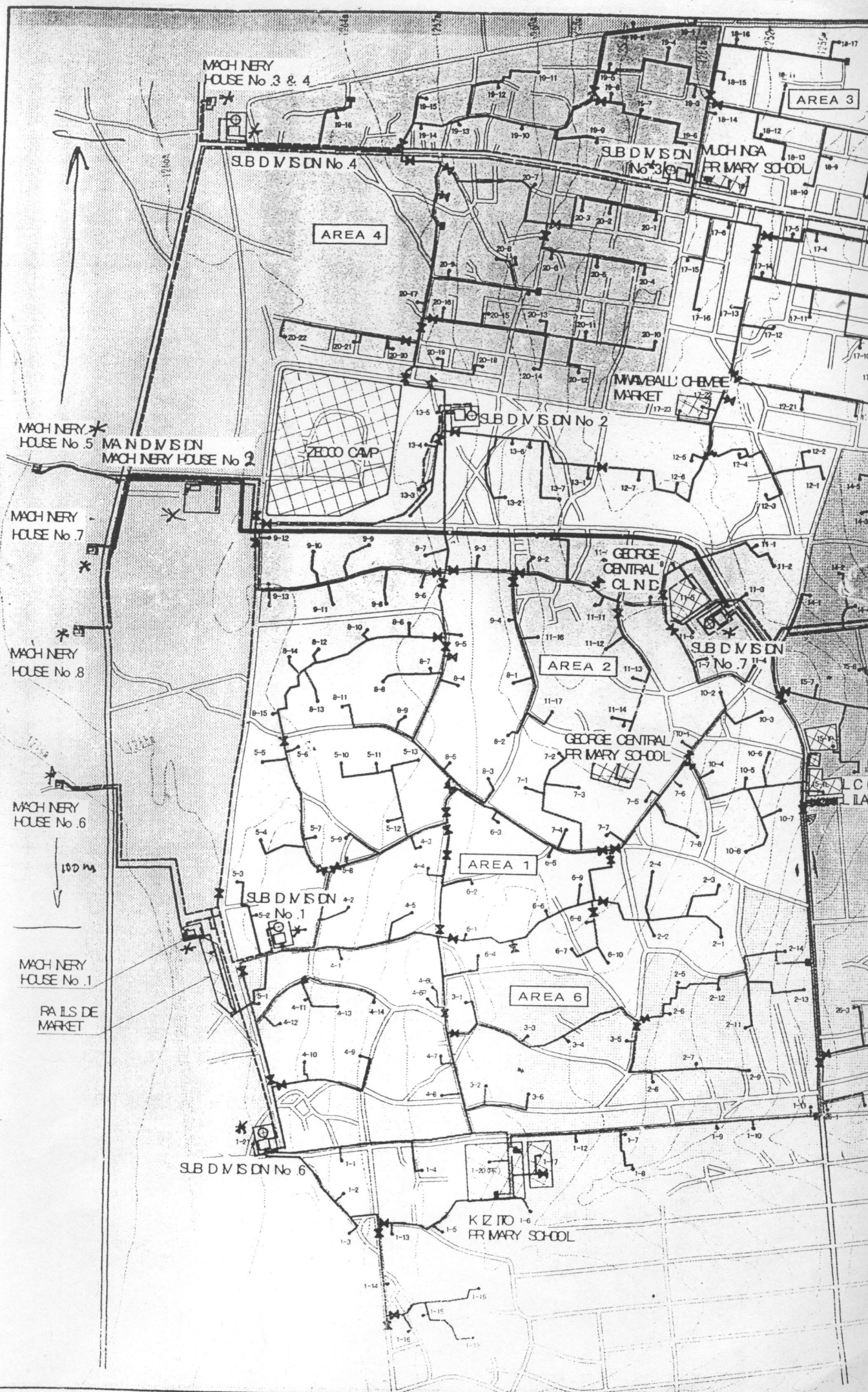
**APPENDIX 4: Non- Scheduled Structured Interview.**

- 1. What is the name of the organization you represent?**
- 2. What office do you hold?**
- 3. When was the partnership started?**
- 4. How did your organization find itself in the partnership?**
- 5. Who are the partners and their individual goals?**
- 6. What is the role of your organization in the partnership?**
- 7. What services does the partnership provide?**
- 8. How do you measure and report your performance as you meet your goals?**
- 9. What are major risks, costs and barriers facing: (a)The Partnership?  
(b) your Organization?**
- 10. What are the problems to be addressed by the partnership?**
- 11. How has the partnership changed overtime?**
- 12. How is the partnership expected to change in the future?**
- 13. What is your opinion on the water supply scheme in George Complex?**
- 14. What was the water delivery system before the partnership?**
- 15. How much was your investment cost in the project?**
- 16. How do you hope to recover the cost?**
- 17. Is there any information I need to know about the water scheme in George Complex?**
- 18. Is there any documentation regarding the George Complex project?**
- 19. Why do you have 27 zones?**
- 20. Why do you have eight (8) areas?**
- 21. Why do you have 375 taps?**
- 22. Are the taps evenly distributed within each area?**

