Makerere   **University**

Community Wireless Resource Centre (CWRC)

Faculty of Technology

Title: Report on the Possibility of Implementing Community Wireless Network in Kachwekano Community Multimedia Centre and Kigezi High School -School Based Telecentre.

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Acronyms

AHI	African Highland Initiative
ARDC	Agricultural Research and Development Centre
CMC	Community Multimedia Centre
DSTV	Digital satellite television
ICT	Information and communication technology
ISP	Internet Service Provider
NARO	National Agricultural Research Organization
NGO	Non Governmental Organization
SBT	School-Based Telecentre
UNDP	United Nations Development Programme
VSAT	Very Small Aperture Terminal
WOUGNET	Women of Uganda Network
ZARDI	Zonal Agricultural Research and Development Institute

Note: The picture is of Kabale town.

Photosay-The Green Stripes of Kabale, Source:

http://edirisa.org/photosay/stripes.php?page=2, Accessed on 03/09/2006

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To the enumerable people who helped me, those mentioned and the many I have failed to mention, I know the good Lord will reward you abundantly. Thanks a lot.

Dedication

This report is dedicated to my siblings, who are always ready to help whenever there is a problem, and to Ignatius who provided accommodation and company in Kabale.

Abstract

This report contains the findings of the survey that was carried out around Kachwekano CMC and Kigezi high school SBT in Kabale district from 22nd July to 28th July, 2006.

It contains an introduction to the study, which was carried out in Mbale and Nakaseke Districts, an introduction to Kabale district, a list of potential partners and their description as well as what they had to say about the cooperative model of ICT service ownership and how much they were willing to contribute once the project is in place. Observations and recommendations are included to make the report complete.

It should be noted that partners were not separated as they were overlapping. This is because the two telecentres happen to be in approximately 6km distance of each other.

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Chapter 1

1.0 Introduction to the Telecentre Study

A telecentre is a public place where people can access computers, the Internet and other technologies that help them gather information and communicate with others at the same time as they develop digital skills. While each telecentre is different, the common focus is on the use of technologies to support community and social development — reducing isolation, bridging the digital divide, promoting health issues, creating economic opportunities, and reaching out to youths. Telecentres exist in almost every country on the planet, although they sometimes go by different names (e.g. village knowledge centres, infocentres, community technology centres, community multimedia centres or school-based Telecentres)[1]

As a preamble to the Telecentre study, similar studies were carried out. One supported by UNDP and being implemented by WOUGNET in Mbale District was done to gain the skills on how research is carried out, and another was done in Nakaseke District to test the efficiency of the questionnaires developed.

1.1.0 UNDP Sponsored Survey

UNDP has a number of development programs in Uganda and the use of ICTs is another one of such programs. While access to ICTs is indeed expanding rapidly and dynamically on a market-driven basis, many areas, particularly rural and poor urban, often remain under-served. The purpose of the survey was to ascertain how community-owned ICT infrastructures and networks can be able to draw on community resources and labor to ensure sustainability, expansion and development of rural areas.

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[1] Source: Telecentre- Wikipedia, the free encyclopedia, http://en.wikipedia.org/wiki/Telecentre, accessed on 03/09/2006.

Similar studies are being carried in Tanzania, Kenya and Rwanda. In Uganda, the initial study was conducted by WOUGNET in 2006 in the districts of Mbale, Nakaseke and Apac. Mbale was then chosen for an in-depth study, also conducted by WOUGNET, since it presented better opportunities due to its historical success with cooperative unions. Therefore, the Mbale project is to act as a model project before others are implemented in other districts of Uganda.

WOUGNET is an NGO established in 2000 by several Women's organizations in Uganda to develop the use of ICTs among women as tools to share information and address challenges collectively. Its objective is to strengthen the use of ICT among women and women organizations, build capacities in ICT use and application, and expand activities to reach out to women in the rural areas.

1.1.1   Purpose of the UNDP study

The study was aimed at answering the overall question: *Are community needs driven ICT networks, supported by open access approaches, effective models for ICT-enabled pro-poor development?*

This overall question was sub-divided into four specific questions:

- To which development needs of poor communities can ICTs contribute?
- What is the value added of community needs driven models?
- What is the value added by networking (people and technologies) models?
- In what ways can open access approach contribute to sustainability?

1.1.2   Surveys

The approach adopted was to first assess the general community needs and then quickly focus on those that could benefit the community if it were ICT-enabled. Also, the benefits

envisaged by potential partners if a cooperative model of owning the venture were assessed.

The survey mainly targeted potential partners such as educational institutions, local government offices, community internet cafes, cooperative unions and NGOs. The main objective was to obtain their views on such an initiative since they would be the beneficiaries and owners.

1.1.3   Activities Carried Out

Two field trips were made to Mbale, the first with the WOUGNET staff to carry out a needs assessment survey and the second, with an external consultant from UNDP and a WOUGNET technical consultant to carry out a technical surveillance of the place. The experiences thus gained helped very much in drafting the telecentre and Partner survey questionnaires that were later used during the IDRC research.

1.1.4   Nakaseke Survey

Nakaseke Multipurpose Community Telecentre happens to be one of the telecentres that IDRC has chosen to carry out the feasibility of providing wireless network to. Nakaseke telecentre has an internet café, a printer, a community radio station and a library. It is powered by an array of solar panels which were purchased to replace hydro-electric power due to high frequency of load shedding in the area and vandalisation of the electric wires.

