ACCESS TO INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) IN RURAL COMMUNITIES: A CASE OF MUTARE RURAL DISTRICT IN MANICALAND PROVINCE, ZIMBABWE

BY

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ABSTRACT

This study aims at investigating the limitations to accessing ICTs and how access to ICTs can benefit people from Mutare rural district. The Zimbabwean government has recognised the impact that ICTs will have on society and has already assessed the status quo of ICTs in the different sectors of the economy (ICT Survey, 2005). It is from this basis that the researcher will try to investigate whether everyone especially those in rural areas such as Mutare Rural could also benefit from the potential benefits offered by ICTs. This study will also investigate how access can improve the socio-political and economic activities in Mutare Rural District. The study will also explore the ways in which access to ICTs can improve livelihoods in Mutare Rural District. Basing on the universal policy of the Zimbabwean government, the study will identify types of ICTs that the people of Mutare Rural District have access to. It will also identify how access can facilitate development in Mutare Rural District. At the end of the study the researcher aims to come up with recommendations in regard to provision of suitable ICTs for Mutare Rural District.

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DECLARATION

I, the undersigned declare that the work contained in this study is my own work and has not been previously in its entire or part has been submitted at any for a degree. Where use has been made of the work of others, it was duly acknowledged in the text.

Mrigavanyika ..... 5/05/08 .....

Signature **Date**

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ATM- AUTOMATIC TELLER MACHINES

CSO- CENTRAL STATISTICAL OFFICE

DOC- DIGITAL TASK FORCE

EMG- EXPERT GROUP MEETING

FAO- FOOD AND AGRICULTURAL ORGANISATION

GDP- GROSS DOMESTIC PRODUCT

GIS- GEOGRAPHICAL INFORMATION SYSTEMS

GPS- GLOBAL POSITION SYSTEMS

ICTs- INFORMATION AND COMMUNICATION TECHNOLOGIES

IDRC- INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

IRDP- INTERGRATED RURAL DEVELOPMENT PROGRAMME

ISP- INTERNET SERVICE PROVIDER

ITU- INTERNATIONAL TELECOMMUNICATION UNION

MDGs- MILLENIUM DEVELOPMENT GOALS

UNCSTD- UNITED NATIONS COMMISSION ON SCIENCE AND TECHNOLOGY FO DEVELOPMENT

UNDP- UNITED NATIONS HUMAN DEVELOPMENT REPORT

SAFIRE- SOUTHERN AFRICA ALLIANCE

SCC- SWEDISH CO-OPERATIVE CENTRE

SMEs- SMALL AND MEDIUM –SIZED ENTERPRISES

SMS- SHORT MESSAGE SERVICE

USF- UNIVERSAL SERVICE FUND

CHAPTER ONE: Introduction and Background of research

This study aims at investigating the limitations to accessing ICTs and how access to ICTs can benefit people from Mutare rural district. The Zimbabwean government has recognised the impact that ICTs will have on society and has already assessed the status quo of ICTs in the different sectors of the economy (ICT Survey, 2005). It is from this basis that the researcher will try to investigate whether everyone especially those in rural areas such as Mutare Rural could also benefit from the potential benefits offered by ICTs. This study will also investigate how access can improve the socio-political and economic activities in Mutare Rural District. The study will also explore the ways in which access to ICTs can improve livelihoods in Mutare Rural District. Basing on the universal policy of the Zimbabwean government, the study will identify types of ICTs that the people of Mutare Rural District have access to. It will also identify how access can facilitate development in Mutare Rural District. At the end of the study the researcher aims to come up with recommendations in regard to provision of suitable ICTs for Mutare Rural District.

1.1 Objectives and research questions

The objective of the research is to assess the type of ICTs that are available in the district. The research will also assess the level of access to ICTs in the district. The determinants of access to ICT will be investigated and this will be achieved by looking at different the type of people who have access to ICTs. The research will also investigate the potential benefits of Its in Mutate Rural District. The potential for increasing ICT access in the District will be explored. Different ICTs are going to be ranked according to their importance in the district.

1.2 Introduction

Information and Communication Technologies (ICTs) can be powerful enablers of development because of their unique characteristics that dramatically improve communication and exchange of information to strengthen and create new economic and social networks. ICTs have the potential to aid development (Mansell and Wehn,1998) and it from this assumption that the researcher want to investigate whether the same could also apply to rural communities such as Mutare rural district. In the manufacturing industry, ICTS can increase productivity, and it is from this assumption that the researcher will investigate how access can improve productivity in the domestic manufacturing industry (weaving and craft). They thus enable people and enterprises to capture economic opportunities by increasing process efficiency, promoting participation in expanded economic network, and creating opportunities for employment (Mangena, 2004). Benjamin and Dahms (1999) observe that that today, telecommunications are increasingly becoming enablers of development and as such affects socio-economic development through empowering people to overcome development obstacles; to address the most important social problems they face and to strengthen communities, democratic institutions, a free press and local communities (Bridges newsletter).

1.3 Information and Communication Technologies

ICT is short for Information and Communication Technology. There exist numerous definitions of what ICT includes. Some argue that it is limited to computers and the Internet while others wish to include more traditional and common technologies. In the widest definition ICT embraces radio, television, telephone, newspapers, walkie-talkie and handheld devices (Harris 2004). A distinction is often made between "old" and "new" ICTs. Typical old ICTs are radio, newspapers, television and telephone, while computers, mobile phones and the Internet are the major new technologies. ICTs refer to technologies that enhance the creation, storage, processing, communication and dissemination of information (Zunguze, 2004). ICTs also refer to the different infrastructures in the processes, their applications and the numerous services these

infrastructures render. The following technologies constitute ICTs; media of communication (such as radio, television); information machine (such as computer, Automatic Teller Machines (ATMs); telecommunication technologies and equipment (satellite fibre optic cables, phones, facsimile machines).

ICTs are identifiable by four characteristics, namely; interactivity: ICTs are effective two-way communication technologies; permanent availability: the new ICTs are available twenty-four hours a day; global reach: geographic distances hardly matter any more; reduced per unit costs for many: relative costs of communication have shrunk to a fraction of previous values (Gester and Zimmermann, 2003). The development in telecommunication has impacted enormously on applications of ICTs and their uses. Telecommunication technologies, coupled with computer technology have enhanced network based information and communication platforms, such as the Internet. Telecommunication infrastructures in particular have become the driving force of ICTs; they have the capacity to link all various ICT elements together irrespective of locations to provide converging platforms for these elements (Benjamin and Dahms 1999). The convergence of the various elements of ICTs has enhanced development in all spheres of human activity.

1.4 ICTs in Zimbabwe

The adoption of ICTs has increased in Zimbabwe since the early 1990s, and virtually every sector of Zimbabwean society has taken advantage of the inroads made internationally in the development of more efficient and effective communication technologies like mobile phones and the Internet. The turn of the millennium, has seen an upsurge in the number of Internet and phone subscribers in the country and the figures have soared to indicate continuous adoption of the latest developments in the ICT sector (Kanhema, 2004). For instance, the operator TelOne has experienced steady growth from 1998 where main telephones lines in operation were 236 530 and increased to 287 854 in 2002 (Fig 1:1).

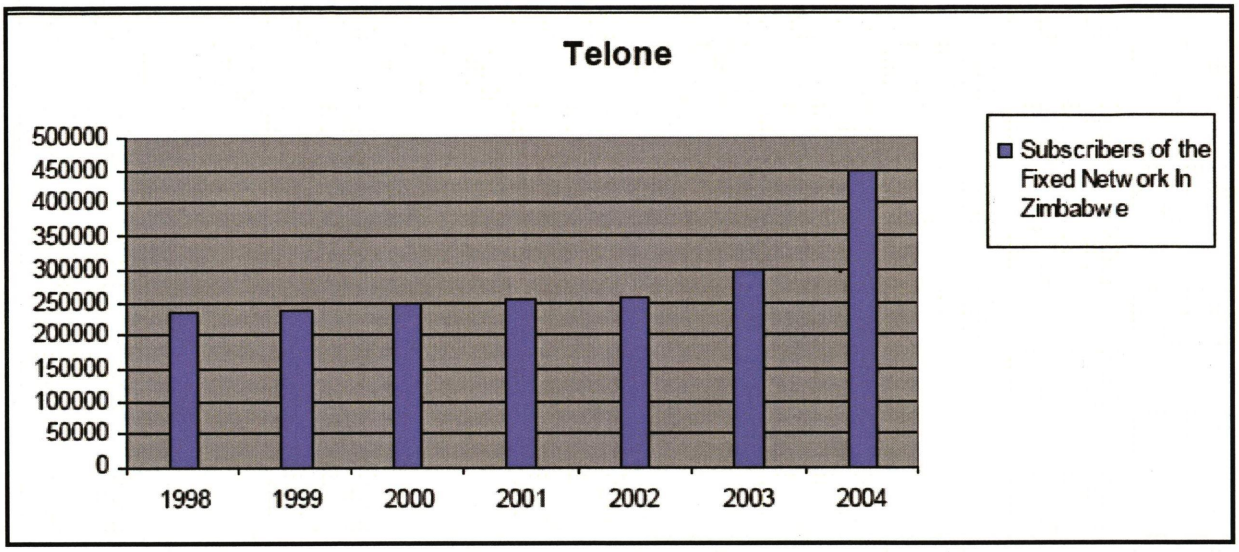

Fig. 1.1Fixed Network Subscribers 1998-2004

Source: Zimbabwe National ICT Policy, 2005

The main telephone lines per 100 inhabitants grew from 2.13 in 1998 to 2.47 in 2002. The number of public phones increased from 2 864 in 1998 to 3 234 in 2000 (Zimbabwe National ICT policy, 2005). According to the World Bank (2003), the number of radios has also grown from 87 per 1,000 people to 362. This is more than 300% growth. Television sets has risen from 29 per 1,000 in1995 to 30.

Currently there are three mobile telephone operators in the country. Figure1:2 shows that mobile subscribers increased from 60 000 in 1998 to 338 402 in 2002.

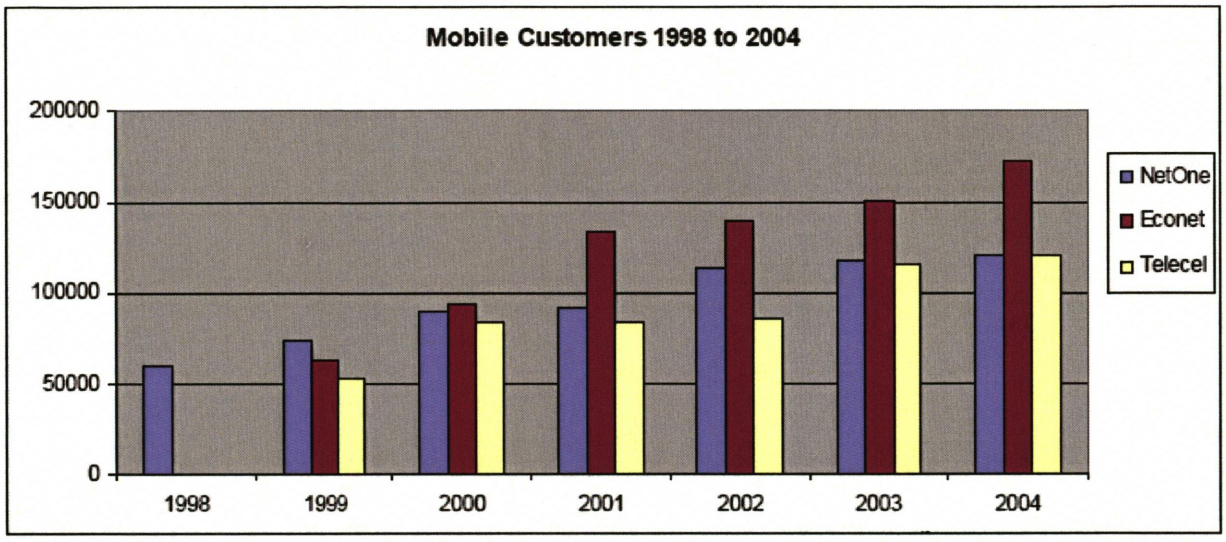

Fig. 1.2 Mobile Customers 1998 to 2004

Source: Zimbabwe National ICT Policy, 2005

The cellular customers per 100 inhabitants increased from 0.17 in 1998 to 3.03 in 2004 (Zimbabwe National ICT policy, 2005) .The number for personal computers has also risen from 3.0 to 12.1. Internet users have also risen from 0.9 to 100.0 in 2001.

Despite statistical evidence pointing to increased adoption and use of ICTs, the cost of acquiring, using and maintaining ICTs has however proved higher than in other countries in the region and the networks has been confined to the metropolitan centres (Mangena, 2004). Mangena (2004) observes that currently, Zimbabwean telecommunications services are mainly concentrated in urban areas and get poorer as you move away from the urban centres. Demand for ICTs outstrips supply and getting a fixed or mobile line remains a struggle for many people (Kanhema, 2004). Network coverage in metropolitan centres only has created an access gap in terms of technology between urban and rural areas. It is also a distressing note that although there has been significant progress in the development and use of ICTs in post independence in 1980, the benefits from this investment has been sub-optimal as most of the rural areas have not been included in this new wave of technology (Mangena, 2004). It has therefore become imperative for the Zimbabwean government through the Ministry of Transport and Communication in conjunction with the Ministry for Science and technology

Development to address the gap that exists in the accessibility of ICTs between urban and rural areas.

1.5 Background to study

Over the past decade, it has become clear that ICTs are not just a luxury, since, access to which, can positively transform the quality of life of the poor and marginalised communities in numerous ways (Benjamin and Dahms, 1999). Not only will rural communities get included in the information society; they will also enjoy the benefits telecommunication brings about. Communities tend to benefit in almost every sector, for example health, education, tourism, business and agriculture.

Access to telecommunication will benefit rural communities in many ways. The advent of telemedicine, a new way of delivering healthcare allows a change from a centralised service to one that is patient-centred, resource efficient and quick decision making will see a decrease in deaths that characterised rural areas due to lack of medical practitioners. Through telehealth, a specialist who is located at a central point can diagnose a patient in a rural area. Telecommunications forms the 'information infrastructure' to support many areas of life. Studies done by experts in the field of telecommunications have shown the advantage of health care through training and organizational support for health workers, for education of communities on health issues (Hudson 1995 cited in Benjamin & Dahms 1999).Telecommunications can also benefit the education sector, through improving the way lessons are delivered. While e-education and e-learning is of great advantage, basic telephony is very useful at all schools for general organization and support purposes.

The number of people with access to telecommunication services is growing in Zimbabwe and according to Kanhema (2004), the country's first mobile phone service provider, NetOne was launched during World Solar Summit in 1996 with a mere 20 000 subscribers in the first year of launch. To date more that 100 000 users are subscribing to the country's widest coverage cellular network provider. He further states that EcoNet followed NetOne in 1998 and has the highest number of subscribers, which

stands at 170 000. Telecell came in July 1998 and it generally came as the average citizen's network with the lowest connection charges (Kanhema, 2004).

The Internet has had equally significant growth trends; from one Internet Service Provider (ISP) in 1995 to over 20 ISPs in 2004. These providers have continued to "weave" the web in large cities, small towns and even rural areas. A Malaysian communication company Direct Communication in Africa (DC Africa) has taken the lead in taking the Internet to rural areas and most rural areas have taken advantage of ICTs.

Provision of adequate telecommunications can also reduce the need to travel to find information. ICTs can also support rural economic activities such as agriculture where farmers can find current prices and level of demand. The Zimbabwe Farmers Union (ZFU) together with the Swedish Co-operative Centre (SCC) has established telecentres in rural areas. These telecentres have built the smallholder farmer's own capacity to influence the liberalized markets for both their produce and procurement of agricultural inputs (Svern, 2001). Access to ICTs not only brings about connectivity to rural areas, it can also bridge the "access gap" that exists between rural and urban areas. Access also improves the quality of education, health and agriculture in rural areas. The Zimbabwe National ICT Policy summarises all the benefits that a society can benefit from the use of ICTs by stating that, "by harnessing the potential of ICTs, developing and developed countries alike, are now able to emerge with better solutions to vital and long standing issues such as poverty reduction, wealth creation, equity, as well as social justice" (National ICT Policy, 2005:12).

1.6 Background of the study area: Mutare Rural District

Mutare Rural District is located within Manicaland which is the eastern province of Zimbabwe, stretching north and south along the eastern border with Mozambique (Samimi and Wagensel, 1999). A range of mountains forms the border with Mozambique in the east and it stretches for 300 km. The mountains are Nyanga, which is the largest and situated to the north, Bvumba, which is in the middle, with the largest

rainfall and the Chimanimani to the south (Samimi and Wagensel, 1999). These mountains are collectively known as the Eastern Highlands. The topography of Manicaland varies from the low-lying areas below 900m and soars to Mt Nyanga, the highest mountain in Zimbabwe at 2 593m. On the southern part of this mountain there is the Mutarazi Falls, which are 762m high and are the second highest in Africa, after the Tugela Falls which are found in the KwaZulu Natal province of South Africa (Utete, 2003).

Manicaland covers an area of about 36 459 km^2 and is divided into seven districts namely Buhera, Chimanimani, Chipinge, Makoni, Mutare, Mutasa and Nyanga. Of the seven administrative districts (Utete, 2003). The province is the home to the largest district, Mutare and which is split into two; rural and urban. Mutare, which is the administrative centre of the Manicaland Province, is the fourth largest city in Zimbabwe and is located in Eastern Highlands.

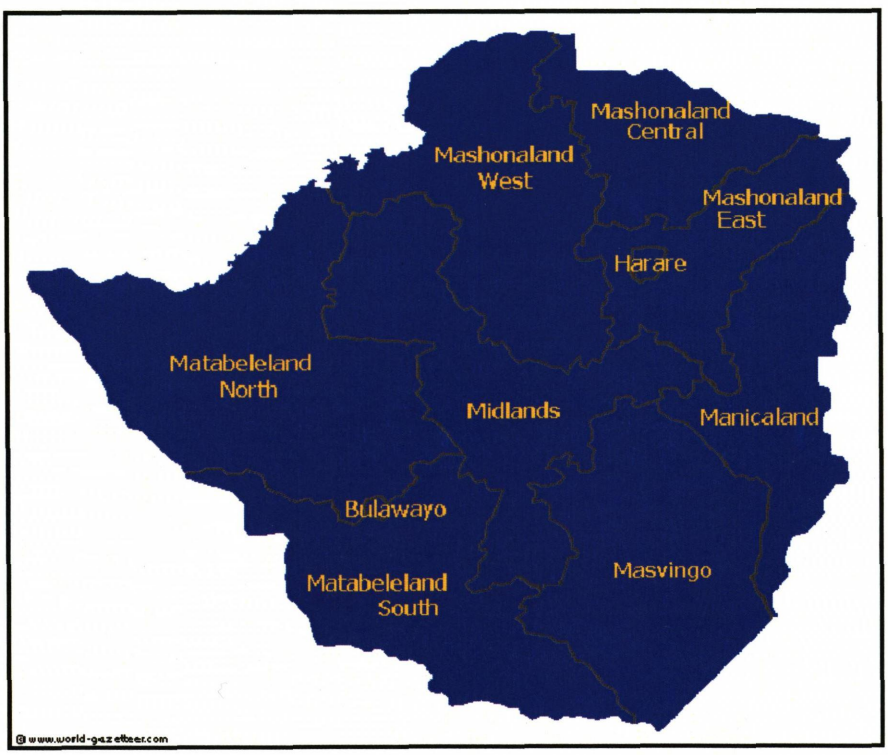

Figure 1.3: Map of Zimbabwe showing different provinces.

Source: The World Gazetteer (2004

Mutare rural district is divided into two, east (Zimunya) and west (Marange). Zimunya stretches from the Eastern Highlands (Bvumba) to the Odzi River to the west. Marange starts from the Odzi river and stretches westwards up to the Save river which borders it with Buhera district. To the north it stretches from Odzi resettlement areas down south up to the confluence of rivers the Odzi and Save. Mutare Rural District has population of a constitution of 31 wards and a total population of 219 882 people (Central Statistical Office, 2002).

Table 1: 4Population distribution by district, ward and sex in Manicaland Province.

District	**No of Wards**	**Population**			**Household**	
		Males	**Females**	**Total**	**Number**	**Average Size**
Buhera	32	100 437	118 133	218 570	47 785	4,6
Chimanimani	23	55 433	59 817	115 250	26 425	4,4
Chipinge	30	134 825	148 846	283 671	62 070	4,6
Makoni	35	118 400	129 124	247 524	55 511	4,5
Mutare Rural*	31	104 887	114 995	219 882	48 079	4,6
Mutasa	27	78 642	88 820	167 462	39 847	4,2
Nyanga	31	56 317	63 053	119 370	29 484	4,0
Mutare Urban**	18	85 003	85 103	170 106	44 918	3,8
Rusape**	12	11 985	13 069	25 054	6 613	3,8

Source: CSO (2002)

*Surveyed district

**Mutare urban and Rusape are separated from Mutare and Makoni districts respectively

Mutare Rural District has the highest family sizes, possibly because of the Apostolic Church which promotes polygamy. The Apostolic Church has its headquarters in Mafararikwa village which is next to Save River which borders the two districts (Mutare Rural and Buhera).

In Manicaland, phone, telegraph, facsimile, Internet and e-mail services are available in all urban centres. Although the telecommunication system has been greatly improved some rural citizens still have to walk some distance to go and make a phone call. Jensen (1999) observed that it is uncommon for people to have to walk or bicycle for several hours to access a telephone. The telephone system is not very reliable especially during the rainy season. The current rural electrification system has resulted in the rapid expansion of the cellular system. The whole of Mutare district, both rural and urban is now covered by NetOne cellular services. The same service provider is now covering a number of rural areas that include Chipangayi in Chipinge, Watsomba, Penhalonga, in Mutasa and some other rural areas in the province.

1.7 Rationale for the research study

The need to do this research came about as a result of the disparities that exist in the distribution of ICTs in Zimbabwe (Mangena, 2004). The poor people in the rural areas do not have sufficient connectivity to the information society and through this non-connection to appropriate information channels; they have remained marginalised and unable to shift the barriers that keep them poor. The rural poor, constituting 69% of the population are often deprived by lack of knowledge and information (CSO, 2002). This leaves them having to rely on their social networks and key informants within or outside their communities to access information that is essential for their livelihoods or to cope

with crisis (Wara, 2004). People in rural areas have limited marketing information and they depend on the middlemen from outside the area who are unreliable, scrupulous and exploitative of the local producers (Galang, 2002).

It is from this background and the realization of the gap in terms of access to ICTs that exists between the urban and rural areas that contributed to the need to do the research. The study, examines the question of access to ICT services in Mutare Rural District and how access can improve the livelihoods of the people. This research project is a tentative attempt to contribute to the growing corpus of literature on access to ICTs in Zimbabwe, a relatively unresearched area in Mutare Rural District. It will contribute to the body of knowledge in the area of ICTs and also it can help in the advancement of achieving universal access in Zimbabwe.

Studies on Mutare rural district and general development exist, as in the case of Machingambi and Manzungu (2002) as well as Nhamo (2002). At the moment, no study specifically addresses the question of access to and use of ICTs in Mutare Rural District. This study is an attempt to address that knowledge gap. Mutare rural has a vast potential for agriculture development and mining development yet it lacks provision of better telecommunication infrastructure. And it is from this notion that a study on the accessibility of telecommunication is necessary.

Mutare Rural District in Manicaland Province has been deliberately chosen because of easy access to data and almost all major economic activities of Zimbabwe are found in the district. The economic activities include agriculture, mining, education and health. This makes it suitable to be a representative of Zimbabwean rural community. Although almost all the major economic activities that back up the Zimbabwean economy are found in the area, it is a sad note that people have to travel long distances to make a simple phone call. This research will consequently investigate what form of ICTs do people have access to and how access to ICTs can benefit people from rural areas such as Mutare rural district.

1.8 Statement of thesis

Despite high demand for ICT services in Zimbabwe, and a growing telecommunications market, rural access to basic services remain a major concern. The rural citizens are often deprived due to lack of knowledge and information and thus will, according to Benjamin and Dahms (1999:1) become increasingly marginalised in a "wired world". In Zimbabwe, there is a great difference in access to ICTs between the urban and rural areas (Mangena, 2004). Although about 69% of the population lives in rural areas, Mangena (2004) states that 80% of telephone lines are in urban areas and network coverage has been confined to the metropolitan centres where the minority lives. This has created a gap between the urban and rural areas in terms of technology and this has made the rural citizens to remain unheard and unable to shift the barriers that keep them poor.

1.9 Hypothesis

The study will work in the framework that:

- Accessibility to ICTs in rural areas, specifically in Mutare rural district in Zimbabwe, will improve the livelihood and give social and economic development of people that live in this area.
- Access to ICTs will fuel the expansion of research that would improve the quality of agriculture, education and health in Mutare rural district.
- Education and income of the rural dwellers is responsible for limited access to ICTs.

1.10 The importance of research on ICTs access and community development

This study aims at investigating whether use of ICTs will have a positive impact on Mutare Rural District. Studies done in 1995 and 1997 by United Nations Commission on Science and Technology for Development (UNCSTD) on the benefits and risks of ICTs revealed many instances where the use of ICTs affords widespread social and economic benefits (Mansell and Wehn, 1998). ICT applications are useful in numerous instances to facilitate the developments of various aspects of the society and Mutare rural district will be no exception. It is from the results on this study that access to ICTs

has become a mandate to rural areas in order for them to develop and improve the livelihoods of the citizens. It is also from these results that it has become important to do a research to investigate how access to ICTs can improve the livelihoods of people in Mutare rural district. The discussion on the potential use of ICTs in Mutare Rural District will be based on the studies by the UNCSTD in 1995 and 1997. Mansell and When (1998) outline the potential use of ICTs as comprising: Facilitating public and private sector activities in areas such as in: Public administration, Urban and rural development, Transport; Improving the quality of life for citizens such as in: health, special needs, education, environment and agriculture; sharing knowledge and improving access to information; and facilitating activities in the business sector such as: manufacturing, electronic commerce, travel and tourism.

1.10.1 Facilitating public and private sector activities in areas such as in:

i) Public administration

Public administrators play a central role in the new 'knowledge societies'. They provide a range of services to citizens and industry, and engage in functions as diverse as economic development, environmental monitoring, and the provision of public information (Mansell and Wehn 1998).