Zone Number	0-5		6-12		13-20		21-30		31-40		41-50		51+		Total Males	Total Females	Zone Total	No. of HHs	No. of HHs with Individual	Shared connections
	M	F	M	F	M	F	M	F	M	F	M	F	M	F						
1	551	602	507	549	395	402	531	552	310	294	150	109	98	89	2542	2597	5139	1048	193	88
2	423	395	401	348	291	347	345	380	248	172	107	102	92	67	1907	1811	3718	719	24	15
3	217	246	189	403	157	200	188	192	159	109	75	45	43	36	1028	1231	2259	400	33	24
4	496	497	443	446	314	341	388	475	312	208	105	160	89	72	2147	1939	4346	859	44	8
5	522	530	477	505	397	449	454	497	330	266	156	147	98	84	2434	2478	4912	888	52	21
6	264	267	252	261	209	236	247	272	150	147	84	68	70	59	1276	1310	2586	531	12	6
7	226	264	199	207	163	170	183	228	130	113	64	45	48	46	1003	1073	2076	394	8	4
8	326	335	288	264	203	272	308	308	205	137	96	70	105	59	1531	1445	2976	619	8	0
9	393	335	341	285	243	292	393	331	202	158	100	107	73	54	1745	1562	3307	634	1	0
10	245	282	254	250	219	239	251	263	169	126	61	70	56	57	1255	1287	2542	482	30	4
11	407	452	374	425	351	378	113	385	234	215	124	113	98	100	1707	1722	3429	798	118	50
12	210	253	199	188	153	200	153	154	107	82	58	54	39	21	919	952	1871	415	8	6
13	176	178	123	152	115	129	125	146	90	92	44	26	29	14	702	727	1429	284	0	0
14	402	448	437	440	342	410	442	439	231	219	115	115	113	63	2082	2134	4216	735	209	46
15	302	267	331	272	265	304	284	309	153	167	81	75	86	53	1505	1447	2952	480	148	42
16	788	818	720	770	627	176	755	718	381	363	227	143	171	145	3669	3133	6802	1230	307	122
17	461	517	494	534	479	559	493	552	304	232	132	120	135	89	2476	2582	5058	942	36	14
18	563	565	490	462	359	471	477	530	335	220	186	130	84	61	2494	2439	4933	832	89	15
19	273	318	326	317	258	353	309	327	177	159	108	70	56	34	1507	1578	3085	525	99	23
20	933	896	741	634	712	797	842	471	376	140	1380	173	138	1380	5122	4491	9613	1107	41	8
21	437	424	415	462	373	416	438	438	320	282	117	77	83	45	2072	2144	4216	761	60	14
22	504	541	559	553	542	625	553	553	312	257	161	152	109	83	2740	2764	5504	1004	374	179
23	391	551	559	367	330	347	379	389	235	184	115	85	75	56	2084	1979	4063	703	293	109
24	144	169	227	265	259	297	216	190	106	181	80	50	43	41	768	1193	1961	384	384	11
25	274	283	258	258	270	226	321	313	160	111	53	54	73	58	1409	1303	2712	472	296	22
26	384	417	423	443	386	422	430	448	243	211	98	111	120	92	2084	2144	4228	794	33	9
27	249	232	188	231	177	217	210	238	144	102	55	52	29	18	1052	1090	2142	403	76	40
Total	10561	10181	10397	10291	8589	9275	9828	10098	6123	4937	4132	2523	2253	2976	51260	50815	102075	18443	2976	880

Source : CARE INTERNATIONAL

Appendix 6: Water Supply Areas- George Complex





SUB DIVISION  
No 5

AREA 5

SUB DIVISION  
No 8

AREA 8

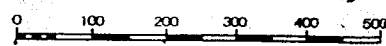
AREA 7

LILANDA  
PR MARY SCHOOL

DESA I  
PR MARY SCHOOL

MATEPO  
JUNIOR HIGH SCHOOL

HARRY MWANGUMBUJA  
PR MARY SCHOOL



SOURCE: JICA