Nakaseke is located 64 km north of Kampala, and 16 km from the nearest town, Wobulenzi. It started in December 1997 as a project aimed at introducing new information services to the rural areas of Nakaseke and Kasangombe in the then Luweero District. The project aims to demonstrate that providing information and communication to rural communities catalyses the development process and results in improvement of the quality of life of rural communities. Nakaseke Telecentre is part of a chain of five

UNESCO/IDRC/ITU-supported telecentre projects initiated in Benin, Mali, Mozambique and Tanzania[2]

Due to the presence of the Industrial Training Officer in Nakaseke, the district was chosen to help test the efficiency of the questionnaires developed before they could be used on other telecentres. With the guidance of Mr. Peter Balaba, the telecentre manager, the telecentre and partner surveys were carried out. This helped equip us, the trainees, with the required skills as the interviewing was done by ourselves. Also, it helped us to do some necessary changes to the questionnaires as some of the questions were vague.

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[2] Source: The Communication Initiative- Making Waves: NAKASEKE TELECENTRE, http://www.comminit.com/strategicthinking/pdsmakingwaves/sld-1905.html, Accessed on 03/09/2006

Chapter 2

2.0   Introduction to Kabale district

Kabale town gave name to a present district on the border with Rwanda, measuring 1,827 km^2 [3]. Green, interlocking and heavily cultivated hills range from 1,219 to 2,347 m above sea level. Kabale district lies in the south west of the Republic of Uganda, about 450 kilometers from the Uganda's capital city, Kampala. It borders with the districts of Kisoro to the west, Rukungiri and Kanungu to the north, Ntungamo to the east and the republic of Rwanda to the south. The District consists of three rural counties, Ndorwa, Rubanda and Rukiga and Kabale Municipality, as the only urban county.

 Kabale district has a population of around half a million. The people are predominantly from the Bakiga tribe, but also from Batwa (Pygmies) and other groups such as the Bafumbira, Banyarwanda and the Banyankole exist. Kabale municipality has 41,344 inhabitants

If you mention Kabale to an ordinary Ugandan, the person will shiver and start talking about mountains. Indeed, the area is colder than the rest of the country but still not really freezing - the average monthly temperatures are 15-20 degrees Celsius (can fall to 10 degrees by night), nearly all year around. A European would call it 365 days of pleasurable autumn. Truly, the altitude is high; reaching to more than 2300m, but the landscape would be most appropriately described as hilly, not mountainous. These hills are the major beauty of Kabale: green, interlocking and cultivated, with rows of terraces stretching all over them.

Kabale is the biggest town in what used to be (and is still informally called) Kigezi, a former huge district covering the south-western corner of Uganda. The tourist label of the

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[3] Source of this introduction: Explore-Lake Bunyonyi, http://edirisa.org/thelake/index.php?cnt=kabale_depth , accessed on 03/09/2006

region is "the Switzerland of Africa", the scientific one "south-western highlands agro-ecological zone".

Temperatures that average from 15 to 20 degrees Celsius can drop to 10 degrees at night. Relative humidity is between 90 and 100% in the morning and decreases to 42 to 75% in the afternoon, all the year around. The rain season is March – May, with light rains between September- December.

85% of the people in Kabale are peasant farmers. For women, the ratio is more than 9 out of 10. Major agricultural products are sweet and Irish potatoes, sorghum, beans, pigeon peas, wheat and bananas, grown mostly for local consumption. The limitations are high population density, isolation from major markets, poor marketing structure and storage facilities, excessive soil erosion and unpredictable weather.

Cattle, goats, sheep, pigs and poultry are common at subsistence level. Fishery is limited, in addition to small-scale activities on Lake Bunyonyi, 236 ponds have been established for local consumption but only 103 are stocked. Non-agricultural activities include wine production, furniture manufacturing, footwear production, coffee processing, printing, brick making, metal fabrications, wolfram mining, tin and stone quarrying.

An average household in Kabale uses increasingly diminishing wood fuel for cooking and kerosene for lighting. Only 0.05 percent of the district population used electricity for cooking in 1991. Nowadays 30 new people per month are connected to the grid. Electricity is transmitted from the Kiira and Nalubaare Dam via Kampala to Mbarara and then to Kabale through a 132 KV line. A local power station at Maziba has been rehabilitated and contributes when the connection from Mbarara fails. However, the district still occasionally experiences power failure for several hours.

Transport in Kabale is difficult due to terrain - most of the roads are only motorable by 4-wheel-drive vehicles and motorcycles. There is no rail or air strip (one is planned).The post office in Kabale town has five sub-post offices in other parts of the district.

Telephone landlines are limited but the exchange is automatic and connections can be made nationally and internationally. All three mobile phone networks (Uganda Telecom, CelTel and MTN) have reached Kabale. Radio calls can be made from some points in the district.

2.1   Purpose of the CWRC Study

This study[4] was done to answer the major question: ***Is the cooperative model of owning ICT the best approach to the sustainability of ICT facilities in rural Uganda?***

To answer this question, the eight (8) major sections were made.

- The potential partners in the locality in which an existing telecentre is located.