ICTs can cut administrative costs since increased use of ICTs will improve efficiency and delivery of services by governments. In Zimbabwe, important documents like birth and death records are not computerised and if one loses such an important document it takes time to get another one. One has to apply and wait for the new document to be processed again. Use of ICTs in government departments will bring to an end the never ending queues for passports, identity documents, deaths and birth registration that are a scenario in Zimbabwean government departments (Mangena 2004). Mangena goes on stating that information about births in Zimbabwe is currently recorded on cards. This practically means that if one loses the card, then there is no other way of getting that information. This translates into problems when it comes to getting a birth certificate for children, it will be very difficult to come up with related statistics. If information to do with births were computerised, the systems would be linked up with the national registration system (births and deaths) for data sharing. Computerisation will ease

transport costs for the rural citizens as they have to travel to the nearby service centre or urban area like Mutare for birth certificates and national identity cards. Computerisation will mean that they can get the documents in the vicinity of their own area (from government representatives available).

Information and communication technology provides powerful ways for citizens to demand accountability from their governments and in the use of public resources. Electronic government/ e-government provide access to communities to obtain information about government acts, contact details and new policies (Ali, 2003). Muzango (1998) argues that a well-developed ICTs infrastructure is the life-blood of a healthy economy and forms the basis for a democratic order. He goes on to expound that telecommunication is coming to play an important part in communication between citizens and the government. The Zimbabwean government has come up with the concept of e-government and this has been developed to access government institutions more easily. The e-government programme typically focuses around making previously costly and cumbersome process less bureaucratic and more efficient and the government may also utilise an e-government programme to communicate its policies as well as receive feedback from the population (Zimbabwean Government Document on Telecommunication Policies, 2001). This will open up opportunities for the rural populations that have to wait for a rally to communicate with their Member of Parliament (MP). This also makes citizens contribute in formulation of policies, as their feedback will highlight their needs.

Electronic availability of public information can be a major assistance to small and medium-sized enterprises (SMEs) in administrative procedures for export, import, tax fillings and business opportunities (Mansell and When, 1998). This can also be utilised by the SMEs that specialise in agricultural and forestry activities in Mutare rural district. These SMEs are heavily dependent on markets outside Mutare rural district and they do no have adequate information on export markets (Galang, 2002).

ii) Urban and rural development

The ICT revolution opens vast opportunities for economic and social development in urban and rural areas, as the use of teleworking and teleservices can foster economic development (Mansell and Wehn, 1998). ICTs offer economic opportunities in salaried employment and entrepreneurship, in the ICT sector itself, and in jobs enabled by ICTs in all sectors. ICTs connects all citizens (despite their location) to the global economy through e-commerce as producers and distributors of goods and services (EMG, 2002)

The establishment of telecentre in rural communities can facilitate economic empowerment, as shown by a case study of media project in Mozambique (EMG, 2002). Access points can be managed as fully sustainable business enterprise, thus generating employment. ICTs provide unique opportunities for economic growth and human development. They can shape and enhance a wide range of development applications (from electronic commerce to access to financial markets; from generating employment to providing opportunities for investment to entrepreneurs, in particular small and medium-sized enterprises; from improved agricultural and manufacturing productivity to the empowerment of all section of society) (EMG, 2002).

There is a positive relationship between ICTs and societal development. ICTs have a potential to alleviate poverty and boost development in rural communities UNDP Human development report (2001). Appropriate use of telecommunication catalyses development hence it has become imperative to communal areas to have telecommunication services in order to develop. The International Development Research Centre (IDRC) report (2001) points out that there are several benefits to telecommunications that can address both participation in the global economy as well as the developmental needs of African countries. UNDP Human Development report (2001:27) equates technology to education when it says, "technology is like education, and it enables people to lift themselves from poverty". Technology is thus a vital tool for, not just a reward of growth and development. The report goes on to state that technologies are tools of human development that enable people to increase their incomes, live longer, be healthier, enjoy a better standard of living, participate more in

the communities and lead creative lives There is a positive relationship between ICTs and societal development. ICTs have the potential to alleviate poverty and boost development in rural communities. Appropriate use of telecommunication catalyses development hence it has become imperative to communal areas like Mutare rural district to have telecommunication services in order to develop.

iii) Transport

ICT applications can be used to improve road, air and rail transportation. ICT applications are noticeable in the air transport control, monitoring of freight and the day-to-day transport system. For example, the development of smart cards helps facilitate the smooth operations of the transport system. Theses operations include payment for parking metres, identification of authorized parking space occupants. In Africa the smart card system is not widely used. This system may still be in urban areas only but if it can come to Mutare rural district it can improve the transport system, the district has got poor road conditions and that makes the areas such as Mutsago, during the rainy season . Improvement in transport will mean that the people can transport their perishables produce like vegetables and fruits to the markets in time. The Zimbabwe National ICT policy (2005) state that ICTs in the transport sector can, among others, is used for monitoring, navigation, information gathering and management.

1.10.2 Improving the quality of life for citizens such as in:

i) Health

Advances in medical science are putting strains on health care resources and the task of managing these scarce resources continues to be a major economic and ethnical challenge (Mansell and Wehn 1998). ICTs support more efficient exchange of information between health professionals thus saving time and money. Patients' records can be transferred between sites and help to improve response of medical staff. ICTs can help in the electronic management of health data and information and all related information (Mangena, 2004).

Telemedicine (provision of medical care on demand and independent of person-person contact) can provide medical care to people in their homes, in isolated places or in times of emergency and permits remote consultations between health professionals. Tele-radiology (storage, retrieval and transmission of medical images) will overcome geographical barriers to the access of diagnostic images such as an emergency or situations where a patient is far removed from the source of the image. Tele-radiology also saves money and eliminates delays in patient treatment can diagnose a patient in a rural area like Mafararikwa.

Outside the medical profession, tools such as the World Wide Web are being used to educate health care and government workers in developing countries, to eliminate the isolation of health workers in rural areas, and to provide information to other members of the public with an interest in health care (Mansell and Wehn, 1998). Benjamin and Dahms (1999) also echo the same sentiment when they say many studies (Parker and Hudson 1995, ITU 1998) have shown the advantage of healthcare through training and organizational support for health workers and education of communities on health issues.

ii) Special needs

ICT applications for disabled and elderly can help to increase opportunities for independent living and provide greater autonomy and improved social integration. For people with disabilities and learning difficulties, ICTs can be their route to independence by giving access to communication, education curricular, and informal learning, opening up opportunities that would otherwise be inaccessible (Mansell and Wehn, 1998).

Most telecommunication infrastructures are now being designed with capacities of meeting special needs of the physically challenged. Use of Braille keyboards and Braille printers will go a long way in allowing the blind or visually impaired to read and record their work. The Short Message Service (SMS) can be used to send and receive messages by the hearing impaired; the voice activated dialling service can be used by the visually impaired. ICTs have become widely used in information gathering, public

discussion and consensus building that are central to democratic society, they have also encouraged inclusion rather than exclusion of people with disabilities in activities that were never before possible. They can be a gateway for people with disabilities in Mutare rural district as those not physically abled in rural areas are excluded because they can not be integrated in the normal schooling (schools that specifically cater for the physically challenged are located in urban areas or they are expensive for the rural people)

iii) Education

Research has shown that ICTs play a key role in the revolution of education. For instance, Conradie and Tlabela (2003) argue that ICTs hold a great potential for revolutionalising education. Such a belief is in part based on technology's potential to foster a new learning culture. Rapid advances in computer capabilities and purposes have inspired instructional changes on all levels, resulting in a paradigm shift from teacher-directed to the learner-centred classroom. The advent of e-education has seen the emergence of 'universities without walls' and giving room to people in remote areas to attain education. The development of ICT technology provides tools for learning through a global network and wireless technologies enable developing countries with little telecommunications infrastructure to connect to the network. Satellite-based distance education systems can provide poor nations access to higher quality education and training in advanced countries. Thus, it has become mandatory for rural communities to access ICTs in order to develop.

According to International Telecommunication Union (ITU), an effective telecommunication network can also improve the educational system and thus enrich national cultures and tighten bonds (IDRC 2001). World Link Programme and the Ministry of Education, Sports and Culture in Zimbabwe have come up with a project (Big Blue) that is aimed at providing internet and e-mail and video based learning to rural schools and communities using a 10 workstation 10 tonne truck (Gudza, 2001). This will go a long way in improving computer literacy and the quality of education in

Mutare rural district. Rural areas lack qualified personal and video based learning will help them to be at par with their urban counterparts.

iv) Environment

ICTs can promote conservation and development. ICT applications can facilitate improved access to environmental information for citizens, local, regional and national authorities and businesses (Mansell and Wehn, 1998). Koro (2005) gives an example of how ICTs can be used to conserve the environment. He uses a project in the Great Limpopo Tranfrontier Park and the seven surrounding areas that uses cell phones, Geographical Information Systems (GIS), Global Position Systems (GPS), cameras and two-way-radios to promote conservation and development. Koro further states that use of cell phones will help rural communities to receive Short Messages Service (SMS) from computers of Kruger National Park managers, requesting them to carry out activities that help stamp out poaching and invite them to attend urgent conversation meetings. The system will also be used to inform locals of potentially dangerous weather conditions. This system can also be applied to the Mutare rural district that has vast forests that are used in the timber manufacturing. Roseline Murota of Southern Africa Alliance (SAFIRE), based in Zimbabwe observes that Zimbabwean communities in the Southeast lowveld and Matabeleland were benefiting from using ICT to promote conservation and development Koro, 2005). He further observes that these communities have websites written in local languages such as Shona and Ndebele and these promote documentation and sharing of traditional conservation and methods.

v) Agriculture

Agriculture forms the backbone of Zimbabwe's economy and accounts for 17% of the Gross Domestic Product (GDP). The modernisation of agriculture through the systematic adoption and use of ICTs will contribute directly to food security at national and household levels, beneficiation of agricultural produce, effective land management and creation of national wealth (Zimbabwe National ICT policy, 2005). ICTs can help farmers get information about market prices of their inputs for their activities and for their produce (EMG, 2002). Use of cell phones in rural communities of Zimbabwe can

ease communication between farmers and manufacturers. Farmers can communicate with manufacturers of agricultural inputs and transport providers for cheaper deals and for cheaper rates to send their produce to the nearest market. The fact that they get cheaper deals after negotiating with transport service providers as retailers of agricultural inputs leaves them with handsome incomes to invest in other activities that support their social upliftment (Koro, 2005).

Use of ICTs can help in the management of resources, pests control and harvest management and provision of weather forecast. ICTs can be used to get farming methods, models to optimise yields, and meteorological information to determine yields. All this can lead to improved agricultural productivity. At the EGM (2002), a case study of Senegalese rural community was used to illustrate the potential use of ICTs in agriculture. A Senegalese telephone company Sonatel and Monobi provided telephones with Web Access Protocol (WAP) access to the Internet to rural women agricultural producers. This was to help them get information about market prices of their produce and inputs for their food processing activities. The women were happy with the results as they had direct contact with their buyers and they recorded an increase in sales. Agriculture forms the backbone of Zimbabwe's economy and accounts for 17% of the Gross Domestic Product (GDP). The modernisation of agriculture through the systematic adoption and use of ICTs a will contribute directly to food security at national and household levels, beneficiation of agricultural produce, effective land management and creation of national wealth (Zimbabwe National ICT policy, 2005).

1.10.3 Sharing knowledge and improving access to information

ICTs would provide new possibilities for the spread of information and knowledge. UNDP Human Development (2001) observes the numerous possibilities that ICTs can open for people's participation. The Internet, the wireless telephone and other information and communication technologies enable people to communicate and obtain \information in ways never before possible, dramatically opening up possibilities to

participate in the decisions that affect their lives. A case of Uzumba-Marambapfungwe, a rural area that had launched its website in Zimbabwe (www.mutokonorth.com) is an example of what technology can do to involve the rural communities to participate in the information society. The people, together with their Member of Parliament have launched the website to showcase the activities in the area and also an e-mail of the MP is available. This is a major stride in achieving democracy as the people can reach their representatives and they can also participate in issues concerning their areas.

Through ICTs, people gain knowledge and this is echoed by UNDP Human Development (2001) report that argues that ICT technology can provide rapid low cost access to information about almost all areas of human activity. From distance learning in Zimbabwe (Zimbabwe Open University) to long distance medical diagnosis in Harare, from malaria prone rural areas of Dande valley; to information on market prices, the Internet is breaking barriers of geography, making markets more efficient and creating opportunities for income generation and enabling increased local participation.

ICTs not only serve as instruments to deliver basic services in major social areas such as health and education but are also important driver in creating the stimulation of small businesses and enable communication channel that makes possible the social participation in democratic processes at community, provincial and national level. Servaes (1999) states that ICTs are used to share educational information among people and countries for development purposes. The same sentiment is echoed by Sharhan (2000) who states that ICTs provide a platform for information sharing and information storage towards sustainable development. Mutare rural district residents can share with their counterparts (both within and outside Zimbabwe) information on activities such as agriculture and mining. ICTs especially the Internet can be used as a platform for learning especially issues pertaining to development of the community.

1.10.4 Facilitating activities in the business sector such as:

i) Manufacturing

There has been a shift from old production system to a new mode, which is facilitated by ICTs. While the old production and manufacturing system is energy-intensive, standardised and departmentalised, the new manufacturing system facilitated by ICTs is information-intensive, customarised, networked and integrated. EMG (2002) report states that ICTs improve manufacturing productivity and a number of cases were cited and one of these was the improvement in the quality of the products from domestic industries. One such case was with a group of young women from Argentina who used ICTs in the designing and marketing of their handicrafts. By creating a web page and improving the packaging, they increase their sales and kept young women profitably employed in their community rather than looking for better jobs in the cities. In Kenya, women and men weavers were trained on using the Internet to learn new weaving techniques and develop more realistic prices for their products. ICTs can also be applied to Mutare Rural District; the citizens fail to reach their full capacity in income generation because they do not have the technical know-how in the manufacturing and food processing. Galang (2002) mentions that the district lack modern machinery in the craft, informal and agro-processing sectors. If they could get better techniques especially in the weaving of mats, packaging of processed fruits and vegetables and honey they can export their products and earn an income that could improve their livelihoods.

ii) Electronic commerce

Mangena (2003) describes e-commerce as a new way of doing business electronically. It is defined as a web commerce where buying and selling is conducted through a host of websites. He identifies four forms of commerce namely; business to business; business to consumer; consumer to business and consumer to consumer. Mansell and Wehn (1998) view the electronic commerce as the use of documents in electric form, rather than paper, for carrying out functions of business or governments (such as finance, logistics, procurement and transportation) that require interchanges of information, obligations, or monetary value between organisations and individuals.

Electronic commerce enables communities to carry out financial and commercial services transactions using ICTs. Common examples of e-commerce are online shopping, online banking, and online stock trading. One of the advantages of e-commerce is the reduction of transaction costs. Use of ICTs especially the ATMs will help the community to access their savings twenty-four hours and also it will reduce travelling costs to the banking halls as financial institutions are in Mutare urban.

iii) Travel and tourism

ICTs are playing an important role in engineering new, more flexible and quality driven tourism (Mansell and When, 1998). The Internet is used to provide multimedia information about destinations to prospective travellers. It also affects auxiliary industries, such as the transport sector, which plays a part in the tourism industry. With the aid of ICTs applications, prospective travellers can view a destination, book accommodation, book the flight and other forms of transport and pay for these without leaving their homes. . All these can be circumverted through the use of ICTs especially the Internet for publicity and the use of cellular technology for communication. Koro (2005) mention that use of SMS will largely help rural communities running ecotourism projects to communicate cheaply with tourists from far away or from different countries and continents wishing to make direct accommodation bookings. ICTs in tourism sector can be used for monitoring, forecasting, location identification, publicity, on-line payment systems, information collection and management (Zimbabwe National ICT policy, 2005).

1.11 Summary

This chapter has provided a background to the study. It also introduces the study area. The rationale behind the study has been outlined and the focus of the study has been discussed. This chapter has also elaborated why it has become important to have research on ICTs in rural areas and how Mutare rural district can also benefit from the use of ICTs. This has been done in line with the results of the UNCSTD 1996-1997 study. The potential uses of ICTs as outlined by Mansell and Wehn (1998) have been the basis for the potential use of ICTs for development by Mutare rural district.

The following chapter will look at literature review, the theoretical framework of universal service and access. The chapter will also discuss the Zimbabwean policy on universal service and access. It will also attempt to provide how access can be rolled out to the rural areas through the use of the centre approach.

Chapter two: Literature review and theoretical framework

2.1 Introduction.

This chapter provides a critical perspective of the potential benefits offered by ICTs towards socio-economic development. The chapter has been divided into four sections. The first section examines previous studies that indicate the success stories of access to ICT in rural communities. The second section raises the constraints or limitations of previous studies. The third section examines the theory of universal service and access with the use of the universal access wheel model. The fourth section summarises the chapter and gives a preview of chapter three.

Information and Communication Technologies (ICTs) are transforming many societies. The information age is changing how people work, how they learn, how they spend their free time and how they interact with each other (Policy Action Team (15) report, 2000). Since the advent of the industrial revolution, no new technology has ever such fundamental effect on how people live as ICTs have. The policy further elaborate that the old barriers and time are being broken down. ICTs are driving down costs, improving efficiency and creating a climate of innovation, with competitiveness moving from the national to the global level. The new technologies are challenging existing methods of education, and are giving us the potential for true lifelong learning. It is truly exciting time- the pace is phenomenal (Policy Action Team (15) report, 2000).

Today, the role of the ICTs in developed and developing countries has become the subject of academic focus and research. ICTs are important because they have a role to play in helping people in deprived neighbourhoods overcome some of the major obstacles they face. However, Adeya, 2002 points out that in most case studies of ICTs and development, there are no studies that openly acknowledge failures. Most of them are disguised under the cover of the phrase, 'lessons learnt'. She points out that, in evaluating these studies, it is important to take a 'cautionary' perspective, as there is the

danger that some of the resources will romanticize the potential of ICTs in improving livelihoods in rural communities (Adeya, 2002).

Zimbabwean rural communities such as Mutare Rural District have limited access to ICTs (Mangena, 2004). This is due to factors such as inadequate infrastructure, little or no local production of application software for the different sectors of the economy and lack of skilled ICT personnel. To provide access to ICTs to such areas the telecentre can be used as a means of providing access to ICTs. World Telecommunications Report (2000) states that the telecentre model is being used to provide access to ICTs in rural communities and those living in remote areas worldwide. The report further states that telecentres are multipurpose centres that provide access to Internet facilities, fax, telephone and typing services. This model is being used throughout Africa to proliferate ICTs. It is however slow and is still associated with many problems. Principal among these problems are illiteracy, shortages of ICT skilled people, poor web content that rural communities can use for real income gains and educational development, poor telecommunication infrastructure that severely undermine the growth of ICTs and consequently their impact on human development.

2.2 Review of previous studies

Hudson (2001) argues that if information is critical to development, then ICTs, as a means of sharing information, are not simply a connection between people, but a link in the chain of the development process. Caspary and O'Connor (2003) cite Hardy (1980) who argues that, if telephones contribute at all to economic development, it is probably through the expansion they make possible of social networks beyond immediate neighbourhood, the better coordination of entrepreneurs over distances, and the timely access they can provide to valuable information (particularly but not price information). ICTs can also contribute to socio-economic development, but investments in them alone are not enough for development to occur. Consequently, ICTs should complement other infrastructure required for development such as clean water supply, transportation and electrification. These modern technologies (ICTs) offer new and faster perspectives, such as faster and better focused access to information. ICTs will benefit the rural

communities more significantly when the people participate as 'Information sources 'rather than as 'Information Recipients' (Munyua, 2000, CTA, nd).

Similarly, Samiullah and Rao (2000) believe that ICTs have the potential to combat rural poverty and foster sustainable development. However, this can only be achieved if ICTs are appropriately deployed and made to address the different needs of local people. Samiullah and Rao (2000) further argue that successful ICT interventions can only be achieved if there is an enabling environment, the participation of the private sector and Non Governmental Organisations (NGOs). This view is supported by Harris (2001) who states that there is considerable potential for improving quality of life within rural community by providing access to ICTs even though such communities may have no experience or knowledge of such technology (Harris, 2001). Likewise, O'Farrell (2001) reveals that evaluations of the Acarcia IDRC, Grameenphone, and Swamminathan- Pondicherry Project clearly indicate that ICTs have a positive impact on rural livelihoods.

Gurstein (2000) and Munyua (2000) also explore the potential of ICTs to facilitate rural development. Despite all these positive attributes of ICTs, investing in ICTs alone cannot improve livelihoods. Mansell and When (1998) and Worldbank (1998) argue that investment in infrastructure and hardware alone will not guarantee improvements in people's livelihoods. Access to technology itself is necessary but inefficient. Bridges (2001) developed a bottom-up theory by examining what worked best, what failed and why. They concluded that access to technology was critical but that access to ICTs and connectivity alone was insufficient to sustain their use.

Philips (2000) discusses how ICT initiatives have focused on "access and hardware" without consulting with the communities themselves on their needs. This brings a dimension whereby hardware is available but not accessible to the people. Computers or infrastructure alone cannot eliminate starvation and poverty from the world. This supports the Worldbank (1998) as well as Wehn and Mansell (1998) sentiments that

investment in infrastructure alone does not guarantee harnessing the potential that is offered by ICTs.

Heeks (1999) cited in (Adeya, 2001) asked; 'Can information and communication technologies (ICTs) help to alleviate poverty in low-income countries?' His study attempts to answer that question and provides a theoretical framework for empirical studies in the area. Heeks (1999) suggests that ICTs play a role mainly as communication technologies rather than as information processing or production technologies. Among his priorities for development agenda are: the poor need knowledge to access, assess and apply existing information and need resources for action more than they need access to new information; the poor need access to new, locally-contextualised information more than access to existing information from an alien context (Heeks, 1999; Adeya, 2001).

The poor will only reap the fullest benefits of ICTs only when they know and control both the technology and its related know-how. This view is shared by O'Farrel (2001) who believes that before one can advocate for development of ICTs in rural communities, they must understand the existing information systems of the poor, how they interact with more formal information and the best way to strengthen them before intervening with new information sources and means of access to sources. Access to information and knowledge are considered key enablers in improving people's livelihoods in rural communities. The benefits of using ICTs in development is emphasized by Annan (2002), when he states that, information and technology are not a magic formula that are going to solve people's problems. But it is a powerful force that can and must be harnessed to our global peace and development.

The potential of ICTs in improving the livelihoods of rural communities is not only to provide information that is relevant to developing communities but also to empower them to choose and demand the information themselves(Chapman and Slaymaker, 2002). Chapman and Slaymaker (2002) observed that ICTs can make more information available but it is up to individuals to choose what is relevant to them and demand

useful information. However, most ICTs are designed by and for urban professionals, with means and messages that respond to commercial demands that are very different from the needs of rural of rural citizens. As a result, ICTs and the content they carry may end up having little significance and relevance to the poor.

Adeya (2002) state that most of the empirical studies cited on the contribution of ICTs to development are mostly drawn from USA with a cursory mention of an African study done in rural Senegal, Malawi and Botswana. Cited examples of benefits of telecommunications from developing world are mostly from Asia and South America. This has led to one policy of 'one size fit all'. African countries have to adapt to what has been done in the West to improve their citizen's livelihoods. Marcelle (2000 cited in Lush and Rushwaya 2000) argue that development in Southern Africa cannot be guaranteed by simply importing foreign-made ICT goods and services. The important prequisities are policies and strategies that suit the region- policies that are more aligned to providing affordable access to the majority of the people who reside in rural areas. Development cannot be guaranteed as ICT development is following the same old pattern of unequal development, resulting in digital divide. The digital divide has shaped not only the flow of information and knowledge in the world but has through the institutions, been reshaping the world through the resurgence of imperialism, this time emblematically represented by knowledge and dependence.

Brown (2001 in Adeya, 2001) argues that ICTs are simply tools. Significantly, no single tool can solve a global problem, such as, poverty, which has such complex and multiple causes. For ICTs to improve livelihoods in communal areas such as Mutare rural district, they is need for development of a database and local web pages that are relevant to the people and that take into account their daily needs, their culture and their language.

2. 2 (i). Knowledge gaps from previous studies

Although there has been some introduction of ICTs in rural communities, a significant proportion of research work in ICT development is speculative and offers more than project progress reports (Rhodes, 2002). Rhodes (2002) further states that, these researches do demonstrate the potential of ICTs to help improve governance, make the states more citizen-friendly, empower the poor and ensure better delivery of improved social services to rural communities. Most of the studies herald ICTs as bringing development but ICTs do not single-handedly foster development. Absence of other social utilities in rural communities will have adverse effect on the potential of ICTs to aid development. Providing access to telecommunication without providing access to other basic utilities- such as pipe-borne water, health and medical services, education and poverty alleviation programmes-renders telecommunication service extension ineffective (Oyedemi, 2004). Accounts of telecentre being vandalized or stolen could be as a result of poverty, as people will be trying to make ends meet.

Lack of attention given to the cultural and political dimensions in previous studies has failed to verify the validity and relevance of ICTs applications or the enormous complexity of social change engendered by technology adoption. As the technology is still in the early stages of diffusion, investigating the effects of ICTs on social development and economic development cannot be complete without considering local microeconomic factors (social, political and cultural) in these rural communities. Muzango (1998) notes that most of the previous studies on ICTs in Zimbabwe have been a series of occasional papers dwelling on physical transport and communication sector and interest in ICTs, though growing in importance has been manifested in papers presented at business, economic and investment conferences. This scenario presents lack of information and the necessary analysis to explain the situation prevailing in Zimbabwe with regard to ICTs. This in turn blunts assessments of implications that access to ICTs may have for further economic and social development (Muzango, 1998).

Access equals development through social integration and networking (Boezak, 2005) . Boezak (2005) notes that this implies that access will produce a historically connected, strong distribution of power in society. While it is so that access to technology certainly made possible the connections between previously disparate worlds, in many instances has not happened merely thorough the acquisition of the tools (Boezak, 2005). It is true that the means a society uses to produce, store and distribute information, affect the patterns of information flow in that society. These patterns however cannot be equated with social change; nor can the social impediments of poverty, unequal access to natural resources, illiteracy and the dominance of English as language of technology be addressed by merely providing access to ICTs (Boezak, 2005).

The research study is built on the theories or concepts of media development; ICT and rural development and universality. The above mentioned concepts have been identified as the critical concepts to the study starting with how media (traditional media) has been used for development to the present stage whereby ICTs are being used for rural development. Issues of universality also plays are role in how the ICTs are being channelled to the remote or rural areas.