- Services being offered by the potential partner and the equipment owned.

- Activities and clients of the potential partners.

- Financial capacity of the partner

- Infrastructure available at the partner's location.

- General description of the partner's premises.

- Local environment around the partner's premises

- Advantages and challenges of cooperative model of owning ICT facilities.

In summary, the study was carried out to assess the possibility of setting up a cooperative based and owned ICT facilities and the benefits that would accrue.

2.2   Surveys in Kabale

The survey was conducted by face-to-face interviewing of potential partners with the help of questionnaires, as well as observation of the local area (no equipment was used and therefore, everything is on personal judgment and sometimes, the judgment of the interviewee).

The survey mainly targeted educational institutions, government organizations, NGOs, and community based organizations.

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[4] Questionnaires are in the Appendix

2.3 Telecentres Visited In Kabale

Two telecentres were visited during the survey. These are Kigezi SBT and Kachwekano CMC.

2.3.1 Kigezi High school School-based telecentre

A: Brief introduction

The SBT is located on Rugarama hill, 3km from Kabale town. It employs[5] a total of 5 people, 2 of whom are female. Kigezi high school SBT has been in operation for 4 years, and serves mostly the 900 students and 54 teachers of the school. It depends mostly on hydro electricity but also uses a generator owned by the school as a back up when the school is load shed every night.

B: Person Interviewed

Asaph Arinaitwe, Telecentre Manager. He is aged 32 years and his key role is overseeing the telecentre activities. He is a full time employee and is able to speak English, Rukiga, Luganda and Kinyarwanda.

C: Infrastructure

It has a twenty four (24) computers of which fifteen (15) are networked. It is connected by AFSAT communications Ltd to the internet using VSAT, to which they pay US. Dollars 250 per month.

D: Services

It offers computer training, email/internet, telephone, photocopy, printing, and the library which is under the school. Computer training and internet services are the most beneficial services they offer with printing and telephone the least beneficial.

E: Source of income

Their major source of income is the contribution of Uganda Shillings 5000 made every term by each student towards the ICT fund. Others include Uganda Shillings70000, made by each non student when the school has closed for holidays for training in ICT. Mr.

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[5] Employee contacts are provided in the Appendix

Arinaitwe noted that contributions for computer training and internet services would help to sustain the project.

F: Cooperative model of Ownership

Mr. Arinaitwe pointed out sharing of costs, knowledge, expertise, information and equipment as the benefits that would accrue if ICT was owned in a cooperative. He however noted management problems and problems in contributing as the possible challenges that would result. He further said that the telecentre would be able and willing to contribute towards maintenance of infrastructure and staff.

G: Local Environment

The telecentre is located 3km away from Kabale town. It has access to the rooftop and a secure place to store for equipment. No thefts have ever been reported from the store. It is also situated within 200m from MTN mast and 4km from a UTL mast. It is located near wholesale shops and a Hot Loaf factory.

Bishop Barham University College, Uganda college of Commerce, Kigezi College Butobere, Africa College of commerce, Bishop Kivengere Muyebe, Voice of Kigezi, Kabale Trinity College and Hornby were the schools that Mr. Arinaitwe felt would be interested in joining the cooperative model of ownership of ICT.

2.3.2   Kachwekano Community Multimedia centre

A: Brief Introduction

Kachwekano CMC started[6] as a branch of Kabale AHI telecentre six years ago and a radio component was added to make it a full CMC (Which is no longer operational as it was struck by lightening, though plans for purchasing new equipment are underway). It is owned and run by Bubaare sub-county and NARO-Kachwekano ARDC. The mission of Kachwekano CMC together with the others in the network is to stimulate and sustain development initiatives at different community levels.

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[6] Additional information from: CMC-Uganda, http://www.cmc-uganda.org/indexo.php?page=about ,accessed on 03/09/2006

There is no structured public transport to the town, no communication services (apart from this CMC and the tourist resorts, as well as many calling points and around 15 internet cafes), a few scattered secondary schools and the people are poor. The communities around the CMC and in rural areas are mainly subsistence farmers (peasants) and or small scale fishermen and some do stone quarrying.

Kachwekano CMC is located at Kachwekano ARDC, which is situated in Bubaare sub-county, Kabale district. It is 8 km from Kabale town, and 2.5 km to Lake Bunyonyi. Although the CMC is only 8 km from the district's town, it has characteristics of remote areas because of the terrain. The telecentre employs[7] three full time employees as well as five volunteers.

B: Person Interviewed

Rogers Kakuhenzire, Acting General Manager, is the project leader aged 36 years. He speaks English and Rukiga fluently.

C: Infrastructure

The telecentre owns 2 computers for general use and 1 used in the radio studio. Its major source of power is hydro and a stand-by generator is in place as an alternative source. Load shedding is done after every one day. It has a radio mast which is currently being rented out to MTN as the radio is non-operational. Also, it has a switch which is not being used.

D: Services

The telecentre had a radio which was damaged by lightening. The radio used to serve communities in a radius of 20 km. Note that it was picked by few people due to low transmission power coupled with the undulating hills and valleys. The other services such as internet, since cut off due to breakdown of computers, telephone and photocopying services, computer training and library services are utilized mainly by people with in a radius of 5 km, mostly students from the nearby villages, NARO staff and tourists. Other services offered include video shows.

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[7] Employee contacts are provided in the appendix

D: Source of Income

Its major source of income is contributions from NARO and income from the services given to the community such as computer training and photocopy.

F: Cooperative model of Ownership

Mr. Kakuhenzire said that reduced cost, possibility of knowing other services at other partners and telecentres, awareness of ICT and sharing of personnel would result if ICT is owned in a cooperative. Competition between partners, ignorance of the people about ICT, transport problems and failure by some people to contribute would be the possible challenges. He however said that the telecentre would be able and willing to contribute Uganda Shillings 100000 towards the maintenance staff and maintenance of equipment.

G: Local Environment

There are about 8 primary and 2 secondary schools within the 5km radius' areas. There are however over 20 secondary schools and 16 tertiary institutions and very many primary schools in and around the Kabale town, which is within a 12km radius from the CMC. Around 10 NGOs exist in the area. 20 health facilities (clinics, dispensaries, hospitals) and about 15 churches and mosques exist in the radius of 10km of the telecentre. There exist many calling points and about 15 internet cafes.

NARO, Bubaare S.S, Africa College of Commerce, National Teachers College Kabale, Prime West, CARE, Uganda College of Commerce, Africa2000 Network, Kabale Trinity College, Bushara Island Community tourism centre, Edirisa, Byona Magara, Kabale telecentre and Local government offices were give as potential partners in the venture.

Chapter 3

3.0 Partners Identified In Kigezi High School- Based Telecentre and Kachwekano Telecentre

A number of potential partners were identified by the two telecentres within a radius of 10km from each of them. It should be noted that since the telecentres are within a radius of less than 6km of each other, the same partners were given.

It was noted that most of them only saw it as a business plot (no wonder some would ask for a business card from a student like me) and did not allow to be interviewed. Others allowed to be interviewed but said that such a deal can only be fruitful if the owners were contacted as most of the people interviewed were IT people. It is therefore recommended that before further progress on the project is done, all stake holders be called for a workshop. Others showed reluctance (mostly those who already have internet) to commit themselves to something that has not been tested.

The partners were mostly identified in the places near town as rural areas don't have access to power as well as their lack of computers. The areas are Kabale town, Rugarama and Rushoroza, which have most of the schools. The following were the partners.

3.0.1 Uganda College of Commerce

A: Person Interviewed[8]

Arinaitwe Asaph, head of ICT Department.

B: Employees

The department of ICT has 4 employees.

C: Services and Equipment

The college has a fixed phone line provided by UTL. It has a total of 40 computers, of which 20 are networked. No other technical equipment was in their possession. The

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[8] Check the appendix for the full details of all people interviewed.

college currently provides computer training and Email/Internet to students and staff. They also showed interest in library services, photocopy, printing as well as distance education.

D: Activities and Clients

The core business of the computer department is computer training. Mr. Arinaitwe, the person interviewed, said that internet access would help their major clients, students and lecturers alike, to carry out research for the courses currently being offered at the college. He further said that on daily average, when school in progress, the department can serve about 40 people. These speak the local language, Rukiga, as well as English and some Kinyarwanda.

E: Financial Capacity

Given that they already had internet and well already sustaining it, Mr. Arinaitwe said that college can be able and willing to contribute the maximum fee of Uganda shillings 185000.

F: Infrastructure

The major source of power was hydro at the time of the research which was load shed every other day. However, the school had a generator as an alternative source of power.

G: General description of the premises

The partner has a rooftop access which can be used to fix equipment. It also has a secure place to store any equipment and no cases of theft have ever been reported in the computer lab. The premises are not shared with any other department.

H: Local Environment

The college is located in Kabale town. It is situated within approximately[9] 4km from an MTN mast and about 0.5km from the UTL mast. No previous contact with either of the telecom companies had ever been made.

I: Cooperative model of Ownership

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[9] Note that all measurements are approximate given that no measuring equipment was used.

The benefits that were highlighted included cost sharing, sharing of expertise especially in ICT as well as sharing of expensive equipment. However, Managerial problems and problems in contributing towards the sustainance of the project were anticipated.

Mr. Arinaitwe said that through charging for surfing, the project can be self sustaining. He further said that the college would be willing to contribute provided a memorandum of Understanding is signed between the provider of the service and the other partners.

J: Technical Description

The college is located about 4km from Kachwekano CMC and about 2km from Kigezi High school SBT. No line of sight was established due to presence of trees and storeyed buildings in the nearby Kabale town. Generally, the college is on a lower altitude than either telecentres. A UTL mast, located about 0.5km, exists in the locality.

3.0.2 Kabale Secondary School

A: Person Interviewed

Francis Twinamatsiko, Computer teacher.

B: Employees

The school has a total of 49 teachers, of which 13 are female.

C: Services and Equipment

The school has a fixed phone line provided by UTL. 10 of the 14 computers are networked. Other than DSTV dish, which is used to provide television via satellite, the school has no other technical equipment.

The school currently provides computer training to students. Other ICT services the school would be interested in include Email/internet, telephone and library services.