2.3 Media development

Media development largely refers to externally- driven initiatives of installing new and old media in communities, as a means of improving local people's access to and use of media. Matewa (2002) observes that the communication environment in Africa has transformed enormously during the past five decades. In Zimbabwe, for instance, print media was the first to be introduced, followed by radio and television. According to Hove (1997 cited in Matewa, 2002), radio seemed to have had the greatest impact since it had replaced traditional communication in the homestead and instead of people sitting round a fireplace, listening to stories being narrated to them, they were now sitting around a radio.

Traditional media have been employed very successfully in developing countries, and rural radio in particular has played a major role in delivering agricultural messages.

Print, video, television, films, slides, pictures, drama, dance, folklore, group discussions, meetings, exhibitions and demonstrations have also been used to speed up the flow of information (Munyua 2000). New ICTs however, have the potential of getting vast amounts of information to rural populations in a more timely, comprehensive and cost-effective manner, and could be used together with traditional media.

Mass media are of crucial importance in rural areas of developing countries to run large scale communication campaigns on health, nutrition, livestock breeding or agricultural technology transfer. Equally important, however, is their role in communicating the information needed for individual's every-day lives – from market prices and credit facilities to weather reports, music, entertainment and culture. Particularly in large rural areas where population density is low and ICT facilities are scarce or non-existent, mass media can reach rural dwellers helping them to be informed and able to express their own concerns, thus fostering national identities and reducing the rural/urban divide. The use of radio, television, other electronic media and newspapers has grown considerably in many developing countries over the last four decades.

Media and communications have been effectively employed since the early days of development assistance. Their application was noticeably influenced by the various post-war development theories and, to a large extent a top-down approach has dominated the scene. Radio, television, cinema, print media and theatre have been regarded as instruments through which the masses could be exposed to new ways of thinking and taught new attitudes in order to stimulate economic development. However, over the years the so-called masses have begun to appropriate these tools and to stimulate a truly bottom-up development.

Munyua (2000) observes that although the Internet is not a panacea for food security and rural development problems, it can open new communication channels that bring new knowledge and information resources to rural communities. Traditional communication channels have been used successfully but these have been monologic

and have not allowed for much interaction with users. Radio for example has been very effective for disseminating information to all types of audiences, but broadcasting times are sometimes not appropriate for most people. But radio could be linked to the Internet, and a few initiatives have been started on this concept, such as the project *Internet Radio in Sri Lanka* (http://www7.itu.int/itudfg7/About/Means_Methods.html). This enables users to access programmes on the web at a convenient time, and send feedback through e-mail or chat. Broadcasters could then disseminate the latest information promptly. New ICTs, however, have the potential of getting vast amounts of information to rural populations in a more timely, comprehensive and cost-effective manner, and could be used together with traditional media.

2.4 ICTs and rural development

The theory of ICT for development is an important component of this research. Rural development is the improvement in overall rural community conditions, including economic and other quality of life considerations such as the environment, health, infrastructure and housing. Development generally means the improvement of people's through improved people's lifestyles through improved education, incomes, skills development and employment. Development also means that people should have decent housing, and that they should have security within those houses. Rogers (1976) who defines development as widely participatory process of social change in society intended to bring about social and material advancement (including greater equality, freedom and other valued qualities) for the majority of people through their gaining greater control over their environment. In any developing country, one of the prime ingredients of development is information. Knowledge and information are essential for rural development. Furthermore, how this information is disseminated between people is crucial. Information is disseminated for various purposes; information about new fertilisers, agriculture or land development, community building, public health and education information campaigns.

The potentials of utilizing ICTs for development have long been recognized. As early as 1971, the UN proposed the utilization of electronic computers in developing countries, in view of the opportunities that they could produce. IDRC is another one of the first development agencies which have conceived and maintained programs in the information sciences for developing countries since 1970s (Shahid,1990). Entering the era of globalization, the importance of utilizing ICTs for the purpose of development has been promoted by more people and development institutions. According to the UNDP (2004), the importance of ICTs is continuously growing, and they represent a novel and effective tool to help advance sustainable human development.

During the past decade, major aid agencies and donors are becoming increasingly aware of and enthusiastic about the prospects of ICTs for development. The position of ICTs for development has been established internationally since the G-8 initiated the Digital Opportunity Task Force' (DOC Force) to harness the forces of ICTs in order to narrow social and economic inequalities in September 2000 (Accenture, 2005). Similarly, established in March 2001 by the UN Secretary-General, the UN ICT Task Force has emphasized the enabling role of ICTs being catalysts for development and encouraged efforts to narrow the digital divide (UN ICT Taskforce, 2005). Moreover, a 2003 World Bank report depicting the link between ICTs and Millennium Development Goals (MDGs) has illustrated the opportunities that ICTs can offer policy makers and practitioners in their efforts to achieve the MDGs, and has highlighted selected World Bank funded projects utilizing ICTs to accelerate development(World Bank,2005).

There is a widespread belief that information is vital for rural development development (e.g. Mchombu 1992; du Toit & Strooh 1995; Wishart 1995; Gericke 1997). Munyua (2000), for example, regards information as the least expensive input for rural development and a basic (necessary) ingredient for bringing about social and economic change in rural areas. Rural areas in developing countries are generally perceived to be an information desert that is becoming increasingly marginalized as the technology and information gap between rural and urban areas widens (Wakelin & Simelane 1995).

Rural communities, where agriculture is commonly the main activity, require information on *inter alia*, supply of agricultural inputs (seed, fertilizer), new technologies and innovations, early warnings (pests, drought disease) and credit facilities, markets etc (Munyua 2000).

ICTs, as efficient tools for disseminating information and knowledge, have been recognized as indispensable to the process of development. Harris says, "Information and knowledge are critical components of poverty alleviation strategies, and ICTs offer the promise of easy access to huge amounts of information useful for the poor." The importance of information has been confirmed by Kofi Annan in his message to the World Summit on the Information Society in Geneva, December 2003:

> "we live today in an era in which information is omnipresent, through newspapers, radio, television and the internet; in which information is transforming the ways we live, learn, work and relate; and in which information is indispensable – for health, agriculture, education and trade, and for cultivating the engaged and learned citizenry that is essential for democracy to work."(Annan, 2003:1)

Communication is essential to overcome the constraints to development and face the challenges. Rural communities should have at their disposal the tools to access and convey useful information and knowledge. They should be able to exchange experiences, knowledge and techniques, and be actors in the debate on development matters. Whereas some communication media for development have had a tendency to reinforce vertical bureaucracies, ICTs can facilitate horizontal and vertical networks for information-sharing and purposeful learning as a basis for sustainable development. The rural organizations and structures that are created or adapted for ICT applications should take this into consideration. The communication for development approach demonstrates that people's needs and local communication patterns should be analysed if ICTs, and their applications through telecentres, are to be effective; to be successful, ICTs will need to be integrated with local communication networks. Provisions for local people to "dialogue" with the technologies, inter-act with each other and create or

modify content are essential. Training and learning experiences show us that while people learn in different ways, their collaborative learning can be structured for development purposes, and that these processes can be enhanced by ICTs.

ICTs are powerful communication and knowledge sharing tools. They can bring new information resources and open up new communication channels to facilitate dialogue and the flow of information between rural people and their organizations, institutions and governments. ICTs a means through which people can access new options to help make their lives more secure, prosperous and meaningful. By providing a relatively open and uncontrolled means for interaction, dialogue and information sharing, simple rural telephone kiosks and pay phones offer intriguing opportunities for adding value to sustainable development efforts. For example, they can enable the bottom-up articulation and sharing of information on local needs and local knowledge through providing a new and cost-effective means of communication (Richardson, 1997)

ICTs open up entirely new channels and options for people to stay in touch with friends, family and peers. They enable rural people to instantaneously, inexpensively, reliably and globally communicate. Primary development benefits include increased efficiency in the use of development resources, opportunities to reduce duplication of activities and promote collaboration, reduction of communication costs, reduction in transportation costs, and global access to information and human resources used for planning, consultation decision-making and action. However, in order to have a significant impact on development programmes, ICT services must be readily accessible and meaningful to broad segments of rural populations and the information they carry must be adapted and disseminated in formats and languages that they can comprehend. They must also serve people's needs for entertainment, cultural enlightenment, and human contact – needs which, despite being strongly felt by us all, are too often overlooked by development professionals.

2.5 Challenges in the implementation of ICTs in rural development

The emergence of ICTs for rural development heralded a new era in the development of rural areas in developing countries but this role has been harped by a number of constraints. According to Gumucio (2003) this ICTs can only be of great importance in rural development if they are envisioned from the perspective of users and through active participation. Community ownership, management and involvement are important. Centralized telecommunication operators would be wise to decentralize rural service and enable the resale or franchise of service areas to local operators, cooperatives or municipal organizations. The more local the operator, the more likely the system will be responsive to user needs and facilitate sustainable revenues. An assessment of ICTs for development conducted by the FAO (2001) revealed that many projects are implemented without any consultation with the community. Among the findings are: only a limited number of community-driven ICT initiatives were found and these had scarce visibility; participatory needs assessments are rarely performed prior to the establishment of telecentres. Secondly, emphasis is more often on providing access than on innovative ways of applying ICTs to the specific needs of communities and local groups. Thirdly, the priorities of many ICT projects tend to be influenced more by the interests of external organisations rather than community-based organizations. The thematic sectors applied often reflect an economic, market-related focus. There is a lack of local participation in the creation of content and selection of ICT tools. Lastly, there are many telecentres where computers are available but where a lack of awareness, ICT skills, and literacy hinder the process of local appropriation (Gumucio, 2003).

Gumucio (2003) further observes that the involvement of communities in ICT projects that are set for their benefit- or any other project aiming at social or economic development is the first non-negotiable precondition. He further elaborates that ownership can only be achieved through a process of participation from the inception of each project. This is a foremost condition particularly when seeking for sustainability, which has been the weakest aspect in most of the current experiences. However, it is important to get it right when we say "ownership and appropriation" (Gumicio,2003). It

does not refer to technology alone. It refers to the ownership of the *communication process*, as opposed to a badly defined "access" whereby the conditions are dictated by external agendas. Ownership and appropriation refers to strengthening the local capacity to understand the importance of communication, knowledge and networking in social development. It refers to communities acquiring the necessary skills to manage ICTs as a tool at the service of well-defined areas of development and education.

The other factors, which could have contributed to the general failure of communication for development, were the omission of the participatory communication strategies (McQuail, 1987). This was worsened by the fact that media practitioners did not have experience in the use of media with illiterate people and the dissemination sometimes of content not appropriate for the particular situation (Okunna, 1995). The failure of mass media to play a pivotal role in rural development arises from the use of the media to issue urban – originated directions to rural dwellers in a unidirectional, linear flow of information, in which the rural populations play no active part in identifying their needs (Okunna,1995; Gumicio,2003).

Gumucio (2003) observes that in recent years, the role of communication in development and social change has been acknowledged. A number of development organizations have begun to understand that information and communication is not the same thing. Information alone does not generate changes, whereas communication –which implies participation, sharing of knowledge in a horizontal way, and respect for diversity and culture- is key to social change (Gumucio, 2003). Matewa (2003) cites Richardson and Rajasunderam (1998), who observes that communication for development initially focused on technology transfers, hence the adoption and diffusion processes. It is unfortunate that too many development programmes today are still basing their approach on the diffusion of innovations theories of the sixties, often mocking participatory approaches, but seldom really involving communities in the decision making process, because it clashes with institutional agendas and the "annual report" syndrome (Gumicio,2003).

The lack of local participation was viewed as responsible for the failure of different programs. Communication means a process of creating and stimulating understanding as the basis for development rather than information transmission (Agunga, 1997). Communication is the articulation of social relations among people. People should not be forced to adopt new practices no matter how beneficial they seem in the eyes of agencies and governments. Instead, people needed to be encouraged to participate rather than adopt new practices based on information. Communities should be encouraged to participate in decision-making, implementation, and evaluation of projects. This would give a sense of involvement in their lives and communities, and provide them with a sense of ownership and skills that they can use beyond the timetable of development projects (Kavinya, Alam and Decock 1994).

The biggest drawbacks of rural telecommunication systems are dependency on largely urban-centered telecommunication infrastructure, dependency on urban-centred telecommunication regulations and legislation governing ownership and operation, and generally low levels of telecommunication service standards in countries (developed and developing) with monopolistic, expensive, state-run telecommunication systems.

2.6 Universality.

Universality is a broad term, which encompasses both universal service and universal access. Various scholars have tried to come up with definitions of universal service and access and most of them have been confined to the provision of the telephone(Lesame 2000; Benjamin and Dahms 1999 and Karim 1999). Universal service according to Oyedemi (2004) connotes the availability of connection to information and communication technology (ICT) by every home and household in a country. He further states that it also implies providing ICT services to individual households in rural, semi-urban and urban locales of a country. Universal service is generally applicable in developed countries where there is relatively good network coverage and high teledensity (Oyedemi, 2004). The focus in these countries is mainly affordability. The idea is that since the network is already in place, the objective then is to design mechanisms that will ensure sustainable access. Universal access indicates a situation

where everyone has a reasonable means of access to publicly available telecommunication service or access to a range of ICT services within close proximity of a community (Oyedemi,2004). This approach is generally taken in developing countries where there is poor network development and low teledensities. In this case, governments' objective is to ensure every citizen has reasonable public access to the network at affordable rates. The Zimbabwean definition of universal access refers to access, in rural areas, to a telecommunication service located at service centres, schools, hospitals and clinics (Zimbabwean government policy on Universal Service in the Telecommunication and Postal service, 2001).

Oyedemi (2004) has brought another perspective on universal service. He argues that universal service can be expanded beyond physical connection to a network to include a variety of other concerns. Universal service should imply the cost of ICT services-such as the basic telephone cost-remains affordable, especially to those from low-income families and people living in rural and suburban areas (Oyedemi, 2004).

2.6 (i) Basic objectives of Universal service/Access

Although there are different definitions and conceptions of universal service and access it can be stated that the basic objectives of universal service/access are to enhance; accessibility which is access to basic telecommunication facilities to everyone including people with disabilities, at a reasonable price and distance. Secondly they should be equity, which is equal service to every community, whether rural or urban. Thirdly they should be connectivity were every community and the country at large must be interconnected and flexibility meaning that communication should be flexible, without barriers (Oyedemi 2004).

Benjamin and Dahms (1999) summarises the basic objectives of universal service and access into three areas namely; availability meaning that there should be nationwide coverage of telecommunication service, wherever and whenever required; accessibility with all users being treated alike; there should be non-discrimination in terms of price, service and quality, irrespective of location or race, sex or religion. The last objective

being affordability- all telecommunication service should be priced so that most users can afford it.

2.6 (ii) Universality in Zimbabwe

The Zimbabwean ICT Survey Report (2005) indicates that ICTs have become a strategic resource in the global networked economy and Zimbabwe's position has been clearly demonstrated by His Excellence, President Mugabe's active leadership in supporting access to ICTs by sourcing and distributing computers to schools. The Zimbabwe Electricity Supply Authority (ZESA) has embarked on rural electrification programme intended to contribute to an enabling infrastructure for the diffusion of ICT (Zimbabwean ICT Survey Report, 2005). The ICT survey report also points out that the government has established institutions to regulate and monitor the implementation of sectoral ICT policy frameworks. The Zimbabwean government has also provided leadership by forming cabinet Committee on Scientific Research, Technology Development and Applications chaired by the Minister of State for Science and Technology Development in the office of the President and Cabinet. The government has also promoted investment in new technologies by expanding information technology and telecommunication infrastructure by licensing mobile network operators and a fixed line operator (Chihota, 2005)

Due to the poorly developed ICT infrastructure in the country, together with high levels of poverty, the universality focus from development perspective is commonly on universal access rather than universal service. Universal service, especially when we consider ICTs more broadly than telephony, is not feasible for most rural areas like Mutare rural district. This is because of financial costs involved in installing telecommunication services in every home, the disposable incomes of the majority of the people and the displacement of rural areas, a realistic goal should be to work for universal access where a usable telecommunication service is within the reach of the community. While the Zimbabwean government is desirous of ensuring that every citizen has access to telecommunication, it is cognizant of the fact that competition and universal access may not be compatible. In a competitive environment, operators aim to

maximise profits and as a result they tend to focus most of their service provision in the cities and towns, leaving the less lucrative areas, such as rural Mutare underserved.

Service providers look for economic gains and their principles to look for lucrative areas have impact on both economic and uneconomic customers and areas. According to Suvillan (2002) an economic customer is a person, household or institution who can afford to pay the full economic cost of the service provided. While an uneconomic customer is one who cannot afford to pay the full economic cost of service provided. Uneconomic customers may be found in both economic and uneconomic areas. Suvillan (2002) defines an economic area as an area that is considered by an operator to be commercially viable. An uneconomic area on the other hand, is one that is not considered commercially viable. An area can become uneconomic as a result of several factors. For example, the closure or pull out of the main employer(s) in the area. This will leave many people in the area unemployed and probably unable to pay their bills.

Another factor is migration. People tend to move to areas where they have easy access to social and economic opportunities. This is common in rural areas where some residents migrate to urban centres with the hope of 'making a better life'. This has resulted in the introduction of the universal fund through legislation. The fund is used to subsidies the provision of rural and other underserved areas. The Universal Service Fund shall be constituted of monies appropriated in terms of sections 20 of 75 of the Postal and Telecommunication Act (Chapter 12:05) (Zimbabwean government policy on Universal service in the telecommunication and Postal sector, 2001).

Muzango (1998) states that in the case of universality in developing countries such as Zimbabwe, universal service does not simply get abandoned as an unattainable ideal, due to the economizing cost-based rationales, but it should help in the formulation and drawing up of regulatory policy that encourages equitable and long term sustainable growth. The short-term strategy will be universal access at community level. Zimbabwe with significant rural populations may want to pursue a two-pronged strategy, for instance high levels of universal service in urban areas and widespread universal access

in rural ones. This is a more cost- efficient way to deliver services, particularly to people who are poor. Oyedemi (2004) echoes the same sentiment that universal access policy (compared to universal service policy) is a more practical and achievable goal for developing countries. Universal access aims to increase access to telecommunication services on an institutional and shared basis, such as on a community or village-wide level. As opposed to individual subsidy the costs of which are excessive, costs of providing community access to ICTs are more feasible (Benjamin and Dahms, 1999).

Provision of universal access includes the formation of independent regulatory bodies, which promote competition, the encouragement of private investment to expand rural telecom networks, the process of deregulation, and the provision of telecom opportunities for underserved populations. Caspary *et al* (2003) argue that an adequate regulatory framework and well designed contractual bidding process for supplying less segments of the market should go a long way towards attracting private investment in underserved areas. In the end this is likely to be the most direct path towards the ultimate goal of universal access in a country such as Zimbabwe. In order to complement all the activities that are being implemented to achieve universal access in Zimbabwe, the government has to adapt models that are suitable to our African needs. What Zimbabwe needs is a model that will tackle its socio-cultural and political-economic situation. The universal access wheel model has been identified (by the researcher) as the model that can be adapted by Zimbabwe to roll out universal access to the underserved areas such as Mutare rural district.

2.7 The Universal Access Wheel Model

The universal access model has been chosen as the model that can be used by Zimbabwe to roll out ICTs in the rural or communal areas. The model has been chosen because models of universal access such as the 'Access rainbow' by Clement and Shade (2000) provide an exclusively Western approach to universal access. Models have emphasized the technical aspects, notably physical connections (Gurstein, 2000).The Universal Access Wheel Model on the other hand has a holistic approach in extending ICTs services to rural areas (Oyedemi, 2004).

A general model of access to ICTs for rural development or improvement of livelihoods would include; support for a multiplicity of usage roles involving creation and dissemination as well as retrieval of existing information. It should also address the full range of possible users and the diversity of their life situations; recognise the interplay of social and technical dimensions in the development of infrastructure; highlight 'access gaps', areas of social need likely to be 'left out' by market forces acting alone and help identify what services should be considered 'essential' (Gurstein, 2000).

The universal access wheel model tries to illustrate what is needed to achieve universal access in developing countries such as Zimbabwe. Oyedemi (2004) adapted the access wheel model after the realisation that models such as the 'Access Rainbow' provides a seminal approach to universal service provision and enumerates various important issues that can help in facilitating universal service to ICT. However, this model, like most models, provides an exclusively Western approach to universal access; the model neglects some socio-cultural and political-economic situations of most developing regions of the world such as Africa (Oyedemi, 2004).

The universal access wheel model differ from the 'Access Rainbow' because it takes into consideration the needs of the people, the socio-cultural nature of the livelihoods and the realization that physical contact to telecommunication infrastructure does not automatically connote real access (Oyedemi,2004). As will be indicated on the challenges in the use of telecentre, the centres have not been fruitful because they had been technology push (focused more on in provision of infrastructure and neglected the socio and content needs of the potential users). Investments in infrastructure and hardware alone will not guarantee access; local capacities and local content are also required (Conradie, 1998). Conradie (1998) further states that ICTs should have a social sustainability (ensuring that the infrastructure can be used in the local area and is responsive to the social needs). The different components of the wheel, works coherently with each other in order to achieve universal access in developing countries. The access wheel model is illustrated in figure (2.1).

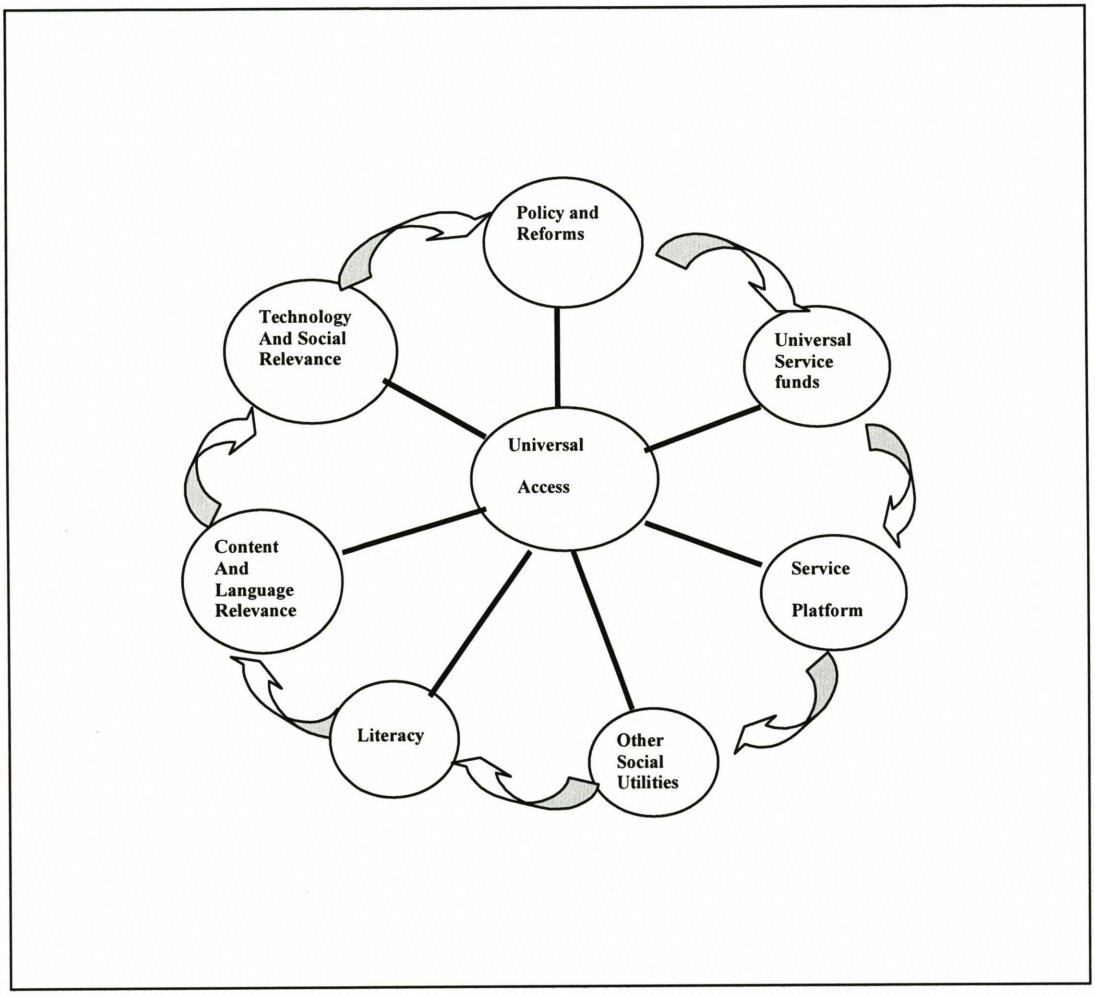

Figure 2.1: Universal access wheel

Source: Oyedemi, (2004)

Oyedemi (2004) highlights that the components of the wheel are interrelated and the relationship of these elements to the core issue of universal access. The wheel represents the idea that if the elements are properly implemented, a smooth process of achieving universal access and service can be predicted. By the same token, a badly managed element in this wheel becomes an obstacle to the smooth movement of the

wheel (Oyedemi, 2004). The different components will be discussed in the following section and it is important to note that throughout the discussion, one should note view each element as a single entity but should be viewed in relationship with the others as a way of providing universal access.

2.7 (i) Literacy

According to Britz (1998) illiterate or semi-literate persons can be excluded from information especially in cases where such information is only available in text format. The problem is however not confined to the inability to read and write. According to Oyedemi (2004), people who are not computer literate, which is a form of information literacy, can also be excluded from access to information, which is only available in electronic format. Literacy in this regard involves skills needed to use these technologies, identify the functionalities of these technologies (including their advantages), and the ability to adapt these technologies to individual needs (Oyedemi, 2004). Illiterate people are often marginalised in society, and also are not able to make use of some text-based ICTs without additional support. Oyedemi (2004) state that such support would be in the form being taught computer skills, which include keyboarding skills and the ability to utilise computer software and programmes; the Internet skills, which include the ability to search for information online, the ability to navigate the web, and the ability to use email.

Children in the modern day attend schools that offer computers and that make them familiar with the gadget and this eliminates the notion of computer illiteracy and phobia. Youths in Zimbabwe display enthusiasm to use ICTs and they constitute a high percentage of potential users. They are however, not economically active. The aged constitute 4% of the population of Zimbabwe and a sizeable number of the functionally ICT illiterate. They shun the ICT as it was not part of their early socialisation and training (Marongwe, 2005)

The issue of illiteracy should be addressed if accessibility of ICTs is to be attained. The Zimbabwean government through the Ministry of Education, Sport and Culture and

stakeholders should embark on projects that teach rural people the basic computer skills. This can be the only way to make the ICTs accessible by everyone as according to the Zimbabwe ICT Survey (2005) diffusion of ICTs in rural areas is impeded by computer illiteracy.

2.7 (ii) Technology and social relevance

Oyedemi (2004) state that information and communication services rely heavily on a variety of technologies and communication systems. African countries need to invest in appropriate technologies, which take cognisance of the topography and landscape of the region. Investment in technology should also be according to local conditions and the needs of the people. Due to the fact that most of the technology is manufactured in the developed countries, most countries are in a dilemma that most of their citizens who are illiterate cannot use these technologies. It is therefore, important for a country to invest in technology that will include rather than exclude its citizens in the information society. Lack of awareness as to the uses and benefits of ICTs makes many rural citizens lag behind (Sonaike, 2004). Even where the technologies are available in developing countries, the majority of the people, besides the problems of affordability, do not use the ICTs because they feel uncomfortable using it or are unaware of its utility. It is therefore of great importance that the citizens are taught basic computer skills (Oyedemi, 2004). Before a person will use ICTs, they must have some sense of what it is. For a person to use it productively, they need to have a sense of what it can do. Growing up, as it were, with computers and video games, the younger generation is much more at ease with new media than older generation (Sonaike, 2004). ICTs have got more relevance to the younger generation than the older generation (Marongwe, 2005).

Access does not mean being able to walk into an Internet café. No, there is lot more to it. This means that there might be an Internet café just across the road from your home but if you cannot afford to use it, if the content is not relevant to you and if you do not know how to use it, then you do not have access (Tichawangana, 2005). Bridges (2001) argues that providing access to technology is critical, but it must be about more than

physical access. Computers and connections are insufficient if the technology is not used effectively because it is not affordable; if people do not understand how to put it to use, or if they are discouraged from using it; or if the local economy cannot sustain its use. Access should go beyond physical access and this makes it possible for people to use technology effectively to improve their lives. Studies like Malaysia's e-Bario initiative have revealed that, for access to ICTs to be effective, the ICTs cannot be 'dropped' into a rural area but must be part of an integrated approach that takes into account the community's information needs and capacity to absorb the use of new technology. A person is said to have access when he or she is aware of the technology, has skills of operating or using it. Access can also be derived if a person understand or can attach meaning to the contents of the technology. Priangle and David (2002) argue that access to ICTs in rural communities does not have to be physical only, they should be; community awareness, skills capacity, public access and locally appropriate content.

2.7 (iii) Language and content relevance

Oyedemi (2004) observes that if a person is unable to understand a certain language it would imply that, though the information is available, it is not accessible. There are pools of online information on the Internet and it is unfortunate that this information is predominately in English. This disenfranchises millions of people in Africa, whose competence in English language is minimal. English, French and Portuguese are second languages to millions of Africans, who communicate effectively in their indigenous languages (Oyedemi, 2004). The Internet, for all its rhetoric, is primarily conducted in English. So for those who wish to access the Internet, a prerequisite is good knowledge of English, which require a Western-influenced education. Conradie and Tlabela (2003) echoes that in South Africa the average Internet user has proven to be relatively affluent and educated. Language of ICTs being English limits engagements by the majority of rural citizens.

Gustein (2000) proposes that for ICTs services to be widely useful, information providers must design and provide services of specific interest to the end user and particularly which takes account of the specific contexts of the various regions and

cultural and linguistic groupings. Extending universal access implies that ICT devices and users' device should be socially relevant. This therefore implies that information on ICT platforms should therefore be available in local languages to aid access to ICTs (Oyedemi, 2004).

2.7 (iv) Other social utilities

Providing access to telecommunication without proving access to other basic utilities such as pipe-borne water, health and medical services, education and poverty alleviation programmes renders telecommunication service extension ineffective (Oyedemi, 2004). Provision of ICT access in rural areas is likely to prove most beneficial where complimentary infrastructure services are also made available. Rural electricity and roads are the most obvious infrastructure compliments and Caspary and O' Connor (2003) states that these two forms of infrastructure are strongly complimentary. ICT is now regarded as a utility such as water and electricity hence it has become a major socio-economic factor in the development of a nation. This means that when discussing development, ICTs should also be discussed on par with the other utilities such as water and electricity.

People without access to utilities such as water and electricity do not appreciate the need for access to ICT. In fact ICTs functions well when other utilities are available. In Zimbabwe, the disposable income of the majority of the people cannot afford to buy the basic commodities like food and clothing (*The Zimbabwean Independent, 2005*). The *Zimbabwe Independen*t (2005) cites the survey report by the Consumer council of Zimbabwe that states that 80% of the population are living below the poverty datum line. This implies that the majority of the people may not appreciate the need to access ICTs when they will be struggling to buy the basic commodities such as food and accessing healthcare. Adeya (2002) state that ICTs should complement other infrastructure required for development such as clean water supply, transportation and electrification. A community with hungry citizens, without a clinic or a school will not appreciate the introduction of ICTs in their area as this will not be their first priority. Oyedemi (2004) state that in situations where these infrastructures are provided, they

are not fully utilised. Providing access to ICTs without providing access to other basic utilities renders ICT service extension ineffective. Oyedemi (2004) goes on to mention that there are accounts of telecentres being vandalised and equipment stolen, probably resold to meet more pressing basic needs. This therefore means ICT accessibility by rural people can only be achieved if they are provision of other utilities.

2.7 (v) Universal Service fund (USF)

Universal Service Fund is a public fund established to support communication goals of universal service (Townsend, 2002). Oyedemi (2004) also mentions USF as a system designed to enhance and achieve universal access goal. In a competitive environment where operators, share the universal service/access responsibility, the provision of universal service/access, including rural expansion, can be financed through special fund. Funds are set up as transitory mechanism to finance network expansion in challenging and unprofitable areas. All funds collected by USF will be allocated to assist in the rapid development of ICT infrastructure and services that are inadequately served by present operator and services. Universal service/access funds, sometimes called telecommunication development funds, award subsidies to operators, usually in a competitive manner, to make the regional licences more attractive for operators (Sabater-Navas, Dymond and Juntunen, 2002).

Competitors operating in the industry contribute to a fund, which is used to cover the net cost of universal service/access. They are two types of the Fund namely a physical fund that is administered either by the regulator or some other body; and a virtual fund where the operators make their contributions directly to the Universal Service Provider (USP) instead of pooling the money in a physical fund (Suvillan, 2002). The fund can be financed from various different sources such as: Funds provided by government contributions from the Treasury and all operators are charged a given percentage of their annual gross revenues, often known as Universal Service Obligation (USO) levy (Suvillan, 2002).

It is the duty of the responsible government to identify, or create an institution that will administer the Fund, and define the responsibilities and authority of that entity, and any advisory committee. Townsend (2002) states that assuming the administrator role will be the National Regulatory Authority, other key provisions should also be laid out in the law, such as the use of separate budgets and accounting, including the source of Fund's administrative budget, and the general responsibilities for utilising the Fund. Townsend (2002) proposes or emphasizes that the fund will be administered by a Regulator through the assistance of the government and committee of operators, service providers as well as users.

The mission of USF is to promote progress toward the realisation of Universal Access to basic and advanced ICTs throughout the country. In allocating funds toward specific project financing, the Fund will seek to promote the following: contribute to national economic development and social well-being; promote competition in the telecommunication market and promote technological innovation in the telecommunications sector (Townsend, 2002).

To bridge the access gap between the rural and urban areas in terms of telecommunication services provision, the Zimbabwean Government has come up with a fund to enhance universal access and service. According to Benjamin and Dahms (1999) it costs more to the operator to provide a service in remote areas, which usually are where the poorer people live. From 2001, in Zimbabwe Licensees were required to contribute a percentage of their revenues towards the Universal Service Fund (USF). To date some funds have been accumulated but not enough to finance any meaningful community access projects. There has not been injection of donor funds (into the USF) due to the prevailing political situation. Hence, as yet, no community access objectives have been achieved through the setting up of the Universal service fund. Sabarter-Navas *et.al* (2002) note that in the case of low-income countries, funding universal access from purely the levy alone is unlikely to produce sufficient funds to make impact in the short run. The use of government budgetary resources, backed by international finance institutions and other donors, may become necessary.

The Universal access fund will aid access to ICTs in rural areas as it will be used in the expansion of network to the remote areas. The fund will also be used in the development if ICT infrastructure in rural communities.

2.7 (vi) Policy reforms and ICT regulation

Policy in telecommunications is a rule-making mechanism that creates access to affordable services for citizens. It is a deliberate course of action carefully selected to meet certain clearly defined objectives within a specific time frame (Zwangobani, 2005). Zwangobani further elaborate that policy consists of basic principles or assumptions on which a programme of action is based. He also highlight that policy makers need to explore a range of alternative incentive packages for the provision of rural service, and select those that are most appropriate to the local context and national development objectives. These incentives include universal service funds, public-private joint ventures, rural concessionary licences, build-operator transfer schemes with international investors, cost-based tariff reform tied to interconnection agreements that favour rural operators, and special incentives for indigenous investment that support universal service (Telecommunication Development Report, 2000).

The entire basis for Universal Access policy should be established as a principle that access to communication is a common right of all citizens, since ' the nation's information infrastructure will not be complete until it reaches all locations and people throughout the country', providing 'affordable access', whilst 'taking into account the different needs among the user population'(Townsend, 2002). Universality policies provide an opportunity for uneconomic customers and areas to get access to basic telecommunication services. Apart from direct benefits, numerous external economic benefits can be derived from provision of universal service/ access. As the number of customers on a network increases, so does the value to all customers on that network (customers now have access to a larger number of users). Also since telecommunication provides a means of communication and it can sometimes be used as an alternative to other services such as transportation. Chandrasekha (2000) argue that it is a crucial

given fact that ICT is not benign; ICTs without policy intervention will intensify social divisions rather than close them. The unregulated market is likely to develop ICT to address the needs of the better educated, wealthier, and more technology literate individuals, communities and countries, since these are the people who want and will be prepared to pay for the development of new and more sophisticated products and services.

Zimbabwe now has a national ICT policy and the government embarked on the development of a comprehensive policy and strategy document for effectively harnessing ICTs for sustainable national development (National ICT Policy, 2005). The convergence of ICTs in terms of development, delivery on single platforms, hardware and software designs means that the hitherto separate approach is no longer relevant. There is therefore need to broaden goals of universal access to encompass continued access to network, at least through pervasive and efficient public institutional access points. Access to ICT services in Zimbabwe is governed by three considerations which are reasonably accessible service anywhere in the country; reasonable tariff rate; and reasonable service.

The Zimbabwean government policy on universal service in the telecommunication and postal sector objectives are the provision of basic telephone services reasonably accessible to all people in the country regardless of physical location. It also promotes the provision of telecommunication services at uniform rate and at affordable price and the provision of reliable, efficient and undefective service within a reasonable time, in under-serviced areas. The policy also emphasize the rebalancing of telecommunications networks for equitable access among the Zimbabwean communities and to provide skills training and development of persons in the provision of telecommunication services, in under-developed and serviced areas and to provide community programs on telecommunications services and technological development.

2.7 (vii) Policy Statements of the National ICT policy

The study is based on a few policy statements from the national ICT policy that are in line with the research study and these are increasing bandwidth on the national backbone and international gateway(s) systems to enhance speed and efficiency of operations. Develop supportive and enabling infrastructure to ensure equitable access to ICTs by all citizens including disadvantaged groups and rural communities; promote local production of ICTs products to ensure relevance of content and use of appropriate technologies that meet international standards; rationalise the ICT tariff structure to make ICTs more affordable and accessible; introduce and enforce stringent quality of service standards in the provision of ICTs and promote awareness and use of ICTs (Zimbabwean National ICT Policy, 2005).

The provision of universal service/ access to citizens should not be viewed as a luxury items but instead a necessity (Benjamin and Dahms, 1999) . The objective should be to satisfy the individual's basic telecommunication need. With this in mind, programmes could be implemented to keep the citizens on the network. However, it is frequently assumed that universal access policies must be based on the 'fact' that rural and remote service is expensive and therefore unprofitable (Richardson, 2002). Despite evidence to the contrary, many regulators continue to believe in the myth of universal unprofitable rural and remote service. Hence, universal access policies are often designed as a means to extend services in order to achieve socio-economic development for rural and remote communities (Richardson, 2002). Richardson (2002) goes on stating that while socio-economic benefits are certainly desirable, basing policies only on political desires to be benevolent, can actually deprive rural and remote residents of the quality of service which they actually pay for.

ICT regulation is aimed at providing a focused and specific programme to extend ICT services to all parts of a country at affordable prices and within reasonable distances from the people (Zimbabwe National ICT policy, 2005). Those in favour of regulation advocate that service providers cannot independently provide social services such as provision of universal service and universal access in areas that are not economically

active such as poor rural areas where people (assumable) cannot afford to pay for such service. Regulation of the ICT industry will lead to cheaper and better service quality as this eliminates monopolisation of the industry by big corporate or the governments. Through regulation, liberalisation of the industry comes into play and liberalisation has provided more room for competition in the Zimbabwean telecommunication sector as seen by coming in of a number of ICT service providers such as Africaonline, Ecoweb, Telconet, Zimbabwe online, Zimweb and ComOne (Zimbabwe National ICT policy, 2005). The deregulation of the ICT sector resulted in issuing of licences to several players. Figure 2.2 shows the number of players who have been issued with licences.

Type of service Licensed	**Number of players**
Fixed Public Telephone	2
Cellular (Mobile) Network	3
Public Data Service	3
Broadcasting Transmission Infrastructure	1
Public Broadcasting	1
Radio Stations	4
Private network	6

Fig.2.2 Licensed communication provider

Source: Zimbabwe National ICT policy, 2005

Universal access policies should therefore be developed in such a way that they include rural people as active participants making decisions about which, how and where ICTs will be put to use. Many universal access policies formulated with the distinct absence of rural and remote stakeholders inputs that they are supposedly meant to target and as a result access to ICTs is not achieved (Oyedemi, 2004).

The private sector sometimes argues that universal access can be achieved through the liberalisation and privatisation of the ICT sector. It is also argued that if a policy and regulatory barriers are removed and with technical advance, a competitive market and

dynamic private sector, the prices will be driven down and ICTs services will become affordable and accessible to all in the long run (Suvillan, 200).

2.7 (viii) Service platform: The centre approach

Access to ICT services can be gained in two ways, firstly through individual home connection to telecommunication networks and secondly through institutional access (Oyedemi, 2004). Individual home connections are not attainable in rural areas where the majority of the Zimbabwean population resides. This is because of the settlement patterns and the income structure of the majority of the citizens. Faced with problems such as poverty, poor infrastructure with regard to electricity and telephone lines as well as low education levels and lack of computer skills, the South African government decided on the centre approach as a viable option to place ICTs and other information services within the reach of disadvantaged rural South African communities (Snyman and Snyman, 2003). This could also be applied to rural communities such as Mutare rural district. The centre approach refers to the practice of establishing centres as information resources and communications nodes (Benjamin *et al,* 2000 cited in Snyman and Snyman, 2003). The centre approach entails the provision of community access to ICTs through a telecentre. Kutu Mphahlele and Maepa (2003) observe that the purpose of these telecentres is to extend services to under-served areas faster, by providing a community service. They also provide a wider range of services such as facsimile, Internet and photocopying, which are needed by the community. In other words, they can be seen as a vehicle for community information system.

Conradie (1998) define a telecentre as a facility that offers the public advanced Information Technology (IT) and telecommunication equipment, together with some degree of support and training and a range of information-based services. Centres are a way of empowering community's especially rural areas such as Mutare rural district. According to Snyman and Snyman (2003) the centres should form the backbone of development communications and the dissemination of information. They should offer a wide range of services tailored to the specific needs of communities and should play a

major role in educating the various communities and disseminate information to both rural and urban communities.

There are different terms that refer to centres that provide the public with access to ICTs. Snyman and Snyman (2003) state that over 30 different names have been counted for these centres. These include names like telecottages, multipurpose community centres, community technology centres, community communication centres, info shops, community access centres, and many others. The term telecentre will be used as the generic term throughout the study when referring to institionalised access points in Zimbabwe.

Two models of telecentre can be identified in Africa private telephone shops and a government funded ICT centre. The private telephone model has been effective in some African countries (such as Senegal and South Africa). Local and small-scale entrepreneurs can be encouraged to open telephone shops, with financial assistance where necessary. In this way, local economy of rural areas can be boosted and residents can have access to telecommunication services (Oyedemi, 2004). Conradie (1998) also gives two groups of centres and these are identified as 'rural community-oriented telecentre'. Conradie (1998) further state that these are centres that are situated in rural areas and they provide local communities with access to telecommunications and information technologies. These are centres directed towards the public (providing educational or training facilities and social service); and 'rural commercially oriented telecentre'(Conradie, 1998). These are centres that are situated in rural areas and that provide ICT-related or on-line services on a commercial basis as their main activity. These are centres oriented towards business life, either supporting local enterprises or themselves working as small enterprises

Kutu Mphahlele and Maepa (2003) note that various models of telecentre differ with regard to such factors such as size, type and number of equipment and ownership. These factors will determine the start-up cost of the telecentre with the smallest being least expensive. Kutu Mphahlele and Maepa (2003) go on to give the different models of

telecentre and these are teleshop which is a micro-business providing access to an individual telephone for community use; mini-telecentre which is a one-person micro-business operation with limited ICT facilities, such as one to two telephone lines, one computer plus dial-up access to Internet; standard telecentre which is a small business offering a variety of services to the community. It consists of four to six telephone lines, four to six computers with software, dedicated lines for fax and Internet, production printer or photocopier in colour (sometimes) and multi purpose community telecentre which is a medium to large size business operation providing full telecentre services and may include additional facilities for broadcasting, telematics and other value adding services (Kutu Mphahlele and Maepa, 2003). According to Conway (1995 cited in Conradie 1998) a telecentre has a dual role of supporting group and community development; as well as supporting commercial development by drawing in more business capacity to support that community (especially by using technology in rural areas to generate additional employment and alternative income).

Advantages of the centre approach as a service platform

The telecentre programme has been heralded as one of the most important initiatives of the 1990s to facilitate the use of modern ICTs in developing countries. Through the communal provision of technology, it is anticipated that the gap between the 'haves' and 'have- nots' can be narrowed leading to growth opportunities and poverty elimination (Rhodes, 2002). Telecentres are believed to be the vehicles through which micro and small enterprises can seek out and evaluate timely market information as well as assist microenterprenuers to source better and less costly inputs (Rhodes, 2002). In developing countries these centres can be linked to economic and social development efforts at community level. The World Bank Report (1998) describes the telecentre as a powerful engine of rural development and a preferred instrument in fight against poverty. Community telecentres have become spaces for effective access and strategic use of ICTs with emphasis on the democratisation of communication. The telecentre approach could play a role in national strategies for universal access in view of the fact

that full universal service (a phone in every home) is not a realistic goal for a country like Zimbabwe.

The optimistic perception that access to ICTs would solve many social and developmental problems was one of the reasons the centre approach was heralded as the solution to the ever- widening digital divide (Snyman and Snyman, 2003). It is advocated that the development of disadvantaged rural communities in developing countries (with Zimbabwe being no exception) could be acceralated by provision of ICTs access in ICT based community centres (Snyman and Snyman, 2003). Kutu Mphahlele and Maepa (2003) are of the notion that a telecentre should promote universal access, it should be run along business principles to generate revenue and make profit, while fulfilling its mandate in the process.

Challenges in the use of telecentre as a service platform in rural communities

Although the initiatives of a telecentre are commendable, it is unfortunate that the use of telecentre has encountered problems in developing countries. Conradie *et al* (2003) and the telecentre study (2000) have indicated that most telecentre initiatives in South Africa are struggling. It was found out that especially long-term economic sustainability of these telecentre has been a major problem and a stumbling block and in most cases they lack financial systems. A possible reason for the lack of success of some of the above initiatives is they largely address one issue, providing Internet access to rural areas. However, other serious challenges also exist and these include; firstly reconciling the tension between technology push and local developmental needs. Secondly, lack of electricity power in some rural areas. Rural areas lack supporting communication infrastructure where intervention takes place. Fourthly, lack of Personal Computer (PC) related skills in the local community; and lastly lack of PC related applications and sustainable career path opportunities in the area involved and other social challenges specific to the rural area involved (e.g. local power relationships and political divisions).

Despite all the challenges, what has been leant from the use of telecentres could be used as a stepping stone in the process of implementing telecentres in rural communities such as Mutare rural district. Nulens and Audenhove (1999) suggest a recipe for developing countries to provide ICTs to all its citizens which includes the following: establishing an ICT infrastructure or network that is reliable and affordable; introduce/ develop ICT applications that are responsive to local needs. Also ensure local capacity that would adapt ICT applications to local conditions and introduce relevant and supporting regulation or measures (ICT- related and other).

2.7 (ix) Summary of the universal access wheel

The universal access wheel if adopted and implemented may lead to the achievement of universal access in Mutare rural district. The wheel is flexible in such a way that new elements can be added to the whole sequence of providing universal access. Issues discussed in the literature review like provision of relevant content, technology and relevant platforms have been included in the model and this make it more applicable to our Zimbabwean situation.

2.8 Summary of Chapter

In this chapter a theoretical framework for the research area is provided and it is based on concepts or theories of media development; ICTs and rural development and universality. Review of previous studies is also discussed and the review was mostly based on studies that indicate how ICTs can be used for rural development and how they can empower such communities. It was evident from the literature that there is a correlation between ICTs and societal development and economic development. Research has shown that most available literature on ICTs and community development is still based on pilot studies or projects and also most of the projects are from Western organisations.

In the literature review, the trend in media development is discussed. It was evident from literature that there has been a gradual shift from the one-way view of communication to

a deeper understanding of communication as a two-way process that is interactive and participatory which is being heralded by ICTs.

Issues of universality in Zimbabwe indicates that the government is trying to reach out to the less lucrative areas which service providers shun in favour of profitable areas. In order for the Zimbabwean government to provide ICTs to rural areas like Mutare rural, they have to adopt the universal access approach and have the universal service approach as the long- term goal. The centre approach has been heralded as the better option to rollout ICTs to rural areas.

The following chapter will look at the design and methodology used in the study.

Chapter three: Methodology

3.1 Introduction

The previous chapter looked at the review of previous studies and the concepts of media development; ICTs and rural development; universal service and access. This chapter discusses the research design and methodologies that were used to collect data. It also defines the population of this study and how the data collection instruments were developed and administered. This chapter focuses on the research methodology adopted and the tools used for data collection in the research process. Subsequently, the research methodology is justified. Bailey (1987) defines methodology as the philosophy of research process. Bailey further elaborates that this involves the assumption and values that serve as a rational for research and the standards or criteria the researcher uses for interpreting data and reaching conclusions. A researcher's methodology determines factors such as how he/she writes hypothesis and what level of evidence is necessary to make decisions whether or not to reject a hypothesis (Bailey, 1987).

Bless and Higson-Smith (1995) introduces methodology as a method to solve problems and gain new knowledge. He argues that every method that serves this case can be included in the collection of methods. Collecting data can be done in several different ways. The selection depends on what kind of information is relevant to answer the research question. Studies designed to reveal peoples' attitudes and feelings are referred to as "intensive studies". To gain such knowledge the researcher must look in depth. Performing personal interviews and/or observations can achieve this. Other studies may aim at investigating a large number of topics and be interested in defining the coherence between issues and relationships. Commonly, the approaches to research are divided into two categories; quantitative and qualitative methods.

3.2 Research Methodology

Research is defined as a scholarly or scientific investigation or inquiry. Many researchers tend to categorize research studies into two broad categories-quantitative and qualitative researches. Both methods can be used separately or in combination. In this study the qualitative and quantitative methods were used for data collection. Miles and Huberman (1994) state that words and numbers keep one another analytically honest. One might use qualitative data to illustrate or clarify quantitatively derived findings; or, one cold quantify demographic findings. Or, use some form of quantitative data to partially validate one's qualitative analysis (Strauss and Corbin, 1990). Qualitative data is a source of well grounded, rich description and explanations of processes occurring in local contexts.

With qualitative data one can preserve chronological flow, access local causality and derive fruitful explanations. Qualitative data are more likely to lead to new theoretical integrations and they also help researchers go beyond initial preconceptions and framework (Miles and Huberman, 1994). Qualitative data have a quality of 'undeniability' as words especially when they are organized into incidents or stories, have concrete, vivid meaning flavour that often proves far more convincing to a reader (another researcher or policy- maker) than pages of numbers (Miles and Huberman 1994). Numbers on the other hand are more economical than words; one 'sees' the general drift of data more easily and rapidly by looking at distributions (Anderson, 1987).

The qualitative approach enabled understanding of different ways that different institutions access ICTs whiles the level of access to ICTs was established using quantitative approach. The combination of approaches increases the internal validity and reliability of research findings. Although some researchers preferred one approach to another, in this study both the quantitative and qualitative approaches were chosen. The key issue to avoid misinterpretations in research is triangulation, which implies a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation. Triangulation implies that techniques are used in a

parallel sense, thus providing overlapping information making it possible to check results from more than one view points. Ramchander (1994) distinguishes triangulation into four types namely; data triangulation; where data is collected at different times, or from different sources in the study of phenomena; investigator triangulation; where several different approaches collect data to the same phenomena independently and compare findings; methodological triangulation; where different methods of data collection commonly both qualitative and quantitative are combined in study and triangulation of theories; where a theory derived from a new discipline is used to explain a phenomena (Ramchander, 1994)

Methodological data triangulation was used in the study as it is important to discuss an issue with different types of in formants to increase reliability of the findings. Wilson (1984 cited in Miles and Huberman, 1994) suggest three broad reasons as to enable confirmation or corroboration of each other via triangulation; to elaborate or develop analysis, providing richer detail and to initiate new lines of thinking through attention to surprises or paradoxes, 'turning ideas around', providing fresh insight.