D: Activities and Clients

The major activity is teaching. Mr. Twinamatsiko, the person interviewed, said that internet access could help in easy sharing of information as well as faster communication. He further said that the clients to the ICT facility are the students that number about 1000, teachers and people from the community around the school. No average number of people was given due to the fact that different days have different number of classes occupying

the lab as well as the fact that classes have different number of students. The clients speak Rukiga and English.

E: Financial Capacity

Mr. Twinamatsiko said that since internet has not been in use at the school previously, the school would only be willing to contribute Uganda Shillings 37,000.

F: Infrastructure

The school relies solely on hydro electricity, which goes off every other day for 4 hours.

G: General Description of the Premises

The lab has access to the rooftop on which equipment can be fixed. The lab is a safe place where they can keep the equipment as no thefts have ever been reported. No other department shares the lab with the computer department.

H: Local Environment

There exist three masts in the locality owned by the three giant telecom companies in Uganda. MTN's and CELTEL's are about 2km away whereas the UTL mast is about 0.5km away. Not contact have ever been done with the respective telecom companies.

I: Cooperative model of Ownership

Mr. Twinamatsiko said that reduced cost and acting as a preamble for opening up cooperation in other areas are some of the expected benefits once the project is in place. However, he foresaw disagreements regarding contributions towards for the project. He noted that the project can be sustained by charging outsiders who come to use the internet/Email. Also, for maintenance, he said that the school would be willing to contribute but was not sure how much as different problems require different level of expertise hence different fees.

J: Technical Description

No line of sight was established due to presence of trees and buildings. The school is about 4km directly from Kachwekano CMC and 2km directly from Kigezi High School

SBT. The school is located at a lower altitude than either telecentre. There exists a UTL mask within a distance of 0.5km.

3.0.3 St. Maria Goretti Secondary School, Rushoroza

A: Person Interviewed

Kennedy Rwaboona, headmaster

B: Employees

The school employs 28 teachers of which 6 are female. It has a support staff of 8 people.

C: Services and Equipment

The school owns a UTL landline phone, 3 operational computers and 3 none-operational computers. None of the computers are networked and the school owns no ant kind of technical equipment.

Currently, the computers are used for general office work by the bursar, secretary and the headmaster. The computer in the headmaster's office is connected to the internet by dial-up offered by UTL. The headmaster however said that they would be interested in computer training, which is currently not possible due to lack of enough equipment, internet on all computers, telephone, library services, photocopy and printing services.

D: Activities and Clients

The major business is the school. Mr. Rwaboona said that the school has 380 students, boys and girls, and the internet would help them to get literature from the websites, enable connection to the outside world, provide reading material for the different subjects and ease in networking with other organizations. The teachers and students, who are the major clients, speak English and Rukiga.

E: Financial Capacity

The headmaster, Mr. Rwaboona, said the school would be able to contribute Uganda Shillings 111000 without any problems given that they now afford Uganda Shillings 100000 to sustain internet one computer.

F: Infrastructure

Hydro electricity is the major power source. The school owns a generator which is used every other day when power is load shed.

G: General Description of the Premises

The school has access to a rooftop and a secure place where to can keep equipment. No cases of theft had been noted at the time of the research. The place suggested was one of the offices which are currently being used by other officers.

H: Local Environment

There exist two masts in a distance of 2km from the partner owned by MTN and UTL respectively. No contact has ever been established with either company.

I: Cooperative model of Ownership

Reduced cost, sharing of information and opening up space for cooperation in other areas were some of the benefits highlighted. Challenges like dragging of feet by some of the people (partners) were envisaged. Contribution from the students was the only way that the school hoped to raise mo0ney to sustain the internet. The school was able to contribute anything less than Uganda Shillings 100,000 for maintenance of infrastructure and staff.

J: Technical Description

No line of sight could be established due to presence of trees. Distance from either telecentre can be approximated as 4km. The school is located on Rushoroza Hill and therefore it was hard to establish which of either was on a higher altitude. However, line of sight to MTN and UTL masts, which are approximately 3km away, was clear.

3.0.4   St. Maria Goretti Primary School

A: Person Interviewed

Christine Kabaami, Secretary

B: Employees

The school employs 17 teachers of which 12 are females.

C: Services and Equipment

The school owns 3 computers, none of which are networked. It also owns a fixed UTL phone. No other technical equipment is owned. They showed interest in library services and printing only.

D: Activities and Clients

The major business is the school. Ms. Kabaami saw ease of communication and sharing of information as the some the ways the internet would improve the school. The school has a total of 511 pupils who speak English and Rukiga. The people who currently use the computers are the secretary and the bursar as others have no computer skills.

E: Financial Capacity

Ms. Kabaami said that the school would be able to contribute Uganda Shillings 37000.

F: Infrastructure

The school uses hydropower and has a generator which is used when ever they are load shed which is every other day for 4 hours

G: General Description of the Premises

The school shares premises with no other organization. However, they can only keep the equipment in one of the offices which are currently being used by other people. They have access to the rooftop and no reported theft.

H: Local Environment

There exist two masts in a distance of 2km from the partner owned by MTN and UTL respectively. No contact has ever been established with either company

I: Cooperative model of Ownership

Benefits that Ms. Kabaami saw were low cost maintaining the facility and easy sharing of information. However, problems in contributing towards the project and in leadership were foreseen. Opening of the facility to outsiders was seen as a possible way of sustaining the project.