3.3 Research focus

This study aims at investigating the limitations to accessing ICTs and how access to ICTs can benefit people from Mutare rural district. The Zimbabwean government has recognised the impact that ICTs will have on society and embarked on a survey in 2005 to assess the status quo of ICTs in the different sectors of the economy. It is from this basis that the study will try to investigate whether everyone especially those in rural areas such as Mutare rural could also benefit from the potential benefits offered by ICTs. This study will also investigate how access can improve the socio-political and economic activities in Mutare rural district. ICTs have the potential to aid development (Mansell and When,1998) and it from this assumption that the this study want to investigate whether the same could also apply to rural communities such as Mutare rural district. In the manufacturing industry, ICTs can increase productivity, and it is from this assumption that the researcher will investigate how access can improve productivity in the domestic manufacturing industry (weaving and craft).

The study will also explore the ways in which access to ICTs can improve livelihoods in Mutare rural district. Basing on the universal policy of the Zimbabwean government the study will identify types of ICTs that the people of Mutare rural district have access to. It will also identify how access can facilitate development in Mutare rural district. At the end of the study the researcher aims to come up with recommendations in regard to provision of suitable ICTs for Mutare rural district. This study also focuses on the issue of access to ICTs, while trying not to make judgements on the knowledge and capacity of those who do and do not have access to ICTs.

3.4 Research questions

The questions posed are:

- What is the current state of ICTs in Mutare rural district?
- What is the level of access to ICTs in Mutare rural district?
- Which determines access to ICTs in Mutare Rural District?
- What type of ICTs do people need in their district?
- For those without access, what are reasons for lack of access?
- How can access benefit development in sectors such as agriculture, education and health in Mutare rural district
- What are the strategies to employ in increasing access to ICTs in Mutare rural district
- If access to information and communication can promote development, then it is important to know how the poor obtain information and what channels of communication are available to them.

3.5 Research Aims/Objectives

The objective of the research is to assess the type of ICTs that are available in the district. The research will also assess the level of access to ICTs in the district. The determinants of access to ICT will be investigated and this will be achieved by looking at different the type of people who have access to ICTs. The research will then investigate the potential benefits of ICTs in Mutare Rural District. The potential for

increasing ICT access in the District will be explored. Different ICTs are going to be ranked according to their importance in the district.

3.6 Research methods

3.6 (i) Survey Research

Survey research serves as the method by which this study was conducted. Survey research is the method of gathering data from respondents thought to be representative of some population, using an instrument composed of closed structure or open ended items (questions). This is perhaps the dominant form of data collection in social sciences, providing for efficient collection of data over broad populations, amenable to administration in person, by telephone and over the Internet (Czaja and Johnny, 2005). Surveys represent one of the most common types of quantitative, social science research. In survey research, the researcher selects a sample of respondents from a population and administers a standardised questionnaire to them. The questionnaire or survey can be a written document that is completed by a person being surveyed, an online questionnaire, a face-to- face interview, or a telephone interview. Using surveys, it is possible to collect data from large or small populations (sometimes referred to as the universe of a study).

3.7 Rationale for selection of type of research

Survey research was used because it is widely accepted and commonly used technique for collecting data. Survey research has long established as an effective method of measuring the characteristics, attitudes and perceptions of a population. Researchers use surveys as a scientifically sound method in which to interview a representative sample instead of the entire population (Wimmer and Dominic, 1994). Babbie (1999) espouses the flexibility the survey provides, noting that data collection technique can be used for descriptive, explanatory and exploratory purposes and it is chiefly used in studies that have individual people as units of analysis. Babbie goes on mentioning that surveys especially self-administered ones make large samples feasible.

They are positive attributes in the use of survey research and Wimmer and Dominick (1994) identifies the following advantages of survey research; they can be used to investigate problems in realistic settings. Newspaper reading, television viewing, and consumer behaviour patterns can be examined where they happen rather than in a laboratory or screening room under artificial conditions; the cost of surveys is reasonable considering the amount of information gathered (Wimmer and Dominick, 1994). Researchers control expenses by selecting from major types of surveys: mail, telephone, personal interviews and group administration; large amounts of data can be collected with relative ease from a variety of people. The survey technique allows researchers to examine many variables (demogragraphic and lifestyle information, attitudes, motives, intentions; data helpful to research already exists (Wimmer and Dominick, 1994). Data archives, government documents, census materials, radio and television can be used as primary sources (main sources of data) or as secondary sources (supportive data) of information (Babbie, 1999).

Babbie (1999) argues that survey research has weaknesses. He states that survey researches seldom deal with the context of social life. Although questionnaire can provide information in this area, the survey researcher rarely develops the feel for the total life situation in which respondents are thinking and acting that, say, the participant observer can. They are also inflexible and studies involving direct observation can be modified as conditions warrant, but surveys typically require that an initial study design remain unchanged throughout

3.8 Ethics in survey research

Mc Nara (1994 cited in Hardy, 2005) identifies five ethical considerations to be considered when conducting survey research. He goes on elaborating that these guidelines deal with voluntary participation, no harm to respondents, anonymity and confidentiality, identifying purpose and sponsor and analysis and reporting. The guidelines are discussed as follows; researchers need to make sure that participation is completely voluntary. The researcher should avoid possible harm to the respondents. This could include embarrassment or feeling uncomfortable about the questions. This

study did not include sensitive questions that could cause embarrassment or uncomfortable feelings. The researcher should protect respondent's identity. This can be accomplished by exercising anonymity and confidentiality. A survey is anonymous when a respondent cannot be identified on the basis of the response. A survey is confidential when a response can be identified with the subject, but the researcher promises not to disclose the individual's identity and the researcher should also let all prospective respondents know the purpose of the survey. In this study, this was clearly stated in the introductory letters from the university and from the Member of Parliament for the district. The researcher should accurately report both methods and results of the survey. This includes the problems, weaknesses as well as the positive results of the study.

3.9 Selecting the sampling frame

The main purpose of sampling is to achieve representative ness; the sample should be assembled in such a way to be representative of the population from which it was drawn. Due to time and costs constraints it is usually not feasible to question or observe an entire population of interest therefore researchers take a particular subset of the population known as sample. The research questions guided me during the selection of the sampling frame. I meant to study the level of access to ICTs in rural areas. Urban set ups were therefore automatically excluded in this study. Other areas were eliminated due to the local languages prevalent in those areas. The researcher is not a Ndebele speaker, the second major indigenous language. Translating the questionnaire into Ndebele and hiring personnel to administer the questionnaire in that area would have increased the costs and made it difficult for me to monitor.

Due to the small size of the sample and lack of resources to conduct a wider survey, this study does not pretend to be scientific in its findings. However, it is presumed that the findings are somewhat accurate reflection of the state of access to ICTs in the Mutare rural district. The findings apply to the sample surveyed, but could apply to rural communities within Zimbabwe. Warah (2005) argues that a sample is a representative of the total population from which it is drawn. Nesbary (2000 cited in Hardy 2005)

suggests that the larger the sample size, the greater the probability the sample will reflect the general population. However, sample size alone does not constitute the ability to generalize. Wimmer and Dominick (1994) also mention that the larger the sample used the better. However, a large unrepresentative sample is as meaningless as a small unrepresentative sample, so researchers should not consider number alone. Quality is always more important in selection than mere size. Obtaining an unbiased sample is the main criterion when evaluating the adequacy of sample. Pattern (2004 cited in Hardy 2005) identifies an unbiased sample as one in which every member of a population has an equal opportunity of being selected in the sample.

Therefore, random sampling was used in this study to help ensure an unbiased sample population. This is the commonest approach to sampling, but it is by so means the only one, nor is representative ness-in a numerical sense- the only aim of sampling procedures (Wimmer and Domonick, 1994). Because random sampling may introduce sampling errors, efforts were made to reduce sampling errors, thus increasing precision by using stratified random sampling. According to Babbie (1992) stratified sampling ensures the proper presentation of the stratification variables to enhance representation of other variables related to them. Taken as a whole, then, a stratified sample is likely to be more representative on a number of variables than a simple random sample. Wimmer and Dominick (1994) also note that a stratified sampling ensures that a sample is drawn from a homogenous subset of the population Homogeneity helps researchers to reduce sampling errors.

To obtain a stratified random sample, the population was divided into strata according to institutions as shown in table 1. Typically, for stratified random sampling, the same percentage of participants, not the same numbers of participants are drawn from each stratum (Pattern, 2004 cited in Hardy, 2005).

Table 3.1: Strata (subgroups) for stratified random sampling

Samples	Populations
Heads of schools	15
Member of staff (schools)	25
Heads of health institutions/member of staff	16
Agricultural Research and Extension Services (AREX) officers	10
Mutare Rural Residents	20

The population from which the sample was drawn was identified in Mutare Rural district which is a district in Manicaland province. There are seven rural districts in Manicaland. Mutare rural district consists of thirty-one wards. It was not feasible to include the whole district in the study .This was because of finance, time and the critical fuel shortages prevailing in the country at the time of my field work. The researcher was using public transport and some of the wards were inaccessible because of lack of transport to these areas as less public transport was operating. After the heavy rains that were received during the month of December, some areas became inaccessible hence the idea of covering the whole district was abandoned. At the end the research was limited to wards along the road that links Buhera via Marange. Selection of the wards was random and it was based on accessibility. The study then focused in areas that were easy to reach.

3.10 Data sources

Data collection was done through both secondary and primary sources. Primary data sources included interviewees and the respondents to the questionnaire. Secondary data sources mainly covered government sources, archives material and the Internet. Valuable insight was also gained from analysis of research studies conducted by the Ministry of Science and Technology on the state of ICTs in the country. Secondary data covered different sources and provided an essential preparation for the interviews.

3.11Data Collection Process

The choice of method will depend on methodological factors, most important of which is the type of research. In this research, the main data techniques used in were unstructured interviews, questionnaires and secondary data analysis. Questionnaires and personal interviews constituted one of the most important valuable sources of information. The archival materials and documents were used as supplementary sources. This multi-method approach according to Matewa (2003) is meant to make the strength of one method compensate for the weakness of another.

During the month of April 2006, the researcher conducted the survey in Mutare Rural District with the help of two assistants who were village school teachers and 90 questionnaires were distributed. The idea of working with assistances was adopted because the researcher had a few weeks away from campus. It was therefore important to do it within a short period. According to Matewa (2003) having assistants reduces the number of days required to collect data. If the researcher had done it alone it was going to take more than a month to complete the survey. The distributions of the questionnaire were as follows:

Table 3.2. Distribution of questionnaires

Sector	Number of questionnaires
Education	44
Health	16
Agriculture	10
Ordinary Citizens	20
Total	90

Initially in the research, 160 questionnaires were target sample with each sector having 40 respondents. During the fieldwork the researcher realised that some of the sectors like health institutions only had one nurse who also was the head of the institution. Although there is now a health centre within every 5 km radius, most of the rural hospitals are understaffed (IRIN, 2004). So the notion of having two responses at one institution was automatically cancelled. In order to have unbiased responses, the researcher wanted to have responses from head of institutions and any member of staff.

Zimbabwe boasts a literacy rate of 91%, which is the best for the whole of Africa (World Bank, 2003). In Manicaland a number of both primary and secondary schools are dotted around the province. Just as with clinics, in general, there is a school within a 5 km radius.

The process of getting information in Zimbabwe is cumbersome. Before going into the field, I contacted the Member of Parliament (MP) for Mutare West (Mutare rural district is in this constituency) and explained my mission in the district. His permission was granted. Matewa (2003) cites Lewin (1990) who observes that 'Official approval had to be given and it carried with it the benefits of enhanced accesses'. The researcher also sought approval from the district offices in the following sectors; agriculture, health, education. Permission to do the survey in the district was only secured after showing the letter from the MP. One official told the researcher that if the researcher had not produced letter, she was not going to get into the rural area as she was coming from a

foreign university. True to his words, some of the respondents wanted to see the clearance letters from the district offices.

3.12 Questionnaire design

The questionnaires were composed of closed and open questions. An open-ended question allows the respondents to answer the question in their own words (DuPlooy, 2002). An open ended question is important if we want to encourage respondents to express attitudes and or opinions in their own words; and especially if we are not sure of the number of responses that may be elicited. Open-ended questions give room for answers that researchers did not foresee in the construction of the questionnaire (answers that suggest possible relationships with answers or variables). Singleton, Straits, Straits and McAllister (1988) supports this and state that the resulting material from open-ended is a veritable goldmine of information revealing respondents' logic or thought processes, the amount of information they possess, and the strength of their opinion or feelings. Frequently the researchers' understanding of the topic is clarified and even completely changed by unexpected responses to open questions. Singleton *et al* (1988) further point that this very quality of open questions, the wealth of information, has a drawback: the 'coding' problem of summarising and analyzing rich and varied (and often irrelevant and vague) responses. Coding such material is time consuming and costly process that invariably results in error (DuPlooy, 2002). Other problems with the open-ended questions include; the varying length of responses (some people are unbelievably verbose, others exceedingly reticent); the difficulty with inarticulate or semiliterate respondents; the difficulty interviewers have in getting it all down accurately; the reluctance of many persons to reveal detailed information or socially unacceptable opinions or behaviour (Singleton *et al* (1988).

A closed-ended question contains fixed number of answers, from which a respondent has to select one. Wimmer and Dominick (1994) state that these questions are popular because they provide uniformity of responses and as the answers are easily quantified. Wimmer and Dominick (1994) further state that an important requirement of a closed-ended question is that respondents must commonly understand the language and terms

used. One disadvantage of using such a question is that possible answers are limited to the number of categories included as options. Respondents may have an answer different an answer different from those supplied. To curb this shortcoming the researcher included 'other' on the answers provided. This according to Wimmer and Dominick (1994) gives the respondents an opportunity to supply their own answers. The 'other' responses are handled just like open-ended questions.

The questionnaires covered a range of demographic, economic and social issue and also looked at the question of ICT access in depth. The questionnaires were in the English format, so the researcher had to interpret the questionnaire to the ordinary citizens who in most cases could not complete the questionnaire on their own. With the other sectors like education, health and agriculture, the researcher delivered the questionnaire to the sample respondents and explained the study. Then the questionnaire was then left for the respondent to complete and the researcher picked it up later.

3.13 Interviews

An interview offers researchers' access to people's thoughts and memories in their own words rather than in the words of the researcher. The benefits of using interviews as source of material are beneficial because they allow the person being interviewed to express themselves in their own words and to tell the story as they see it. It is the best to learn information from someone- provided they after willing to tell accurate information. The researcher used unstructured interviews and Matewa (2003) state that use of unstructured interviews enables the collection of as much data as possible as well as avoiding emphasis on some aspects. Unstructured interviews also let the interviewees answer questions and commenting the way they that he/she would feel safe about. One potential pitfall of using the interviews is that the subject may simply be parroting answers, or may be composing answers that they think the interviewer 'wants to hear' regardless of their truth (Matewa, 2003) .

In this study, the researcher only asked initiating questions and accounts from interviewers were noted down and not taped. Since no prior arrangement had been made

with the interviewers, those interviews were fairly short, but gave a good idea about what issues would be relevant to go deeper into. If longer interviews were conducted, it would be essential to make prior arrangements with interviewees and make sure that they would be fully aware about the purpose of the interview and why their participation would be valued.

Interviews were carried out with officials from Minister of Transport and Telecommunication, officials in the same ministry involved with ICT projects, Arex officials at Bazeley Bridge, officials from the district education offices and officials from the district health offices. This was to know how best ICTs can be harnessed for development. Selection of these institutions has also been influenced by the Zimbabwean government policy on universal access that state the above institutions will be the institutionalized access points for communities. Interviews were also carried out with two academics from the ICT department at Africa University who are involved in rural ICT projects in the province. In all the instances permission was sought and when granted the interviews commenced. In all cases people were willing to respond.

3.14 Secondary Sources

The way in which scientific research is being conducted is currently undergoing a profound change. Books and journals from university libraries, once regarded the sole source of reliable scientific information are increasingly being complemented by papers and reports published on the Internet. This is especially true for the fast moving ICT sector, and therefore this thesis has also incorporated the Internet as a research tool. Secondary data was obtained from the Government institutions like the Central Statistics Office (CSO), Ministry of Transport and Communication, Ministry of Health and Child Welfare (Mutare), Ministry of Education, Sport and Culture (Mutare), Agriculture Research and Extension Services (Bazeley Bridge) and Mutare Rural District Council.

3.15 Summary

The chapter looked at the methodology of the study. Qualitative and quantitative approaches were used for data collection. The qualitative approach used different methods to collect data e.g. the interviews and archival material. Also included are details of the population selected for the study, sampling procedures and the data collection methods. In the following chapter, the data collected will be presented.

Chapter Four: Data Analysis and Presentation

This chapter will analyse the use and access to ICTs in Mutare Rural District resulting from the field research. A total of 90 questionnaires were distributed in the following sectors namely; education; health, civil society and agriculture. The questionnaire had four sections. Section A, B, C had both the closed and open-ended questions. Section D consisted of open –ended questions

EDUCATION SECTOR

4.1 Demography of respondents

The respondents surveyed in this sector were school heads and teachers in the Mutare Rural district. A sample of 44 respondents was used in the survey. The subjects included were 21 (47.7%) females and 23 (52.3%) males.

4.2 Age distribution of respondents

A total number of 44 respondents were surveyed. Their ages were categorized into four categories. The first category which is age 25- 35 constitute (18) 40, 9%. The second category age 35-45, constitute (17) 38, 6 % of the respondents. Age 45-60 constitute (8) 18, 2 % and above 60 is (1) 2, 3% respectively. This is presented in the histogram below:

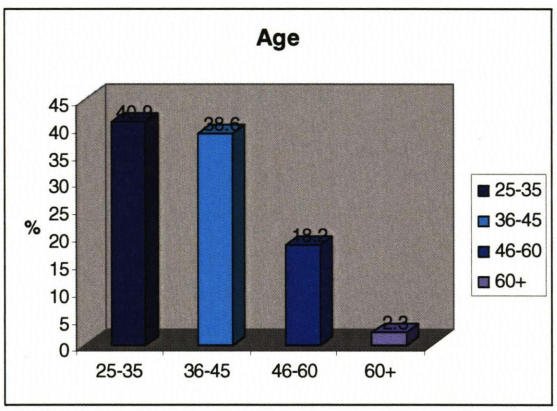

Fig 4.1Age distribution of respondents

4.3 Distribution of respondents according to occupation

Occupation of the respondents was limited to three categories which are the head of school, member of staff or any other occupation at the school. In the last category respondents were asked to specify their occupation. It was noted that only the head of school or members of staff could respond to the questionnaire as some sections of the questionnaires dealt with statistics which could be given by either the school head or any member of staff. From the survey 12 (27.3%) of the respondents were school heads and 32 (72.7%) were school teachers.

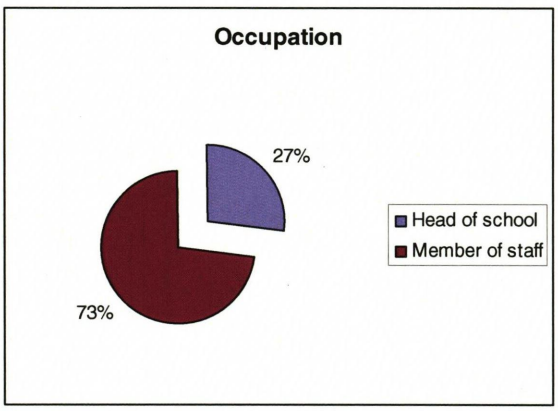

Fig 4.2 Distribution of the respondents according to their occupation

B .Geographical information

4.4 Distribution of schools

Zimbabwe's schools are categorized as primary and secondary schools. The primary schools take students from grade 1 to 7 and in some cases it starts from grade 0 to grade 7. Secondary schools start from form one to four and in some cases they go up to form six. Most of the primary schools were already in place during the liberation struggle and most of the secondary schools were built after 1980. From the survey the majority of the schools surveyed were primary schools constituting 23 (52.3%). Secondary schools constitute 21 (47.8%) of the total surveyed schools.

4.5 Number of students in school

Numbers of students were categorized into four categories. The first category had less than 500 students and it had 18 (40.9%) of the total respondents. The second category has

between 501-600 students and this had 14 (31.8%). The fourth category with a range of 601-700 students had eight (18.2%) of the respondents and lastly the fourth category with above 700 students had four (9.1%) respondents. This is presented in the histogram below:

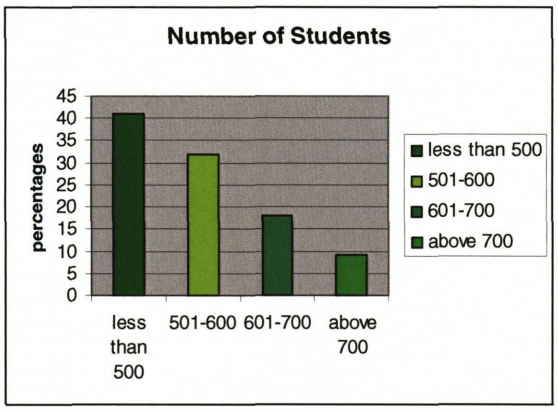

Fig 4.3 Number of students in schools

C. Telecommunication infrastructure

4.6 Access to a phone

The respondents were asked to indicate the type of phone they have access to and all the respondents (100%) indicated that they have access to cell phones. This high rate of access to cell phones could be attributed by the fact that most of the civil servants in the district managed to get the NetOne simcards at a cheaper price and all the schools were allocated simcards which they would use as a school property.

4.7 Usage of cell phone

Different respondents use the phone for different reasons. From the study the majority of the respondents 24 (54.5%) indicated that they use the phone for both communication with other schools and for business purposes. 15 (34.1%) use the phone for communicating with other schools. The remaining five (11.4) indicated that they use the phone for business purposes only.

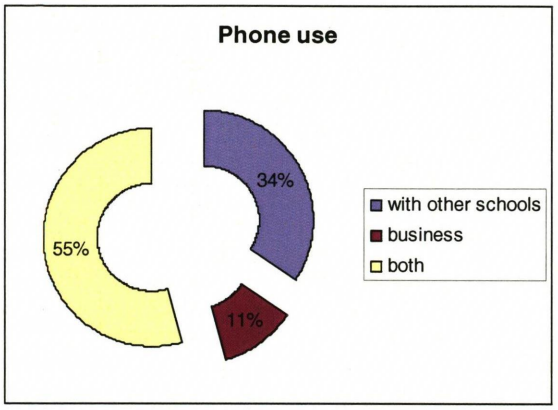

Fig 4.4 phone usage

4. 8 Frequency use of the cell phone

When asked about the frequency they use the phone, a total of eight (18.2%) respondents indicated that they use the phone everyday, 15 (34.1%) indicated that they use the phone 2-6 times a week. 12 (27.3%) of the respondents indicated that they use the phone once a week. Three (6.8%) indicated that they use that they phone once a month. The remaining six (13.6) indicated that they never use the phone. The results showed some were alarming discrepancies in the frequency use of phone among the respondents. Most of the teachers managed to get the simcards at cheaper prices so they no longer rely on the school cell phone.

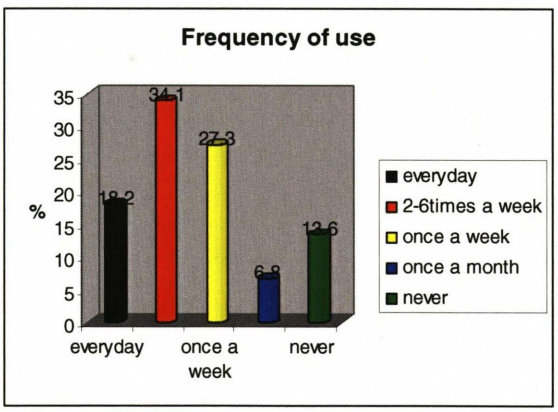

Fig 4.5 Frequency use of phone

4.9 Community access to phones

The majority of the communities (97.7%) have access to phones in schools. The study established that the phone has replaced the letter. In the 1990s people used to receive their letters through the school post office box. The phone is also being used in the same manner. Communities receive funeral or messages through the school phone. They also use the phone to communicate with relatives who in most cases would have migrated to the urban areas. The study indicated that the majority 43 (97.7%) of the school phone is accessed by community. A small fraction (2.3%) of the schools surveyed, indicated that communities can not access the phone.

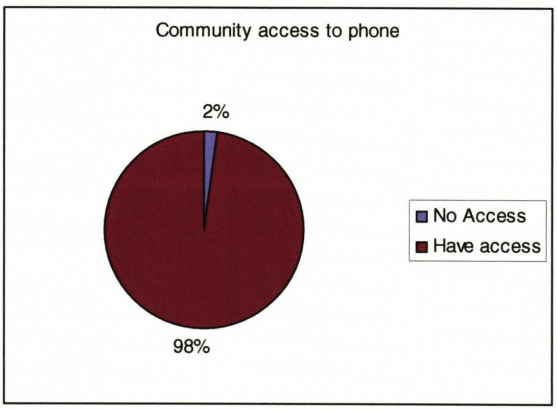

Fig 4.6 community access of phone

A follow up question on community access to phones was on 'the method of payment' to the school. This varied from school to school. The range was from $20 00 per unit to communities bringing in their airtime. The community uses the phone on regular basis and some respondents indicated that communities use the phone when the need arises especially to pass on funeral or sickness messages.

4.10 Access to photocopier

The majority of the respondents 42 (95%) indicated that they do not have access to the photocopier. A small fraction 2 (.5%) responded as having access to the photocopier. The above question was followed by a question that required the respondents to indicate where they do their photocopying. The majority of the respondents (95%) indicated that they have to board a bus to Mutare town for photocopying. They also indicated that they

do not know how to use the gadget since they have to pay at service centres for photocopying (Munyoro Head, 2006). But as indicated by the diagram below 39 (88.6%) indicated that they know the benefits offered by the photocopier. A small fraction five (11.4) indicated that they lack knowledge on the benefits offered by the photocopier.

4.11 Access to facsimile

All the 44 (100%) respondents indicated that they do not have access to a fax. In the question on where they did their faxing they all indicated that they have to travel to Mutate town. Although results have shown that the respondents do not have access to the fax, the majority of the respondents 30 (68.2%) have knowledge on the benefits offered by the facsimile. A small percentage 14 (31.8) did not have knowledge on the benefits offered by a facsimile. Although they have knowledge on benefits that could be derived from use of facsimile all the respondents indicated that they cannot operate the ICT. A commerce teacher jokingly asked if I could bring the ICT and show him how to operate it as he was just teaching from the textbook without any practice.

4.12 Frequency use of facsimile

42 (95.5%) respondents indicated that they do not make use of fax services and the minority one (2.3%) make use of the facsimile once week and 1(2.3%) also indicated that they make use of the fax once in two weeks. This is illustrated in the diagram below:

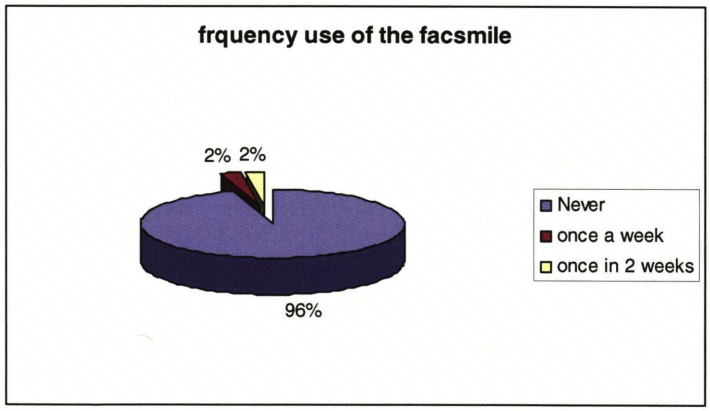

Fig 4.7 Frequency of using facsimile by the respondents

4.13 Access to and use of radio

From the total sample in the study 42 (95.5%) indicated that they do not have access to radio in schools. A tiny fraction of two (4.5%) have access to radio at their school. Despite having no access to the gadget by most of the respondents, the majority 40 (90.9%) of the respondents know the benefits of having such a gadget at school. One respondent nostalgily remembers the radio lessons broadcasted on Radio Four during the 1980s and how students will eagerly listen to the teacher on radio. 4 (9.1%) of the respondents indicated that they do not know the benefits of having a radio at school. Results from the survey indicate that two (4.5%) of the respondents who have access to the radio use the radio for entertainment. The school that indicated that it has access to radio was a boarding school, so the radio was being used for entertainment purposes on some weekends for the students. The majority of the respondents did not respond to the question since they had indicated that they did not have access to the radio.

From those who have access to the radio, results indicate that one (2.3%) use the everyday in staff room for entertainment purposes and another respondent one (2.3%) indicated that they use the radio once a month for students entertainment. The majority of the respondents did not respond as they had indicated earlier on that they do not have access to the radio at school.

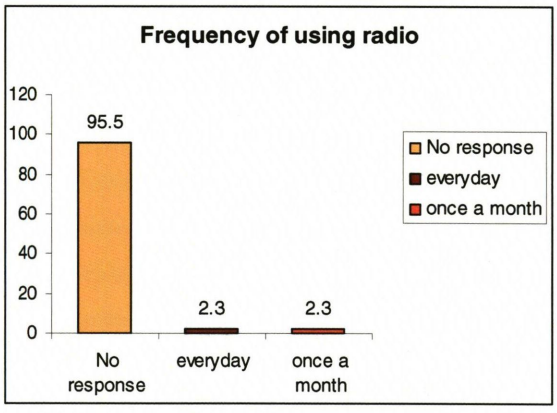

Fig 4. 8 Frequency of using radio

4.14 Source of power

Respondents were asked to indicate the power they use for their radios. The majority (94.5%) did not respond and this was based on the fact that they had indicated that they do not have access to the radio. Those who have access two (4.5 %) indicated that they use electricity for their radio.

4.15 Access to Television

The majority 42 (95.5%) of the respondents do not have access to the television (TV) and only two (4.5%) indicated that they do have access to TV. The follow up question asked them the reasons why they do not have access to the Television. From the responses given most respondents cited financial constraints as impediments in accessing TV. Some highlighted that they do not have electricity in schools.

4.16 Knowledge on Television benefits in schools

The majority 42 (95.5%) of the respondents indicated that despite not having access to TV, they know the benefits they can derive from the use of the television in schools. They also indicated that they can operate the gadget. A small fraction two (4.5%) indicated that they do not have knowledge on the benefits of TV use in schools.

4.17 Television use in schools

Television use in schools is very low with only two (4.5%) citing use of TV in schools. The majority (95.5) of the respondents indicated earlier that they do not have access to the TV, so they did not respond to the question. A small percentage one (2.3%) indicated that they use the TV for educational purposes and 1(2.3%) indicated that they use the TV for entertainment. The diagram below represents the statistics:

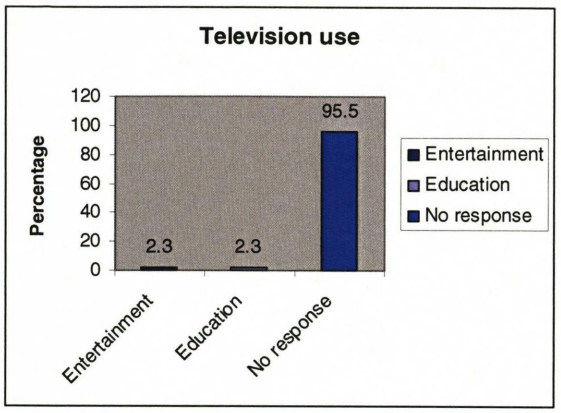

Fig 4.9 Television use in schools

4.18 Frequency in the use of Television

The majority 42 (95.5%) do not use the Television in schools. From those who have access to TV in schools one (2.3%) indicated that they use the TV everyday and one (2.3%) showed that they use the TV 2-6 times per week. The diagrams below represent the statistics.

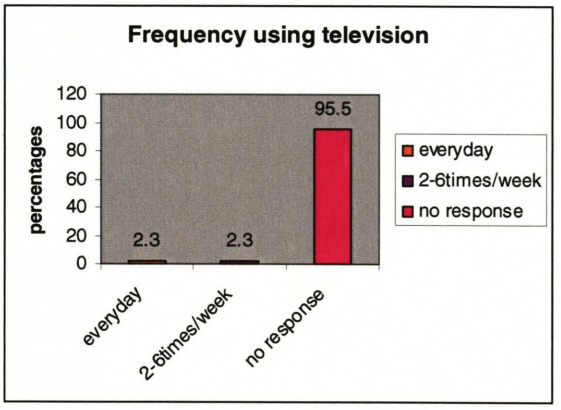

Fig 4.10 Frequency use of Television

4.19 Source of power

Majority 42 (95.5%) of the respondents did not respond to the question and two (4.5 %) who have access to TV indicated that they use electricity for their television.

4.20 Access to computers

The majority 36 (81.8%) of the respondents do not have access to computers and it was noted that these are mostly primary schools. Only eight (18.2%) indicated that they have access to computers and it was noted that these were secondary schools. It was also noted that among the schools with access, 25% was not using the computers as the school did not have electricity. The respondents without access to computers were asked to answer why they did not have computers and the majority indicated that they do not have resources to buy the computers. Another reason cited was lack of skilled personal to teach both the students and staff on the use of computers. This the respondents cited as another push factor in not prioritizing purchase of computers in schools. Fees paid by students is not enough to cater for all the needs so they priorities some other pressing needs. The distribution of access to computers is illustrated in the diagram below:

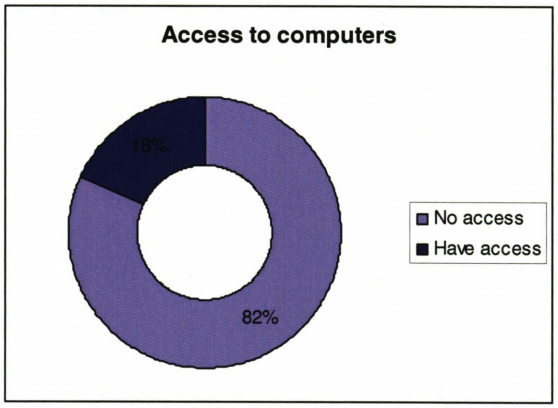

Fig 4.11 Access to computers in schools

4.21 Knowledge on the benefits offered by computers

The majority 91 (93.2%) indicated that despite not having access to computers they have knowledge on benefits of computer use in schools. A minority three (6.8%) indicated that the do not know the benefits offered by the use of computers in schools. The majority indicated that they lack the capacity to operate a computer.

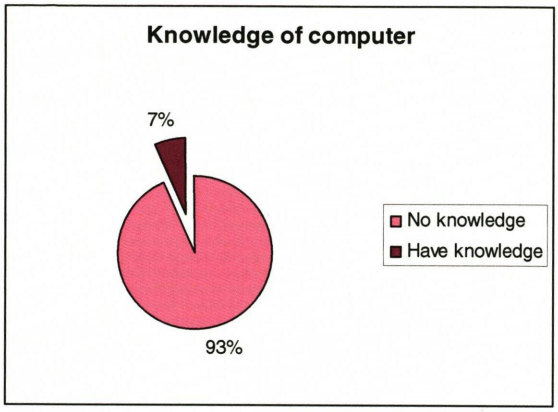

Fig 4.12 knowledge on the benefits offered by computers

4.22 Computer usage in schools

In response to the question on usage of computers in schools six (13.6%) indicated that they use the computers for all the purposes given in the questionnaire and these included educational purposes; data storage; word processing. 38 (86.4%) did not respond to the question. This number had indicated earlier that they do not have access to computers. Computer use in schools is presented in the diagram below:

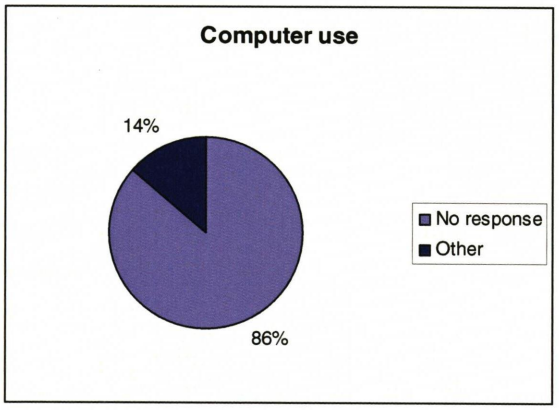

Fig 4.13 Computer usage in schools

4.23 Computer acquisition

It was noted that the majority four (9.1%) of those who have computers in their schools were beneficiaries of the Presidential programme that is giving schools some computers.

Four (9.1%) of the schools with access to computers indicated that they got the computer from a local bank (CBZ). The histogram below presents computer acquisition in schools:

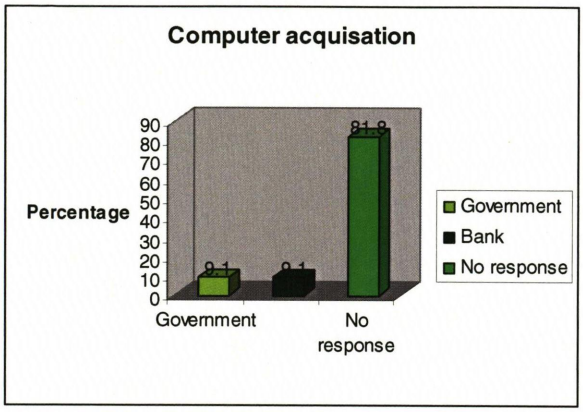

Fig 4.14 Computer acquisition in schools

4.24 Introduction of computer studies in schools

The majority 40 (90.9%) of the respondents indicated that they have not introduced the computer studies as a subject in schools. This is attributed by the fact that they do not have access to the computers. It is also important to note that there is a fraction of schools that have access to computers but they do not offer the subject. This fraction indicated that they do not have teachers to teach the subject. It is very difficult to attract trained computer studies teachers to teach in rural schools. Four (9.1%) of the respondents indicate that they have introduced computer studies at their school. Basic computer literacy is introduced at Form one and this answered the follow up question to the above "What level do you introduce computer studies?"

4. 25 Knowledge on the benefits of computer studies in schools

The majority of the respondents 40 (90.9%) indicated that they know the benefits of introducing computer studies at school. One respondent stated that it is good to learn computers early as she was struggling to use a computer herself. Four (9.1%) indicated that they do not know the benefits offered by the introduction of computers in schools.

4.26 Access to computers and Internet

All the schools with access to computers indicated that the community does not have access to computers. Access to Internet is very low with only four (9.1%) of the respondents indicating that they have access to Internet and the school that has Internet is closer to Mutare town so proximity to town can also contribute to access to Internet. The majority 40 (90.9) indicated that they do not have access to Internet.

4.27 Knowledge on the benefits of the Internet in schools

The majority 25 (56.8%) of the respondents have knowledge on what the Internet can do in schools while 19 (43.2%) indicated that they do not have knowledge on benefits that could be derived from using the Internet in schools.

4.28 Frequency of using the Internet

Internet usage is low with one (2.3%) indicating that they use the Internet once a week and three (6.8%) indicating that they access the Internet once a month. This is represented in fig 4.15 below:

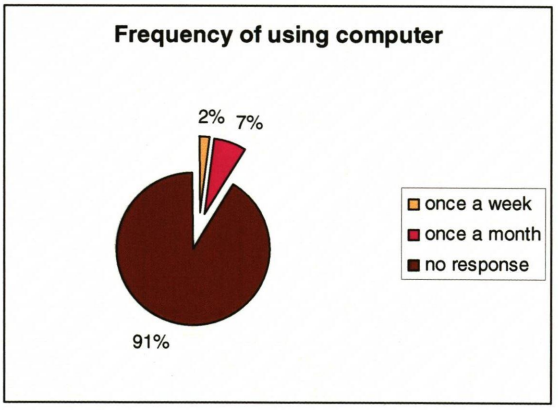

Fig 4.15 Frequency use of the Internet

4. 29. D. Communication channels

In response to the question, **"how do you communicate with District offices"** all the respondents indicated that they visit the offices in person or they communicate through letters. The second question asked, **"What means of communication do you use to communicate with the community".** The respondents indicated that they communicate with the communities through village meeting or they announce during assembly time and the students will in turn take the message home. In response to the question **'Which ICT services do you need in the ward'?** The majority of the respondents indicated that they need computers, radios, phones, photocopiers and TVs.

HEALTH SECTOR

A. Demographic information of respondents

4.30 Sex of respondents

The survey in this sector had a population of 16 respondents from a sample of sixteen health institutions in the district. The majority of the respondents 14 (87.50%) were females and males constitute 2(12.50%) of the survey.

4.31 Age of respondents

The ages of the respondents in this sector ranged from between 20- 25 to above 50. There were a total of two (12.50 %) in the age group 20-25 and another two (12.50%) respondents within the age group of 26-35. The majority of the respondents fall in the age group 36-50 and this constitute 10 (62.50 %) of the total respondents. The last category is the ages above 50 category constitute two (12.50%) of the surveyed respondents. The detailed presentation of the distribution of the respondents' age is presented in the histogram below:

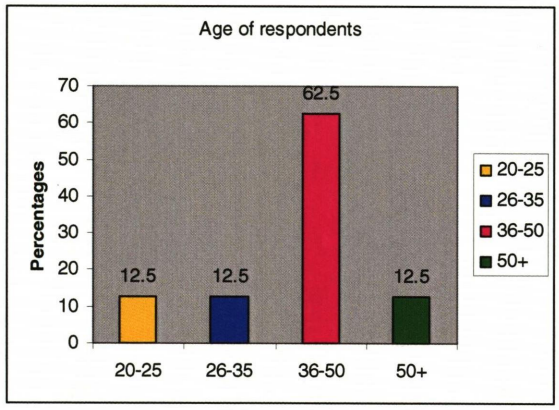

Fig 4.16 Age of respondents

4.32 Occupation of the respondents

The majority 11 (68.75%) of the respondents were member of staff available on duty at the time of survey. 5 (31.25%) were the head of the institutions surveyed in the study.

B. Geographical Information

4.33 Type of health institution

Health institutions found in the district are clinics and rural hospitals. About 15 (93.75%) of the institutions surveyed were clinics and only one (6.25%) were a rural hospital.

C. Telecommunication infrastructure

4.34 Access to phones

All the institution indicated that they have access to phone but it was ironic that most of the telephones were not working during the period of the field work and most of the respondents pointed out that they were still waiting for the technicians to come and fix the phones.

4.35 Type of phone accessed

The ground phone or the landline phone is the most accessible phone to the respondents. The cell phone or mobile phone though having been cited as having rapid penetration in Africa the results show that in this sector only a few have access to the gadget. The type of phones accessed is presented in the histogram in figure 4.35:

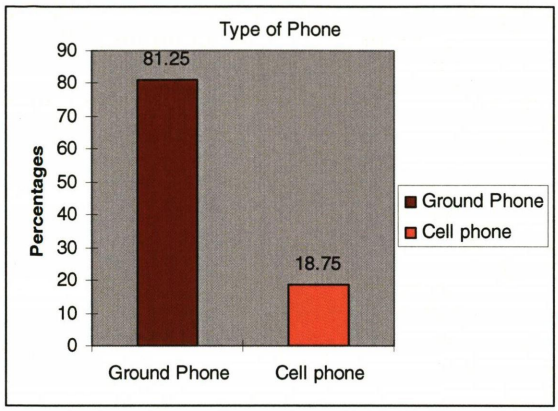

Fig 4.17 Type of phone accessed

4.36 Usage of phone

Phones in health institutions are normally for communication with other health institutions and communicating in cases of emergencies. All the respondents indicated that they use (if it is working) the phone for the mentioned purposes.

4.37 Community access to phones

Unlike in schools were the community can use the phone and pay at the end of the day, the health sector is different. Communities access the phones only in cases of emergencies such deaths or illness.

4.38 Access to photocopier

All the 16 (100%) institutions surveyed do not have access to photocopiers. Despite not having access to photocopiers in the institutions the majority 11 (68.75%) of the respondents in the question 'If no, do you know the benefits offered by a photocopier in the institution' indicated that they know the benefits of having a photocopier in the institution. A minority five (31.25%) of the respondents are not aware of the benefits offered by a photocopier in an institution. Although they indicated that they know the benefits offered by the ICT, they lack the capacity to operate the ICT.

4.39 Access to facsimile

Access to facsimile is low with all 16 (100%) respondents indicating that they do not have access to a facsimile. The follow up question required the respondents to answer the following question 'If no, do you know the benefits offered by a facsimile in the institution'. Majority indicated that 9 (56.25%) they do not know the benefits offered by the facsimile in the institution. 7(43.75%) of the respondents indicated that they know the benefits that they can derive from using the facsimile in the institution. They also indicated that the lack the capacity to operate the ICT.

4.40 Access to radio

Most of the respondents 15 (93.75%) indicated that they do not have access to a radio and one (6.25%) cited having access to the radio. All the respondents indicated that they know the benefits offered by the use of radios in health institutions and this was in response to 'If no, do you know the benefits offered by a radio in the institution'.

4.41 Radio usage and source of power

The question was not responded by the majority of the respondents as they had indicated that they do not have access to a radio on the question of radio accessibility. Radio is for all the mentioned purposes in the questionnaire and these included; health education tool; communication; entertainment. The respondents one (6.25) indicated that they use the radio for all the mentioned functions and in the question "what form of power do you use for the radio" the respondents (who have access to radio) indicated that they use electricity for their radio.

4.42 Access to Television

There is no access to TV in the health institutions surveyed. This was reflected by 16 (100%) responses indicating that they do not have access. Despite not having access to TV, the majority 12 (75%) of the respondents indicated that they know the benefits that could be derived from the use of a television in health institutions. A minority 4 (25%)

indicated that they do not know the benefits that they can derive from the use of a TV in health institutions.

4.43 Access to computers

Access to computers is very low with all the indicating that they do not have access to computers at all. The majority of ten (62.50%) of the respondents indicated that they have did not knowledge of what the computers could do in the institution. Only a few respondents six (37.50%) have knowledge of what the computer could do in the institution.

4.44 Access to Internet

This question was not responded to as the respondents had indicated that they did have access to computers. The majority did not understand the concept and they displayed lack of awareness on the issue of the Internet and this is highlighted by a high percentage 12 (75%) of respondents indicating that they did not have knowledge of the benefits derived from the use of the Internet. A small fraction 4 (25%) indicated that they have knowledge of benefits that can be derived from the use of Internet in the institution.

4.45 .D. Communication channels

In response to the question, **"how do you communicate with District offices"** all the respondents indicated that they visit the offices in person or they communicate through letters. The second question asked, **"What means of communication do you use to communicate with the community".** The respondents indicated that they communicate with the communities through village meeting or during clinic visits by the community especially antenatal and baby clinics. In response to the question **'Which ICT services do you need in the ward'?** The majority of the respondents indicated that they need computers, radios, phones, photocopiers and TVs.

CIVIL SOCIETY

Demographic information of respondents

4.46 Sex of the respondents

A total of 21 people were surveyed, out of which 12 (57.14%) were females and 9 (42.86%) were males.

4.47 Age of respondents

A total number of 21 respondents were surveyed. Their ages were categorized into five categories. The first category which is age 20- 35 constitute one (4, 76%). The second category age 35-45, constitute three (14, 29 %) of the respondents. Age 46-55 constitutes 13 (61, 90 %). Age 56-60 constitute two (9, 52 %) and above 60 is two (9, 52%) respectively.

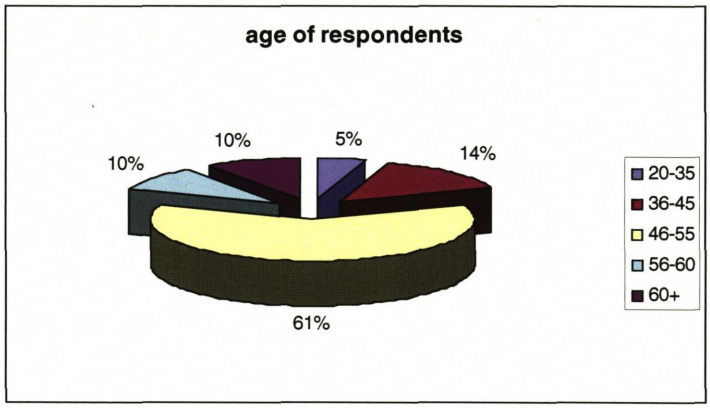

Fig 4. 18Distribution of respondents according to age

4.48 Occupation of respondents

The kraal head constitute 4, 76% and the other or the ordinary people in society were (20) 95, 24%. This is presented in the diagram below:

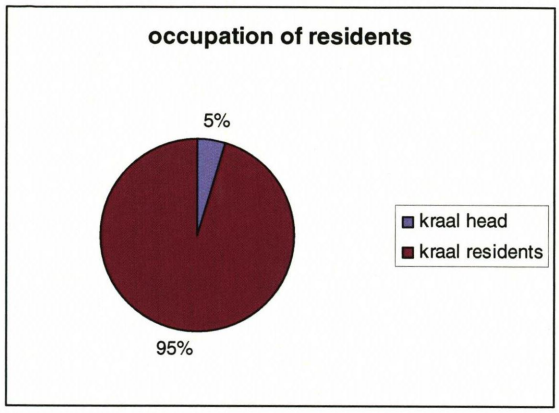

Fig 4. 19 Occupation of residents

B. Telecommunication infrastructure in communities

4.49 Access to phone

The question asked was 'Are they any public phones in the ward?' and the respondents were responding with a yes or no. From the survey 14 (66, 67%) responded saying no and seven (33, 33%) responded as saying yes. The majority of the respondents indicated that they are no public phones in the ward. The few that indicated that they are public phones in the ward were all referring to the cell phone that they go and use from the local schools. Each school was given a cell phone that it uses as the school property and from the study noted that this has been the phone that the respondents were referring to as accessible to the community. A follow up question asked were the phones were located and that is when those who had respond as having access indicated that they access phones at schools. All the surveyed wards are covered by Econet and NetOne, which has its base station at Marange High school.

4.50 Knowledge about the phone by the community

The majority (19) 90, 48% responded with a 'yes' indicating that the have knowledge about the benefits of the phone. Only two (9, 52) indicated not having knowledge of the benefits of the phone. This is presented in the diagram below:

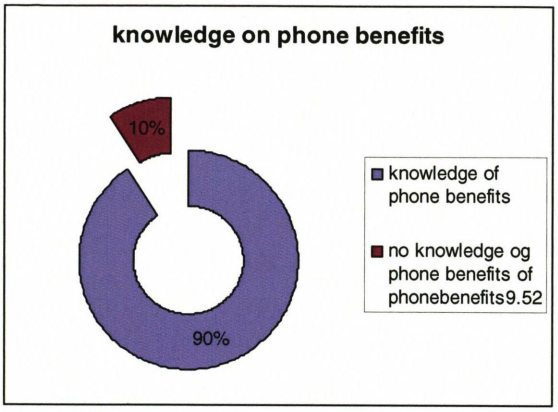

Fig 4.20 Respondents knowledge on phone benefits

4.51 Availability of network and ownership of phones

In response to the question "Does your ward have cell phone network?" All the respondents said 'yes' and they indicated that the networks available were Econet (091) and Net One or 011 as it is popularly known. Responses from a follow up question "What kind of people own the cell phone" indicated that the majority of people 19 (90.48) who own cell phones are the civil servants with a few villagers two (9.52) owning the phone. It was noted that the villagers that own cell phone were the villagers that had children who were out of the country. Mutare rural district's main economic activity is subsistence farming and the low level of villagers owning cell phones could be attributed for low levels of income.

4.52 What do the people normally use the phone for?

In response to the above question, results from the research indicate that the phone is normally used for communicating with relatives and some respondents stated that they use the phone for both communicating with relatives and conducting business. 54.14 % of the respondents indicated that they use the phone to communicate with their relatives. The other respondents indicated that they use the phone for communicating with relatives and to conduct business. It was noted during the research that each school was allocated a line and the school in turn bought a cell phone. This cell phone was in turn used by the whole village. Methods of payment varied from school to school during my survey most

schools were charging $ 20 000 per minute. Some schools like Munyoro Primary school have a system whereby one could bring his/her own airtime and make calls.

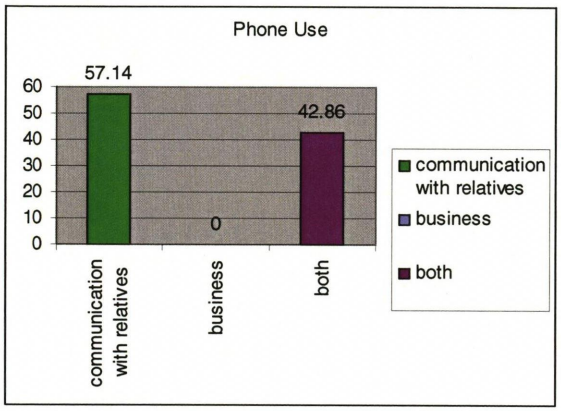

Fig 4.21 Uses of phones in communities

4.53 Access to and use of radio

Most of the respondents surveyed have access to radio (71, 43%) and the minority (28, 57%) do not have access to radio. In response to the question, "what do you normally use the radio for", 19% of the respondents indicated that they do not use the radio. 4, 76% indicated that they use the radio for educational purposes while 23, 81% use it for entertainment purposes. 52, 38% indicated that they use the radio for both educational, entertainment and communication purposes.