J: Technical Description

No line of sight could be established due to presence of trees. Distance from either telecentre can be approximated as 4km. The school is located on Rushoroza Hill and therefore it was hard to establish which of either was on a higher altitude. However, line of sight to MTN and UTL masts, which are approximately 3km away, was clear.

3.0.5 St. Mary's College, Rushoroza

A: Person Interviewed

Pius Tibaijukason Besigye, Teacher

B: Employees

The school employs 59 teachers.

C: Services and Equipment

The school owns 10 computers, none of which are networked and a fixed phone line. No other technical equipment is owned. It currents offers computer training to Form1 and 2 students. They showed interest in being able to have internet/Email, library services, photocopy and printing services as well as distance education.

D: Activities and Clients

The major business is the school that has about 600 students (mixed). Mr. Besigye said that providing internet to the school would help in easy access of information for study and research. The present clients are students and teachers of the school.

E: Financial Capacity

Mr. Besigye felt that the school would be able to contribute Uganda Shillings 37000.

F: Infrastructure

The primary source of power is hydro electricity which is load shed every other day between 06:00pm to 10:00pm. The school has solar power, which is used to light the classes in case of load shedding, and a generator.

G: General Description of the Premises

The premises have access to a rooftop and a secure place to store equipment, from which nothing has ever been stolen. The premises are not being shared with other departments.

H: Local Environment

There exist MTN and UTL masts within 4km radius of the partner. No contact has ever been made with them.

I: Cooperative model of Ownership

Mr. Besigye said that the cooperative model would help in sharing costs of ICT and hence appropriate expenditure. The challenge he foresaw was that in case of a fault, there could be some delays in contributing towards rectifying the problem. The only way he saw on how the school could sustain the project was through inviting outsiders to use the services, and through termly contributions from students. He further said the school will contribute towards maintenance but the amount depends on the fault and prevailing situation.

J: Technical Description

The presence of trees made it had to ascertain the line of sight. Also, the distance from either telecentre could not be established. The partner is located on Rushoroza hill, and due to clear line of sight, the relative altitude could not be approximated. Clear line of sight, however, exists to MTN and UTL masts located about 3km away.

3.0.6 Hornby High School

A: Person Interviewed

Mercy B. Orikiriza, Teacher

B: Employees

The school employs 37 teachers.

C: Services and Equipment

The school has 10 computers that are all not networked and a fixed phone line. It has no other technical equipment. The school offers computer training to forms 1 and 2 and they showed interest in offering internet/Email, telephone, fax service, library service and

photocopy and printing services.

D: Activities and Clients

The major business is the school. Ms. Orikiriza said that access to current information and easy means of communication would result as a result of internet access. The major clients are students and teachers. The total population is 530 students who speak English, Rukiga and Runyankole.

E: Financial Capacity

Ms. Orikiriza did not say how much the school would contribute and suggested that I consult the administration. Attempts to meet any of the administrators were futile.

F: Infrastructure

The school depends solely on hydro power which is load shed every other day.

G: General Description of the Premises

The premises have access to the rooftop and a secure place to store equipment. No reports of theft had been put forward sine April, 2006 when the computers were installed. It does not share the equipment with any other department.

H: Local Environment

An MTN mast exists within a distance of 0.5km from the school. No previous business has ever been done with MTN and therefore contact between the two could not be established.

I: Cooperative model of Ownership

Benefits were seen in terms of cost sharing and access to various services. Challenges foreseen include misuse of the facility and failure by some other people to pay. Sustainability of the project, Ms. Orikiriza said, can be through student and well-wisher contributions.

J: Technical Description

There existed clear line of sight to Kigezi High School SBT, which is about 2km away. The school is at a higher altitude relative to Kigezi High School and also, there exists an MTN mast about 0.5km away.

3.0.7 National Agricultural Advisory services (NAADS)

A: Person Interviewed

Rogers Akatwijuka, District NAADS coordinator

B: Employees

NAADS, Kabale branch, employs 12 NAADS coordinators, 1 district Coordinator and one intern.

C: Services and Equipment

There is a fixed phone line in the Chief Administration Officer's office which is located on the same building. NAADS has 1 computer but there are 10 computers in the building. None of the computers is networked. Mr. Akatwijuka said that for smooth running of their activities, internet/Email would be necessary. Currently, they have a library, photocopy and printing services.

D: Activities and Clients

The major business is providing agricultural advisory services to farmers. Internet would help in providing information which would help them in borrowing experiences from other countries as well ease communication between the head office and the farmers. It will all help them to publish their successes and research finding. Their clients are farmers, but the people who use the computer are the 14 coordinators. The clients speak Rukiga and English.

E: Financial Capacity

Mr. Akatwijuka said that the office would be willing to contribute Uganda Shillings 37000 since they have one computer.

F: Infrastructure

The source of power is hydro electricity. The generator, which was used as back up, was down at the time of the visit. Load shedding is every other day.

G: General Description of the Premises

NAADS has no access to the rooftop as the building belongs to local government. They however have a secure place to store equipment. No equipment has ever been lost. They share premises with Area based Agricultural Modernization Program, Directorate of Production, District Security Officer, as well as Agriculture, veterinary and fisheries department.

H: Local Environment

There exists a CELTEL mast within a distance of about 100m. No contact had been established.