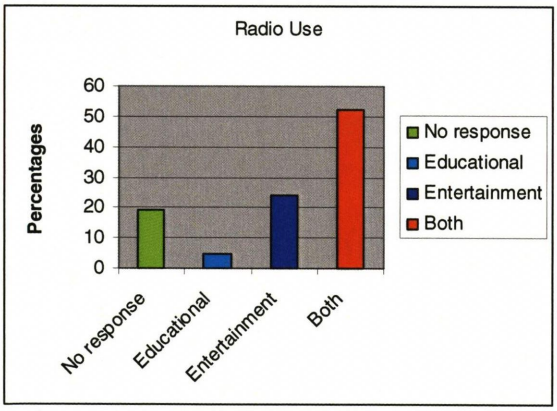

Fig 4.22 Uses of radio in communities

4.54 Source of power

In response to the question "what form of power do you use for the radio," four (19, 05%) of the respondents left the question blank as they did not have radios at home. Seven (33, 33%) use solar power for the radios, ten (47, 62%) use batteries for the radio. This is presented in the chart below:

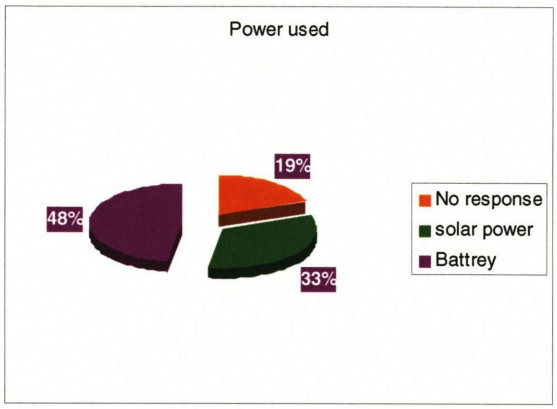

Fig4.23 Source of power for the radios

4.55. D. Communication channels

In response to the question, "how do you get information on developmental issues" all the respondents indicated that they get it from village meetings, funerals, church, and nurses at the clinic and from schools. The second question asked, "How do you communicate with District offices". The respondents did not answer this question and they indicated that they take up their problems to the headman or kraal head. In response to the question 'Which ICT services do you need in the ward'? The majority of the respondents indicated that they need radios, phones and TVs.

D. AGRICULTURAL SECTOR

Demography of respondents

4.56 Distribution of respondents according to sex

The respondents surveyed in this sector were agricultural extension officers in Mutare Rural district. A sample of 10 respondents was used in the survey. The sample consisted of ten extension officers because each extension officer covers an area of about three to four wards. Mutare Rural District has 31 wards so it was not possible to have a number beyond ten wards. The subjects included were two (20%) females and eight (80%) males.

4.57 Age of respondents

The ages of the respondents in this sector ranged from between 20- 35 to above 50. There were a total of two (20 %) in the age group 20-35 and another four (40%) respondents within the age group of 36-50 and another four (40%) in the last category of above 50 years. The detailed presentation of the distribution of the respondents' age is presented in the diagram below:

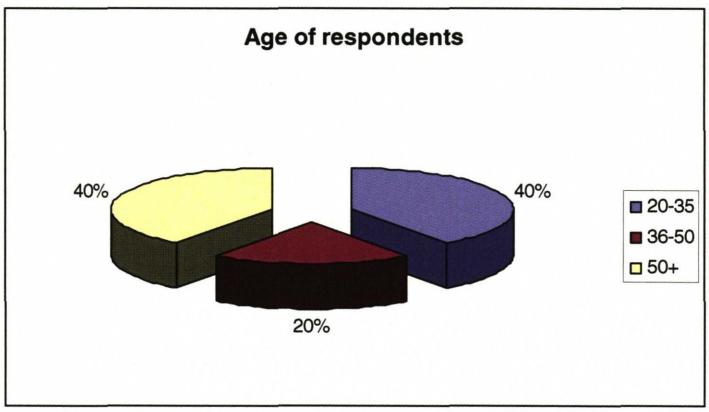

Fig 4.24 Age of respondents

4.58 Occupation and Institution type

All the respondents who participated in the study were AREX extension officers and they were all members of staff.

B. Telecommunication infrastructure

4.59 Access to a phone in Agricultural sector

Majority seven (70%) of the respondents indicated that do not have access to phones and three (30%) indicated that they have access to phones.

4.60 Type of phone accessed

Responses from the respondents indicated that three (30%) have access to a phone. The mobile phone or the cell phone is the most accessible phone to the respondents. Seven (70%) indicated that they do not have access to the phones. All respondents indicated that they know the benefits of using a phone in the institution. The type of phone accessed is presented in the histogram in figure 4.53 below:

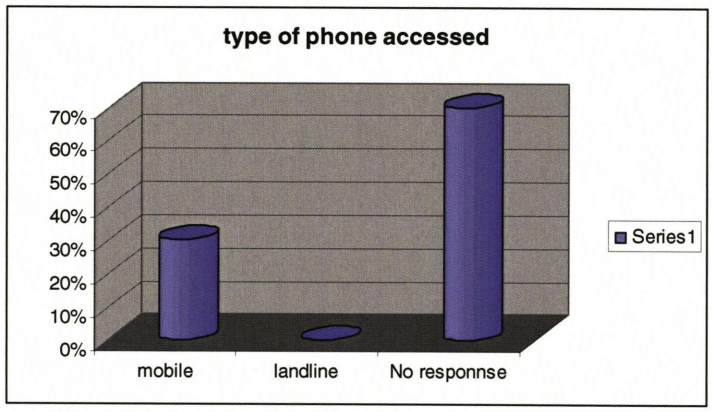

Fig 4.25 Type of phone accessed

4.61 Community access to phones

Those with access to phones indicated that the community can use the phone and pay at the end of the day. Communities access the phones only in cases of emergencies such deaths or illness.

4.62 Access to photocopier

All the respondents 10 (100%) surveyed do not have access to photocopiers. Despite not having access to photocopiers in the institutions all respondents in the question 'If no, do

you know the benefits offered by a photocopier in the institution' indicated that they know the benefits of having a photocopier in the institution. The respondents also indicated that they have to travel to Mutare Town for the service.

4.63 Access to facsimile

Access to facsimile is low with all ten (100%) respondents indicating that they do not have access to a facsimile in their institution. The follow up question required the respondents to answer the following question 'If no, do you know the benefits offered by a facsimile in the institution'. Majority six (60%) indicated that they know the benefits offered by the facsimile in the institution. Four (40%) of the respondents indicated that they do not know the benefits that they can derive from using the facsimile in the institution. They also indicated that the lack the capacity to operate the ICT. The respondents also indicated that they do not make use of the fax. Knowledge on the benefits in the use of facsimile is presented in figure 4.25 below:

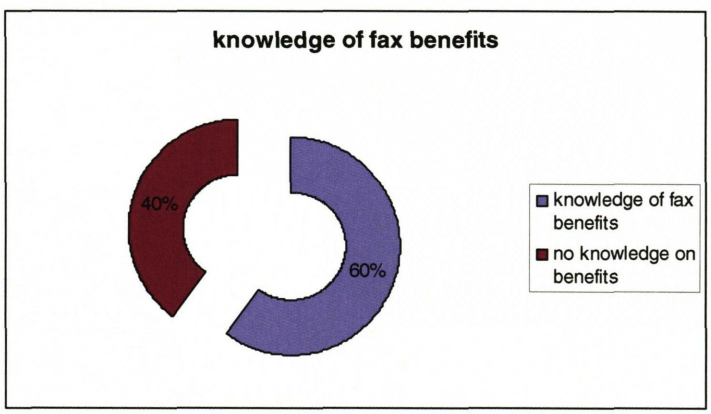

Fig 4.26 Knowledge on Facsimile benefits

4.64 Access to radio

From the responses from the respondents 5 (50%) indicated that they do not have access to a radio and 5(50%) cited having access to the radio. All the respondents indicated that they know the benefits offered by the use of radios in the agricultural sector and this was in response to 'If no, do you know the benefits offered by a radio in the institution'.

4.65 Radio usage and source of power

Radio is used for communication by all the respondents who have access to the ICT. It was also noted that the respondents were referring to a special type of radio that they could use to communicate with each other. The respondents without access to radio did not respond to the question. In the question "what form of power do you use for the radio" the respondents (who have access to radio) two (20%) indicated that they use electricity for their radio and the majority three (30%) cited batteries as source of power for their radios. Source of power for the radio is shown by figure4.56 below:

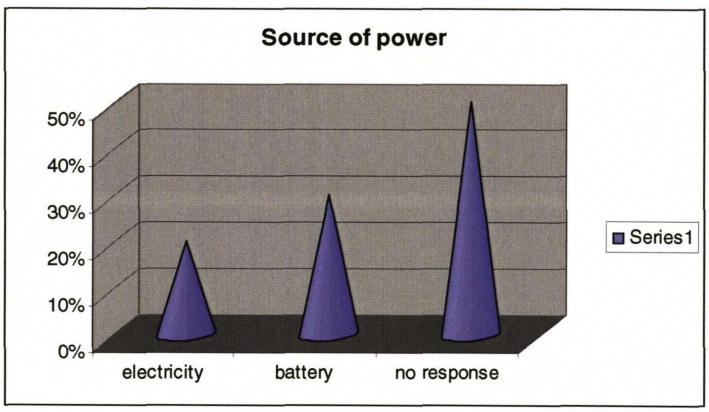

Fig 4.27 Source of power

4.66 Access to Television

There is no access to TV in the agricultural institutions surveyed. This was reflected by ten (100%) responses indicating that they do not have access. Despite not having access to TV, all the respondents indicated that they know the benefits that could be derived from the use of a television in agricultural institutions.

4.67 Access to computers

Access to computers is very low with all the indicating that they do not have access to computers at all. The majority four (62.50%) of the respondents indicated that they have did not have knowledge of what the computers could do in the institution. From the total respondents, six (60%) indicated that they have knowledge of what the computer could do in the institution.

4.68 Access to Internet

This question was not responded to as the respondents had indicated that they did have access to computers. Some of the respondents four (40%) did not understand the concept and they displayed lack of awareness on the issue of the Internet. Six (60%) of respondents indicated that they have knowledge of the benefits derived from the use of the Internet.

4.69. D Communication channels

In response to the question, "how do you communicate with District offices" all the respondents indicated that they visit the offices in person or they communicate through letters. The second question asked the respondents to indicate how they get information on market prices of produce. The respondents indicated that they do market research but in many times they hear from colleagues or they visit Mutare Town to acquire about market prices. In response to the question 'Which ICT services do you need in the ward'? The majority of the respondents indicated that they need computers, radios, phones and TV. The facsimile was not popular with the respondents and this may have been attributed by the fact that the majority indicated that they have never used it.

4.70 Interviews

Interviews were carried out with official from Ministry of Transport and Telecommunication, the official in the same ministry involved with ICT projects, Arex official at Bazeley Bridge, official from the district education offices and official from the district health offices. Interviews were also carried out with two academics from the ICT department at Africa University who are involved in rural ICT projects in the province.

In the interviews, it was discussed whether ICTs are applicable to reduce poverty in developing countries. Questions asked included the questions such as **"how do you think that using ICTs can give people better lives?"** And **"what is the access rate of ICTs in the district?"** The respondents indicated that there was a positive attitude to what

problems ICT can solve and the impact it will have for the poor people to be included in the information society. Some of the informants were not able to give an example of how ICT can benefit poor people. Still, they all implied that it would be positive.

4.71 Summary

This chapter is basically the presentation of the data collected through questionnaires. Qualitative research methods have been used in the data presentation. The data has been presented in graphs and this helps to present the data in a manner that will allow the researcher and his/her readers to comprehend the meaning quickly. Ninety questionnaires were distributed in the following sectors namely education, health, civil society and agricultural sectors. Responses from the questionnaires indicate that there is limited access to ICTs by all the sectors and limitations to ICT accessibility include financial constraints among others. Word of mouth emerged as the most popular channel of communicating and getting information in the community.

Chapter five: Recommendations and Conclusions

In this chapter the results from the questionnaires and interviews are presented. They are thematically arranged according to the matrix presented in chapter 3, starting with social and economic development. When presenting the findings, the informants' descriptions are made explicit by the researcher's description. The results are presented in this chapter through a rich description including contextualizing and interpretation by the researcher. A combination of methods i.e. questionnaires and interviews was used to determine the extent and limitations to ICT accessibility in the district. It also helped to determine whether use of ICTs will improve the socio-political and economic activities in the district. The literature review together with the above methods of data collection was also used to triangulate with and explain the final results.

The results from the survey conducted during field study in Mutare Rural District should provide support or refute the following hypotheses: accessibility to ICTs in rural areas, specifically in Mutare Rural District in Zimbabwe, will improve the livelihood and give social and economic development of people that live in this area. Secondly, access to ICTs will fuel the expansion of research that would improve the quality of agriculture, education and health in Mutare Rural District. Lastly, education and income of the rural dwellers is responsible for limited access to ICTs.

5.1 Discussion on the findings

Quantitative measures are used in most definitions of the information society and this is also the case with respect to measuring access to ICTs. Access can be quantified at different levels: the individual, the household, and the community (ITU, 2003). Measures in terms of different levels include indicators such as ICTs per 100, and the percentage of the population that uses an ICT (ITU, 2003). It can also be used to measure availability of ICTs in homes to determine the level of universal service. Finally, community indicators measure the availability of service in population centres such as the number of municipalities or villages with telephone service (ITU, 2003).

The study confirmed that access to Information Communication Technology is still not readily accessible to most of the sectors surveyed. This is also emerged in Matewa's study (2003) also indicated that in Buhera Distict access to Information Communication Technology is still not readily accessible to most of the sectors interviewed hence the need for intervention by the responsible authorities. It is interesting to note that Buhera district shares its boarders with Mutare Rural District. In the civil society, radio remains the accessible ICT. She observed that there was limited access to electronic media among those with radio and television due to lack or limited source of power by the households. Based on the above hypothesis, ***"Access to ICTs will fuel the expansion of research that would improve the quality of agriculture, education and health in Mutare rural district"*** could not be refuted or supported. The level of accessibility is still below the threshold level to make any impact on the hypothesis. Results could be realized if the level of usage is going to improve. The ICTs available are not directly linked to research. Research can only be realized if there could be access to computers and Internet in all sectors.

5.2 Limitations to accessing ICTs in Mutare Rural District

Education and income of the rural dwellers is responsible for limited access to ICTs. It emerged in the study that accessing ICTs in Mutare is not only based on education and income alone. A number of factors contribute to lack of access to ICTs and these have been identified as: Colonial history; Post independence era; Infrastructures; Lack of awareness of the benefits to ICTs; Lack of motivation to use information over the Internet and Capability to use an ICT.

(i) Colonial history

Muzango (1998) in his study ***Telecommunications sector reform: liberalisation and universal service policy in Zimbabwe*** observed that low access to telephones dates back in history to the colonial days and it is difficult to discuss the provision of telecommunications in Zimbabwe without locating the issue in a political and socio-economic framework. Telephone provision did not cover black settlement and when it did it was to a very limited extent. It is true that in the past decade and a half the state has

tried to modernise and upgrade the telecommunication network in a bid to service new customers and burgeoning demand. There have been various projects to modernise through digitalisation, financed by long term loans and international grants, especially from Japan. However, rising urbanisation and pressures to service the African rural areas has subsequently led to the insatiable increase in demand for provision of basic telephony. Muzango (1998) further states that this had two immediate results. Firstly, it has strained the telecommunications company's resources thus affecting further extension programmes into once unprovided for areas. Secondly, increasing demand on the network has put maintenance and pressure on TelOne and this has eventually led in woeful service.

(ii) Post independence era

Lack of access to ICTs in rural areas like Mutare Rural district has been perpetuated by the post-independence era in which the Zimbabwean government did not give telecoms development a high priority in view of more immediate priority in view of more immediate priorities such as health, education and food production (Muzango, 1998)

(iii) Infrastructures

Infrastructure can be defined as the "basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons" (www.dictionary.com). The rural communities in Mutare Rural District especially exposed to underdevelopment with low infrastructure in the fields listed above. Because of the mountainous terrain it is expensive for the electricity and telecommunication companies to expand their networks. This results in the majority of the population being excluded from the benefits of electricity and telephone lines. The poorest people in the Mutare Rural District inhabit these parts of the country.

According to Monstad (2004) argues that infrastructure is one of the most obvious factors that should be studied when initiating ICT projects for development. Gaining

knowledge of existing infrastructure is vital for making technology choices, and deciding on area and receiver group.

Access to electricity and telephones, which are necessary pre-conditions for access to the Internet, remains dismally low in most parts of the district. Poor telecommunications infrastructure means that Internet access is largely restricted to the urban areas. Some of the schools that have access to computers indicated that they do not have access to Internet because they still have rural party line system.

There was limited or no direct access to most of the Information Communication Technology particularly the internet and e-mail. The traditional mass communication tools that is; radio, newspapers and television, remain inaccessible to the majority of sectors. Among those with radio sets, radio is not accessible, at least on a regular basis, due to the high cost of batteries and lack of electricity.

(iv) Lack of awareness of the benefits to ICTs

It emerged during the study that most of the respondents especially in the civil society lacked awareness on the ICTs and even on the benefits offered by ICTs. The majority has knowledge on the phone and radio. Awareness relates to the target group's knowledge of the use and potential of ICT. Raising awareness should be done at the same time as educating the receivers in general. The respondents were not aware of the other forms of ICTs like photocopiers and facsimile. In the education and health sectors, the majority of the respondents thought of the computers as the only ICT hence they all were placing preference on accessing computers in their sectors.

(v) Lack of motivation to use information over the Internet.

However, even when ICTs are available, it does not necessarily mean people use them-just as it may happen that people are capable of using an ICT even though they have no access to them. From the study it emerged that some of the respondents showed lack of motivation of using information over the Internet. I assumed that the respondents lacked

awareness of the Internet benefits especially with regard in sharing developmental information.

(vi) Capability to use ICTs

The presence of an ICT device is only a small part of the broader context of how people can actually use ICTs in their lives. It involves, in a wider sense, people being able to use ICTs for personally or socially meaningful ends. It emerged in the study that some respondents had access to ICTs like cell phone but they could not use it to send Short Messages (SMSs). Erwin (2006) observed the same in his study in Carmona and Pueto Princesa, the majority of the respondents have access to cell phones but it was it noted that not everyone who had the cell phone was capable of using the SMS. The same thing was observed with respect to the capacity to use the computer. Not everyone who knew how to use the computer was capable of going on the Internet.

5.3 Patterns and trends in ICT access in Mutare Rural District.

(i) Access to phones

In the education sector all the respondents indicated that they have access to cell phones. From the study the majority of the respondents 24 (54.5%) indicated that they use the phone for both communication with other schools and for business purposes.

Discussions with school head from Munyoro Primary (the school owns a cell phone), indicated that because of the high costs of making calls, they used it mostly to receive messages for themselves as well as for other members of the community Munyoro head, (2006). However, on further enquiry, it became evident that messages that could be relayed were funeral messages, or about someone who was seriously sick. This was also noted by Matewa (2003) who states that in Buhera District, those who had access to the phone use it mostly to relay funeral messages. Matewa (2003) further state that, for example, a research by the Intermediate Technology Group was said to have revealed that the telephone was serving more of a social function in the rural areas. Its role in the development process had not yet been explored. This is also supported by Erwin (2006)

in his study, ***Analyzing Socio-Demographic differences in the Access & use of ICTs in the Philippines using capability approach.*** From the study it emerged that use of ICTs such as landline phone and cell phone are still predominately social, rather than work related. From the survey it emerged that the majority 43 (97.7%) of the school phones are accessed by community. A small fraction one (2.3%) of the schools surveyed indicated that communities can not access the phone.

In the health sector, all the institution indicated that they have access to phone but it was ironic that most of the telephones were not working during the period of the field work and most of the respondents pointed out that they were still waiting for the technicians to come and fix the phones. The ground phone or the telephone is phone that most of the respondents have access to. The cell phone though having been cited as having rapid penetration in Africa the results show that in this sector only a few (18.75%) have access to the ICT. Respondents indicated that they did not allow members of the community to use their phone to pass messages even for a fee. This seemed as the institution not to be aware of how they could use their phone to provide service to the community as well as generate income for themselves.

Matewa (2003) interviewed Chitongo, from Intermediate Technology Development Group who suggested a way the telephone could be used, by a household, to generate money for themselves as well as save other households valuable time and money and hence increase productivity by making community members pay for the use of the telephone to enquire about prices, to make their orders, and to pass other social information. . The few cell phones or telephone lines, in the communities, if used in a more innovative way could therefore contribute in the transformation of some families' lives both socially and economically. From an economic point of view, communities could use the phone to inquire about products required on the market and prices thus improve their livelihoods and thus supporting the hypothesis, ***"Accessibility to ICTs in rural areas, specifically in Mutare rural district in Zimbabwe, will improve the livelihood and give social and economic development of people that live in this area."***

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In the civil society the survey, it emerged that the community do not have public phones in their wards instead they access forms from the schools in the ward. From the survey 14 (66, 67%) responded saying no and 7 (33, 33%) responded as saying yes they have access to phones.

(ii) Access to Radio and Television

A significant of schools surveyed 95.5%, had no radio sets and only a tiny fraction 2 (4.5%) have access to radio at their school. I realised that the school that had access to both radio and television was a boarding school. Access to radios is very low in the health sector 1(6.25%) cited having access to the radio. From the responses given most respondents cited financial constraints as impediments in accessing TV in all the sectors surveyed. Some highlighted that they do not have electricity in schools. Most of the respondents surveyed have access to radio (71, 43%) and the minority (28, 57%) do not have access to radio. Radio seemed to have penetrated this community more than either television or the telephone.

It emerged, during analysis, that ownership of a radio did not necessarily mean access because some of this equipment was broken down. Of all the radios owned by AREX officials were not working. In terms of the status of the telephones especially in the health sector, most of them were not working. In the civil society, although some of these respondents had radio sets in their households, it emerged that much of this equipment was not being used because of lack of power.

Due to the high cost of batteries and lack of alternative cheap sources of power, there were some limitations in radio use in the civil society. It is evident that there was limited access to both radio and television among different sectors in Mutare Rural District. The implication of limited access to radio and television, in the rural areas, is that if radio or television is used to disseminate educational and developmental information which was targeted at rural communities, then all the sectors would be excluded. This will be because they did not have the equipment and secondly because they may not be tuning in,

at that particular time, because of lack of electricity, batteries or a cheaper source of power.

(iii) Access to fax and photocopier

In the education sector the majority of the respondents 42 (95%) indicated that they do not have access to the photocopier. A small fraction 2 (.5%) responded as having access to the photocopier. The majority of the respondents (95%) indicated that they have to board a bus to Mutare town for photocopying. They also indicated that they do not know how to use the ICT since they have to pay at service centres for photocopying.

A small percentage 14 (31.8) did not have knowledge on the benefits offered by a facsimile. Although they have knowledge on benefits that could be derived from use of facsimile all the respondents indicated that they cannot operate the gadget. Most of the respondents 42 (95.5%) indicated that they do not make use of fax services and the minority 1 (2.3%) make use of the facsimile once week and 1(2.3%) also indicated that they make use of the fax once in two weeks.

(iv) Access to computers and Internet

In the education sector the majority 36 (81.8%) of the respondents do not have access to computers and it was noted that these are mostly primary schools. 8 (18.2%) indicated that they have access to computers and it was noted that these were secondary schools. It was also noted that among the schools with access, 25% was not using the computers as the school did not have electricity. The majority 40 (90.9%) of the respondents indicated that they have not introduced the computer studies as a subject in schools. This is attributed by the fact that they do not have access to the computers. It is also important to note that there is a fraction of schools that have access to computers but they do not offer the subject. This fraction indicated that they do not have teachers to teach the subject. It is very difficult to attract trained computer studies teachers to teach in rural schools. 4 (9.1%) of the respondents indicate that they have introduced computer studies at their school.

The educational sector is a high priority field for the government. Results from the survey indicated that the majority 4 (9.1%) of those who have computers in their schools were beneficiaries of the Presidential programme that is giving schools some computers. Some local organisations through their social responsibility realise how it is important to have computers in schools and CBZ donated a computer to Dora Secondary School.

Providing training to young people is important because they are the ones who will take over the jobs and be the driving forces for changes. Being young, they also tend to have a higher interest in the Internet and computers both for academic work and for entertainment.

Access to Internet is very low with 4 (9.1%) of the respondents indicating that they have access to Internet and the school that has Internet (Dora Secondary school) is closer to Mutare town so proximity to town can also contribute to access to Internet. The majority 40 (90.9) indicated that they do not have access to Internet. The Internet generates opportunities for expanding economic activities, income and employment as presented in chapter 2, thus influencing research, healthcare, education, government and business. Not only can ICT create new jobs, it also gives people new means for finding labor. In addition, ICTs arrange for new ways of producing goods as well as opening up for new markets.

(v) Communication channels

It emerged, during the interviews and section D of the questionnaires, that word of mouth remains the dominant method by which information on health-related issues, agriculture and on social issues are disseminated and received in the community surveyed. Word of mouth emerged as the dominant method by which all the received most of their information be it on educational, developmental or social issues. Health information could be received from either nurses when the respondents visited the clinic or from health extension services. In terms of agricultural information, it seemed that most of it would be received from agricultural extension services or farmer meetings. Farmer meetings, farmer exchange visits and seed shows were cited in the interviews as

alternative vehicles for the exchange of information on agricultural issues by word of mouth. Village meetings, churches and funerals were also cited as places were they get information in society.

5.4 Limitation or short comings of the study

Due to the size of the sample (44 respondents in the education sector, 16 in the health sector, 20 in the civil sector and 10 in the agricultural sector), lack of resources to conduct a wider sample, this study does not pretend to be scientific. However, the results or findings are somehow a reflection of the state of ICTs in rural communities in Zimbabwe. The results or findings apply to the sample surveyed, but could apply within the district as a whole, as the sample was representative of the total population.

Not all respondents answered the questions. Some respondents left some questions blank especially on some ICTs like computers and Internet. Some respondents could not further explain questions that required explanations.

5.5 Recommendations

The study focused on Mutare Rural District in Zimbabwe. Studies of this nature can be carried out in other districts of the country. For ICTs to be accessible to all the different sectors in rural communities, the researcher is of the opinion that the following should be considered: Development of rural infrastructure; Establishment of tele-centres; Need to invest in ICT human resources and Public awareness of ICT

(i) Development of rural infrastructure

There is a need for commitment, by government, to develop rural infrastructure, which is rural electrification and road network. This would make information more accessible to rural communities and electricity would be used as an alternative source of power. The ability of people to move from one point to another through an improved road network would improve the flow of information, particularly by word of mouth, which emerged in this study as the dominant method by which information is received by those who participated in the survey. Building out the communication infrastructure sufficiently will

give rural villagers new technological knowledge as well as means for communication and information. One of the benefits lies in the possibility to attend long line education. Including villages in rural areas can have major effects. Some effects are that a larger portion of Mutare Rural District people are included in technological development, which can provide new job opportunities, means for communication, increased human resources and higher educated people.

(ii) Establishment of tele-centres

The establishment of tele-centres to make information more readily accessible to marginalized rural communities raises a question of sustainability and ownership. Instead of establishing community tele-centres, what may be required is to make some of the community members realise the benefits that could be accrued by setting up a tele-centre as a business venture. Institutions such health, education and agriculture with telephones, for example, could be made aware of the benefits of making the telephone accessible to their communities on a commercial basis. Community members would therefore be able to make calls for a fee as well as receive messages. Matewa (2003) observed that fax facilities or a computer which would enable community members to send and receive faxes, send and receive e-mail and browse the internet could be incorporated in the second stage. This could resolve the problem of sustainability and ownership, which according to her observation affects the viability of most community-based organisations.

According to Matewa (2003) there is also need to establish tele-centres at rural schools which could be accessible students and the community. It could also be a source of revenue for rural schools. The other, alternative approach, could be the establishment of tele-centres servicing four to five wards and managed by health, agricultural and community extension workers in that area. These tele-centres could be equipped with a computer with access to the internet, telephone, fax, radio and possibly a television and a video recorder. Each tele-centre could be linked to four other sub-stations in the other wards. Information could be relayed to the sub-tele centres by fax. These sub-stations could be equipped with a telephone line, fax machine and a photocopying machine. The information received from the main telecentre could be duplicated for distribution or

pasted on a board. Using the telephone or fax, this would enable those, at the sub-tele centres, to send their information requests to the main centre where persons manning the place would have to look for the information on their behalf. These tele-centres could benefit extension services that live in the rural areas as they also have limited access to information that could be of great benefit to the communities they serve.

(iii) Need to invest in ICT human resources

Another reason cited was lack of skilled personal to teach both the students and staff on the use of computers. Invest in ICT human resources by integrating ICT in the curriculum of primary and secondary schools. To train students in information technology does not only provide them with a tool for doing their work, it also provides them with expertise within computers and technology. This might provide the students with more job opportunities.

(iv) Public awareness of ICT

Public awareness of ICT is one of the challenges the government faces in their work. The majority of the respondents are not aware of what ICT is and therefore do not see any reason for learning about it. There is need to raise the public awareness and knowledge on ICT application regularly. Another issue related to awareness is that most people think only of computer as ICTs. They do not include communication and the Internet. Road shows and exhibitions could help in raising ICT awareness.

5.6 Conclusions

The study revealed that there is limited access ICTs, in the different sectors which participated in this study. Some of the limitations to accessing ICTs emerged in the study and limitations cited include colonial history of the country; post independence era in Zimbabwe; lack of motivation to use information over the Internet; lack of awareness of the benefits to ICTs and lack of infrastructure. The education sector has better access (as compared to other sectors) to ICTs such as cell phones, computers and to a lower extent one or two schools have to Internet, television and radio. In the civil society and agricultural sector, the radio still remains the most accessible ICT.

It also emerged from the study that when adopting Information Communication Technology for use in development, not only human resources but also the material resources were required. Funds for the later seem always to be limited. The Ministry of Transport and Telecommunication ought to show how effective ICTs can be used, as a tool, for the advancement and empowerment of rural communities so that more funds could be allocated to it.

The first hypothesis was supported from the interviews held with officials from different sectors which participated in the study, In the interviews, it was discussed whether ICTs are applicable to reduce poverty in developing countries. Questions asked included the questions such as **"how do you think that using ICTs can give people better lives?"** and **"what is the access rate of ICTs in the district?"** The respondents indicated that there was a positive attitude to what problems ICT can solve and the impact it will have for the poor people to be included in the information society.

The second hypothesis was refuted as they were other limitations to accessing ICTs besides education and income. The history of the telecommunication sector and the colonial history have major impact on ICT accessibility in rural areas. More funds should be channeled to address the imbalances that exist between access to ICTs in rural and urban areas.

The third hypothesis could not be refuted or supported. The level of accessibility is still below the threshold level to make any impact on the hypothesis. Results could be realized if the level of usage is going to improve. The ICTs available are not directly linked to research. Research can only be realized if there could be access to computers and Internet in all sectors.

Recommendations suggested for increasing accessing to ICTs include building rural infrastructure (electricity, road network and communication infrastructure. There is also need to invest in ICT human resources that could teach the members from the different sectors. Communities should be made aware of ICTs and their benefits. Communal access points should be established in at schools, clinics and managed by the communities in such a way provides employment and involves the community in the information society.

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Appendix 1

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF COMMUNICATION

QUESTIONNAIRE ON INVESTIGATION ON THE EXTENT OFACCESS TO ICTs IN MUTARE RURAL DISTRICT, ZIMBABWE
Agricultural sector

Interviewer's name……..

Date……

AGRICULTURE

Put an X where appropriate

A.DEMOGRAPHICS INFORMATION

A.1 Sex Male ..... Female.....

A.2 Age 20 –35

36- 50

Above 50

A.3 Occupation Head of Institution

Member of staff

Other: specify

B.GEOGRAPHICAL INFORMATION

B.1 Type of institution

a) Agritex

b) Arex

c) Jekesa pfungwa

d) Other: specify

B.2 Physical Location (Name ward).....

C.TELECOMMUNICATION INFRASTRUCTUR

C.1 Phones

C.1.1 Do you have access to phones Yes..... No.....

C.1.2 If yes, what sort of phone do you have access to?
a) Mobile

b) Telephone

c) Both

C.1.3 If no state why?

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

C.1.4 If no, do you have any knowledge of what the phone could do in the institution?
Yes.....No.....

C.1.5 In case of telephone, does the community have access to it?
Yes.....No.....

C.1.6 If yes, how do they pay for the services?

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

C.2 Photocopying services

C.2.1 Does your department have photocopying services? Yes.....No.....

C.2.2 If no, where do you do your photocopying?

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

C.2.3 If no, do you know the benefits offered by a photocopier in the institution?
Yes..... No.....

C.2.4 If yes, how often do you use the photocopying machine?

a) Everyday or more

b) 2-3 times a week

c) About once a week

d) About once a month

e) Never

C.2.5 Does the community has access to the photocopier? Yes..... No.....

C.2.6 If no does the community know the benefits of using the photocopier Yes..... No.....

C.2.7 If yes, how do they pay for the services?

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

C.2.8 How often do they use the services?

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

C.3 Facsimile services

C.3.1 Does your department have fax services? Yes..... No.....

C.3.2 If no, where do you do your fax services?

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

C.3.3 If no, do you know how to use the fax Yes..... No.....

C.3.4 If no, do you know the benefits of using a fax? Yes..... No.....

C.3. 5 If yes, how often do you use the fax?

a) Everyday

b) 2-6 times a week

c) About once a week

d) About once a month

e) Never

C.3.6 Does the community has access to the fax? Yes.....No.....

C.3.7 If no, do they know how to use a fax? Yes.....No.....

C.3.8 If no, does the community know the benefits of using the fax? Yes.....No.....

C.3.9 How do they pay for the services?

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

C.3.10 How often do they use the services?

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

C.4 Radio

C.4.1 Does your department have a radio? Yes..... No.....

C.4.2 If no, state why?

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

C.4.3 If no, do you know how to use the radio in your institution? Yes..... No.....

C.4.4 If no, do you know the benefits of using the radio? Yes ..... No.....

C.4.5 If yes, what do use it for?

a) Educational purposes

b) Entertainment

c) Communication

d) Other: specify

C.4.6 How often do you use the radio?

a) Everyday

b) 2-6 times a week

c) About once a week

d) About once a month

e) Never

C.4.7 What form of power do you use for the radio?

a) Solar

b) Electricity

c) Battery

d) Other: specify

C.5 Television

C.5.1 Does your institution have access to a TV Yes..... No.....

C.5.2 If no, state why?

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

C.5.3If no, do you know how to use the radio in the institution? Yes..... No.....

C.5.4 If no, do you know the benefits of using the radio in the institution? Yes.....No.....

C.5.5 If yes, what do you use it for

a) Educational purposes

b) Entertainment

c) Communication

d) Other: specify

C.5.6 How often do you use the TV

a) Everyday

b) 2-6 times a week

c) About once a week

d) About once a month

e) Never

C.6 Computers

C.6.1 Does your department have access to computers Yes.....No.....

C.6.2 If no, what means do you access computers?

a) Internet cafes

b) Other government departments

c) Other : specify

C.6.3 If no, do you know how to use computers in the institution? Yes..... No.....

C.6.4 If no, do you know the benefits of using the computers in your institution? Yes.....No.....

C.6.5 If yes, indicate number of computers owned.....

C.6.6 How did the department acquire the computers?

a) Donation from government

b) Donation from Non Governmental Organisations (Name it)

c) Buy from own funds

d) Other: specify

C.6.7 How often do you use the computers

a) Everyday

b) 2-6 times a week

c) About once a week

d) About once a month

e) Never

C.6.8 What do you use the computers for?

a) Educational purposes

b) Storage of data

c) Word processing

d) Other; specify

C.6.9 Does the community have access to the computers Yes.....No.....

C.6.10 If no, do they know what to do with the computer? Yes..... No.....

C.6.11 If no, do they know what to do with the computer? Yes..... No.....

C.6.12 How do they pay for the services?

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

C.6.13 How often do they use the services?

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

C.6.14 Do you have access to Internet? Yes..... No.....

C.6.15 Do you know what to do with the Internet Yes.....No.....

C.6.16 If no, do you know the benefits of using the Internet Yes..... No.....

C.6.17 If yes, how often do you the Internet?

a) Everyday or more

b) 2-3 times a week

c) About once a week

d) About once a month

e) Never

D COMMUNICATION CHANNELS

D.1 How do you communicate with District offices?

.....

.....

.....

.....

D.2 How do you get information on the market prices for the produce

.....

.....

.....

.....

D.3 Which ICTs services do you need in the ward?

.....

.....

.....

.....

Appendix 2

UNIVERSITY OF FORT HARE

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF COMMUNICATION

QUESTIONNAIRE ON INVESTIGATION ON THE EXTENT OFACCESS TO ICTs IN MUTARE RURAL DISTRICT ZIMBABWE
MUTARE RURAL DISTRICT RESIDENT

Interviewer's name.....

Date.....

MUTARE RURAL DISTRICT RESIDENT

Put an X where appropriate

A. DEMOGRAPHIC INFORMATION

A. 1 Sex	Male.....Female.....
A.2 Age	35 – 45
	46 – 55
	56 – 60
	Above 60
A.3 Occupation	Councillor
	Headman
	Kraal head
	Chief
	Other: Specify

GEOGRAPHICAL INFORMATION

B.1 Name of kraal.....

B.2 Physical location (Name Ward).....

TELECOMMUNICATION INFRASTRUCTURE

C.1 Phones

C.1.1Are there any public phones in your ward? Yes.....No.....

C.1.2 If yes, where are they located?

a) Hospital

b) Schools

c) Agricultural offices

d) Other: Specify

C.1.3 Does your ward have cellphone network? Yes..... No.....

C.1.4 If no, do you have any knowledge of what the cellphone could do in the ward? Yes.....No.....

C.1.5 If yes, which network is available

a) EcoNet

b) NetOne

c) Telecel

C. 1.6 If yes, to (1.3) roughly how many people have cellphones (Indicate number)
.....
.....

C.1.7 What kind of people own cellphones

a) Business people

b) Civil servants

c) Other: specify

C.1.8 what do people normally use the phones for?

a) Communication with relatives

b) Business

c) Other: Specify

C.2 Photocopying machines

C.2.1 Does your ward have access to photocopying services? Yes..... No.....

C.2.2 Where does the community do its photocopying?

a) Schools

b) Hospitals

c) Internet Café

d) Other: Specify

C.2.3 If no, do you know the benefits offered by a photocopier in the ward?
Yes..... No.....

C.3 Facsimile machines

C.3.1 Does your ward have access to facsimile services? Yes..... No.....

C.3.2 Where does the community do its faxing

a) Schools

b) Hospitals

c) Internet café

d) Other: Specify

C.3.3 If no, do you know the benefits of using a fax? Yes..... No.....

C.4 Radio

C.4.1 Do you have a radio in your home? Yes..... No.....

C.4.2 If no state why?
.....
.....
.....

C.4.3 If no, do you know the benefits of using the radio?
Yes ..... No.....

C.4.4 If yes, what do you normally use the radio for?

a) Educational purposes

b) Entertainment

c) Communication

d) Other: Specify

C.4.5 What form of power do you use for the radio?

a) Solar

b) Electricity

c) Battery

d) Other: Specify

C.5 Television

C.5.1Do you have TV in your home? Yes..... No.....

C.5.2 If no, state why?
.....
.....
.....

C.5.3 If no, do you know the benefits of using the TV in your home Yes..... No.....

C.5.4 If yes, what do you use the TV for?

a) Educational purposes

b) Entertainment

c) Communication

d) Other: Specify

C.5.5 What form of power do you use for the TV?

a) Solar

b) Electricity

c) Battery

d) Other: specify

C.6 Computers

C.6.1 Does the community have access to computers? Yes.... No.....

C.6.2 If yes, where are they located?

a) Schools

b) Hospitals

c) Agricultural offices

d) Other: Specify

C.6.3 Do you have access to Internet? Yes..... No.....

C.6.4 Do you know what to do with the Internet Yes..... No.....

C.6.5 If no, do you know the benefits of using the Internet Yes..... No..... .

C.6.6 If yes, how often do you the Internet?

a) Everyday or more

b) 2-3 times a week

c) About once a week

e) Never

COMMUNICATION CHANNELS

D.1 How do you get information on developmental issues?

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

D.2 How do you communicate with District offices?

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

D.3 What type of ICT do you need in your ward?

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

Appendix 3
UNIVERSITY OF FORT HARE

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF COMMUNICATION

QUESTIONNAIRE ON INVESTIGATION ON THE EXTENT OFACCESS TO ICTs IN MUTARE RURAL DISTRICT, ZIMBABWE HEALTH SECTOR

Interviewer's name.....

Date.....

HEALTH

Put an X where appropriate

A. DEMOGRAPHICS INFORMATION

A.1 Sex Male..... Female.....

A.2 Age 20 – 25
26 - 36

36 – 50

Above 50

A.3 Occupation Head of Institution

Member of staff

Other: specify

B.GEOGRAPHICAL INFORMATION

B.1 Type of Institution

a) Rural hospital

b) Health clinic

c) Commercial clinic

d) Mission hospital

e) Rural district hospital

B.2 Physical location (name ward).....

B.3 Name of institution.....

C. TELECOMMUNICATION INFRASTRUCTURE

C.1 Phones

C.1.1 Do you have access to phones Yes..... No.....

C.1.2 if, yes what sorts of phone do you have access to?

a) Mobile

b) Telephone

c) Both

C.1.3 What do you normally use the phones for

a) Communication with other health institutions

b) Communication in case of emergencies

c) Other: Specify

C.1.4 In case of a telephone does the community have access to it Yes.....No.....

C.1.5 If no, does the community know the benefits of using the phone
Yes..... No.....

C.1.6 If yes, how do they pay for the services?
.....
.....
.....
.....

C.1.7 How often do they use the services?
.....
.....
.....
.....

C.2 Photocopying services

C.2.1Does your institution have access to photocopying services Yes .....No.....

C.2.2 If no, where do you do your photocopying? State
.....
.....
.....
.....

C.2.3 If no, do you know how to use the photocopier? Yes..... No.....

C.2.4 If no, do you know the benefits offered by a photocopier in the institution?
Yes..... No.....

C.2.5 If no, do you know the benefits offered by a photocopier in the institution?
Yes…….. No……..

C.2.6 If yes how often do you use the photocopying services

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.2.7 Does the community have access to the photocopying services Yes……No.....

C.2.8 If no, does the community know the benefits of using the photocopier
Yes…… No……

C.2.9 If yes, how do their pay for the services?
……
……
……
……
C.2.10 How often does their use the services?
……
……
……
……

C.3 Facsimile services

C.3.1 Does your institution has access to fax services Yes..... No.....

C.3.2 If no, where do you do your faxing? State
……
……
……
……

C.3.3 If no, do you know how to use the fax? Yes.....No.....

C.3.4 If no, do you know the benefits of using a fax? Yes..... No.....

C.3.5 If yes, how often do you use the fax services

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.3.6 Does the community have access to the fax services Yes..... No.....

C.3.7 If no, do they know how to use a fax? Yes.....No

C.3.8 If no, does the community know the benefits of using the fax? Yes.....No.....

C.3.9 If yes, how do their pay for the services?

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

C.3.10 How often do they use the services?

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

C.4 Radio

C.4.1 Does your institution have a radio Yes..... No.....

C.4.2 If no, state why?

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

C.4.3 If no, do you know how to use the radio in the institution? Yes.....No.....

C.4.4 If no, do you know the benefits of using the radio? Yes ..... No.....

C.4.5 If yes, what do you use the radio for?

a) Health education tool

b) Communication

c) Entertainment

d) Other: specify

C.4.6 How often do you use the radio?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.4.7 What form of power do you use for the radio?

a) Solar

b) Electricity

c) Battery

d) Other: Specify

C.4.8 Who uses the radio?

a) Staff

b) Patients

c) Both

C.5 Television

C.5.1 Does your institution have a TV Yes.....No.....

C.5.2 If no, state why?

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

C.5.3 If no, do you know how to use the TV in the institution? Yes.....No.....

C.5.4 If no, do you know the benefits of using the TV in the institution? Yes..... No.....

C.5.5 If yes, what do you use the TV for?

a) Health education tool

b) Communication

c) Entertainment

d) Other: Specify

C.5.6 How often do you use the TV?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.5.7 Who uses the TV?

a) Staff

b) Patients

c) Bot

C.6 Computers

C.6.1 Does your institution have access to computers Yes…….. No……

C.6.2 If no, state why?

……
……
……

C.6.3 If no, do you know how to use computers your institution? Yes..... No.....

C.6.4 If no, do you know the benefits of using the computers in your institution?
Yes.....No.....

C.6.5 If yes, what do you use them for?

a) Data sharing with other health institutions

b) Storage of data

c) Word processing

d) Other: specify

C.6.6 How often do you use the computers

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.6.7 How did you acquire the computers?

a) Donation from government

b) Donation from NGOs (Name it)

c) Buy from own funds

d) Other: specify

C.6.8 Does the community have access to the computers Yes..... No.....

C.6.9 If no, do they know what to do with the computer? Yes..... No.....

C.6.10 If no, does the community know the benefits of using the computer? Yes..... No.....

C.6.11 If yes, how do they pay for the services?

.....

.....

.....

.....

C.6.12 How often do they use the services?

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

C.6.13 Do you have access to Internet? Yes..... No.....

C.6.14 Do you know what to do with the Internet Yes..... No.....

C.6.15 If no, do you know the benefits of using the Internet Yes.....No.....

C.6.16 If yes, how often do you the Internet?

a) Everyday or more

b) 2-3 times a week

c) About once a week

d) About once a month

e) Never

C.6.17 Do the community has access to Internet? Yes.....No.....

C.6.18 How do they pay for the services?

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

D.**COMMUNICATION CHANNELS**

D.1 How do you communicate with District offices?

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.....

D.2 How do you communicate with your community?

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.....

D.3 What sort of ICT do you need in your institution?

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.....
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Appendix 4
UNIVERSITY OF FORT HARE

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF COMMUNICATION

QUESTIONNAIRE ON INVESTIGATION ON THE EXTENT OFACCESS TO ICTs IN MUTARE RURAL DISTRICT, ZIMBABWE EDUCATION SECTOR

Interviewer's name.....

Date.....

EDUCATION

Put an X where appropriate

A. DEMOGRAPHIC INFORMATION

A.1Sex Male.....Female.....

A.2 Age 25 –35

36- 45

45 –60

Above 60

A.3 Occupation Head of school

Member of staff

Other: specify

B. GEOGRAPHICAL INFORMATION

B.1Type of school Primary..... Secondary.....

B.2 Name of school.....

B.3 Physical location (Name ward).....

B.4 Number of students

a) Less than 500

b) 501- 600

c) 601-700

d) Above 700

C.TELECOMMUNICATION INFRASTRUCTURE

C.1 Phones

C.1Do you have public phones at your school? Yes.....No.....

C.1.2 If yes, indicate (number).....

C.1.3 If no state why?

.....

.....

.....

C.1.4 If no, do you have any knowledge of what the phone could do in the school? Yes.....No.....

C.1.5 If no, do you know the benefits of having a public phones at the school?

C.1.6 Does the school have a private phone Yes..... No.....

C.1.7 What do you normally use the phone for:

a) Communication with other schools

b) Business

c) Other: Specify

C.1.8 How often do you use the phone?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.1.9 Does the community have access to the phones? Yes.....No.....

C.1.10 If no, does the community know the benefits of using the phone Yes...No....

C.1.11 If yes, how do they pay for the services?

.....

.....

.....
.....
C.1.12 How often do they use the services?
.....
.....
.....
.....

C.2 Photocopying services

C.2.1 Does your school have access to photocopying services Yes.....No.....

C.2.2 If no, where do you do your photocopying? State
.....
.....
.....
.....
C.2.3 If no, do you know how to use the photocopier? Yes.....No.....

C.2.4 If no, do you know the benefits offered by a photocopier in the school?
Yes.....No. .....

C.2.5. If yes, how often do you use the photocopying services?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.2.6 Do the community has access to the photocopier Yes..... No.....

C.2.7 If no, does the community know the benefits of using the photocopier
Yes.....No.....

C.2.8 If yes, how do they pay for the services
.....
.....
.....
.....

C.2.9 How often do they use the services?

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

C.3 Facsimile services

C.3.1 Does your school have facsimile services Yes..... No.....

C.3.2 If no, where do you do your faxing services? State

.....
.....

C.3.3 If no, do you know how to use the fax? Yes.....No.....

C.3.4 If no, do you know the benefits of using a fax? Yes..... No.....

C.3.5 If yes, how often do you use the fax ?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.3.6 Does the community have access to the fax services Yes.....No.....

C.3.7 If no, do they know how to use a fax? Yes..... No.....

C.3.8 If no, does the community know the benefits of using the fax? Yes.....No.....

C.3.9 If yes, how do they pay for the services

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

C.3.10 How often do they use the services

.....
.....

.....
.....

C.4 Radio

C.4.1 Does your school have a radio? Yes.....No.....

C.4.2 If no, state why?

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

C.4.3 If no, do you know how to use the radio in the school? Yes.....No.....

C.4.4 If no, do you know the benefits of using the radio? Yes ..... No.....

C.4.5 If yes, what do you use the radio for?

a) Educational tool

b) Entertainment

c) Communication

d) Other: Specify

C.4.6 How often do you use the radio?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.4.7 What form of power do you use for the radio

a) Solar

b) Electricity

c) Battery

d) Other: Specify

C.5 Television

C.5.1 Does your school have a television Yes..... No.....

C.5.2 If no state why?

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

C.5.3 If no, do you know how to use the radio in the school? Yes..... No.....

C.5.4 If no, do you know the benefits of using the radio in the school? Yes..... No.....

C.5.5 If yes, what do you use the TV for?

a) Educational tool

b) Entertainment

c) Communication

d) Other: Specify

C.5.6 How often do you use the television?

a) Everyday

b) 2-6 times a week

c) Once a week

d) Once a month

e) Never

C.5.7What form of power do you use for the TV

a) Solar

b) Electricity

c) Battery

e) Other: Specify

C.6 Computers

C.6.1 Do you have computers in your school Yes..... No.....

C.6.2 If no, state why?

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

C.6.3 If no, do you know how to use computers in the school? Yes..... No.....

C.6.4 If no, do you know the benefits of using the computers in schools? Yes.....No.....

C.6.5 If yes, indicate number.....

C.6.6 If yes, what are they used for?

a) Educational purposes

b) Data storage

c) Word processing

d) Other: specify

C.6.7 If yes, how did you acquire the computers?

a) Donation from government

b) Donation from NGO (state the NGO)

c) Buy from own funds

d) Other: specify

C.6.8 Have you introduced computer studies in your curriculum Yes.....No.....

C.6.9 If no state why?

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

C.6.10 If no, do you know the benefits of including computers in your curriculum? Yes……..No……

C.6.11 If yes, indicate year and state programmes introduced

……
……
……
……

C.6.12. What level do you introduce computer studies?

……
……
……
……

C.6.13 Does the community have access to computers Yes ……No.....

C.6.14 If no, do they know what to do with the computer? Yes..... No.....

C.6.15 If yes, how do they pay for the services

……
……
……
……

C.6.16 How often do they use the services?

……
……
……
……

C.6.17 Do you have access to Internet? Yes..... No.....

C.6.18 Do you know what to do with the Internet Yes.....No.....

C.6.19 If no, do you know the benefits of using the Internet Yes.....No……

C.6.20 If yes, how often do you the Internet?

a) Everyday or more

b) 2-3 times a week

c) About once a week

d) About once a month

e) Never

C.6.21 Do the community has access to Internet? Yes.....No.....

C.6.22 How do they pay for the services?

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

.C.6.23 How often do they use the services?

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

D.COMMUNICATION CHANNELS

D.1 How do you communicate with the District offices?

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

D.2 What means of communication do you use to communicate with the community?

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

D.3 What type of ICT do you need in your school?

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

Appendix 5

Interview Questions (lead questions)

1. What form of ICTs is available in the district?
2. Where are do people access the ICTs?
3. Do people make use of the ICTs?
4. Which group of people normally make use of the ICTs?
5. How do you think that using ICTs can give people better lives?
6. What is the access rate of ICTs in the district?
7. What are the limitations in accessing ICTs?
8. What sort of ICTs would benefit the district?