I: Cooperative model of Ownership

Cooperative model, as Mr. Akatwijuka said, would enable sustainability of the project as well a protection of equipment due to sense of ownership. He however said that failure by some partners to subscribe and maintenance problems would result. He said that the only way they can support the project is by writing a proposal for funding. He further said that depending on what the Memorandum of Understanding, they would be willing and able to contribute towards maintenance of equipment and staff.

J: Technical Description

There exists a clear line of sight to Kachwekano CMC. The partner is about 2km from Kigezi High School SBT and 4km from Kachwekano CMC. The partner is on a lower altitude than Kachwekano. There exists CELTEL mast in a distance of about 100.

3.0.8   Lake Bunyonyi Development Company

A: Person Interviewed

Patrick Tumwijukye, General Manager.

B: Employees

The company employs a total of 50 people, most of whom are women who deal in handicrafts and tie and dye

C: Services and Equipment

The company has no fixed phone line, no any technical equipment and owns only one computer. Mr. Tumwijukye said that the company would be interested in internet/Email, telephone, library services, printing services and distance education.

D: Activities and Clients

The major business of the company is tourism though it also carries out hospitality training, orphan care, agroforestry and a women cooperative which brings together would to work on handicrafts and tie and dye. It should be noted that the company was started to boast the livelihood of the people around L. Bunyonyi through land management. Access to internet, according to Mr. Tumwijukye, would help them in bookings and marketing of their services, information dissemination and acquisition of information on how to improve the services currently being offered. Their clients currently include tourists, employees and people around the lake. They speak various languages like French, Rukiga, English, Kinyarwanda and many others. On average, the computer section serves an average of 6 people per day.

E: Financial Capacity

Mr. Tumwijukye said they can be comfortable with contributing Uganda shillings 74000.

F: Infrastructure

Their sole power source is solar power.

G: General Description of the Premises

The partner has access to the rooftop and a secure place to store any equipment from which no equipment has ever been stolen. They don't share the premises with any other organization.

H: Local Environment

There exist masts owned by UTL and MTN in a distance of approximately 2km. No contact with either has ever been done concerning the use of the mast.

I: Cooperative model of Ownership

Access to information and lower costs were the benefits highlighted and their having one computer and the possibility of the internet connection being slow as the challenges. Mr. Tumwijukye further said that they are able and willing to contribute towards maintaining

the facility.

J: Technical Description

The partner's premises were not visited as they are located on an island in L. Bunyonyi. However, Mr. Tumwijukye said that there exists a clear line of sight to the masts of UTL and MTN which are about 2km away. Also, there exists a mast at Kachwekano CMC from where the island is clearly seen.

3.0.9   Bubaare Secondary School

A: Person Interviewed

Gad Burinawe, headmaster

B: Employees

The school employs 49 teachers, 10 support staff and 29 group employees.

C: Services and Equipment

The school owns 14 computers with only 4 networked. It has no fixed phone line but owns a VSAT dish. The school offers computer training and distance education which are not organized, internet/Email, telephone, library services and printing services.

D: Activities and Clients

The major business is the school and internet access has helped them to access information and also ease communication. The current clients who use the computer facilities include 1000 students at the school, teachers, and people from the nearby church, Bubaare sub county headquarters, and a primary school. They are able to serve on average 40 customers who speak mostly English and Rukiga.

E: Financial Capacity

The headmaster, Mr. Burinawe, said the school would be comfortable with paying Uganda Shillings 37000.

F: Infrastructure

Hydro power is the major source of power at the school. The also own a generator and a solar system which connected only to the library. Load shedding in the area is every other

day.

G: General Description of the Premises

The partner has access to a rooftop and a secure place to store equipment. Mr. Burinawe was not certain if any equipment had ever been stolen from that place. The premise is also not shared with any other department.

H: Local Environment

There exist two masts in the locality, a UTL mast about 5km by road away located at Rugarama, and an MTN mast about 10km by road located at Kikumiro.

I: Cooperative model of Ownership

Economies of scale, risk sharing, sharing of information, easy dissemination of information, access to first hand information and appreciation of the school were the benefits given. The challenges given were ownership problems, finances, maintenance of equipment, lack o required expertise for maintenance and problem of remuneration of workers.

Mr. Burinawe felt that the project can be sustained through getting contributions from students and putting an affordable fee for none students so as to encourage them to use the facilities. He further said that the school would be willing to contribute towards maintenance but the fee would depend on the prevailing conditions. He also said that for the case of finances, there would be need to contact all stakeholders. This is because their internet connection was a donation, though the funding for it will end in November, 2006

J: Technical Description

Line of sight could not be established due to presence of trees and hills. The partner is 10km by road away from Kachwekano CMC and about 3km directly away from Kigezi High School SBT. There exist masts in the area, owned by MTN and UTL.

3.0.10 NARO Kachwekano ZARDI

A: Person Interviewed

R. Kakuhenzire, acting General Manager

B: Employees

Kachwekano ZARDI employs 36 people, 7 of whom are female.

C: Services and Equipment

It has 16 computers none of which is networked. It also has a fixed phone line. Other technical equipment that they own includes Fax, Radio call, and a satellite dish. They offer computer training, email/internet, telephone, fax, library and photocopy services as well as community radio which is currently not operation.

D: Activities and Clients

The core business is agricultural research. Access to the internet has helped them to access new knowledge and publications. Their clients are farmers especially those who are commercial oriented, and agricultural extension service providers. These clients speak Rukiga and English.

E: Financial Capacity

Mr. Kakuhenzire said they would be comfortable with contributing Uganda Shillings 74000.

F: Infrastructure

They have a generator which is used as a backup for the major source of power, hydroelectricity, which is load shed on alternate days.

G: General Description of the Premises

They have access to a rooftop but that is not very necessary given that it is within 20m from the radio tower at Kachwekano CMC. They have a secure place where to keep equipment from where no theft has ever been reported.

H: Local Environment

There exists a radio tower, about 20m away, which belongs to the community radio and is now being used by MTN for its booster antenna.

I: Cooperative model of Ownership

The benefits that were highlighted are reduced cost due to economies of scale and getting more people connected to the internet. The challenge that was anticipated is failure by

some partners to meet the financial obligation. Mr. Kakuhenzire further said that they would be willing and able to contribute towards maintenance as they already employ 3 personnel and 2 guards at the telecentre who take a total of Uganda Shillings 400000 per month.

J: Technical Description

There exist a clear line of sight despite a few trees and building that separate the partner and the CMC, which is located about 20km away. It is on a relatively higher altitude compared to the telecentre. Also, there exist masts that belong to MTN and UTL about 3km away.

It should note that some of that due to the short time frame of the survey, some of the-would be partners could not be visited. Some like Kabale Trinity College, Prime West, and African College of Commerce were visited but the people in charge were found busy and hence not willing to hold an interview. However, their contacts were got and future surveys could include them. Others like St. Paul's seminary, Edirisa and St. Theresa secondary school were visited but no contact person was got. None of the partners that were identified in 2004 by Kyle Johnson for Kigezi High school were visited due to time factor. Also, Africare was replaced by Prime West where it was difficult to interview anyone as the person in charge was busy. For Kachwekano CMC, all partners identified in 2004 were visited except that the community radio has since closed though plans to get it working again are underway.

4.0   Observations and Recommendations

The following were observed during the survey.

- Kachwekano CMC and Kigezi high school SBT are approximately 6km apart. It is therefore suggested that one of the telecentres should be empowered to be the main hub and other acts as a relay centre to other partners.

- All people interviewed are willing to contribute towards the sustainability of the project. However, most of them could not see how such a thing could be realized. Need to inform other stakeholders was raised. Therefore, there is need to do sensitization before the project is implemented.

- Bubaare secondary school was skeptical about the project as they already have a VSAT. They suggested that other partners should be the ones to share their bandwidth as it brings a sense of prestige for them to always see the dish. A compromise therefore has to be reached before putting them in the network.

Most of them only saw contributions from the Organization/school as the only way of contributing as there will be duplication of services and competition.

5.0   Conclusion

From the responses gathered during the survey, Cooperative model of owning ICT services is not only the way forward but will also guarantee sustainability. However, the number of partners included will determine its sustainability as all would want to contribute little. It is therefore suggested that since schools are the most, such a venture school start with them before others like NGOs can be included.

Appendices

Appendix 1

Telecentre staff

Kigezi high school SBT

Name	Age	Position	Languages	Workload	Contacts
Aggrey Yesigomwe	45	Focal person	English, 4R[10]	fulltime	yesigomwe@yahoo.com
Asaph Arinaitwe	32	Telecentre manager	English, 4R	Fulltime	asapharinaitwe@yahoo.com, 0712645548
Merab Kyarisiima	23	Instructor	English, 4R	Fulltime	kymerab@yahoo.com
Keneth Tayebwa	34	Member	English, 4R	Part time	0772318545
Anne Busingye	23	Member	English, 4R	Part time	0712985008

Kachwekano CMC

Name	Age	Position	Languages	Workload	Contacts
Adrian B. Tumwebaze	30	Program producer	English, 4R	Fulltime	nzoora@yahoo.com, 0782545446
Burnet Twetegye	30	Radio presenter	English, 4R	Fulltime	Twenet2000@yahoo.co.uk ,0772911448
Justine Musiimenta	26	Radio presenter	English, 4R	Fulltime	Twessy2000@yahoo.com, 0782117194

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[10] 4R stands for Rukiga, Runyankole, Rutooro and Runyoro

Appendix 2

Partner Staff Summary

Partner Name	Address	Contact person	Job description	Contact Person Address
Uganda College of Commerce	P.O Box 405, Tel:0486-23214	Asaph Arinaitwe	Head of ICT department	Tel: 0712645548 asapharinaitwe@yahoo.com
Kabale Secondary School	P.O Box 643 Tel: 0486-23052	Francis Twinamatsiko	Computer teacher	Tel:0772641059
Kabale Trinity College ICT Centre	P.O Box 1005 trinitycollegekabale@yahoo.com	Maudah Katambuka	Computer Instructor	Tel: 0782551016 katamaudah@yahoo.com
St. Maria Goretti Secondary School	P.O Box 360	Kennedy Rwaboona	Headmaster	0772448379 kennedyrwaboona@yahoo.com
St. Maria Goretti Primary School	P.O Box 106 Tel: 0486-23011	Christine Kabaami	Secretary	Tel: 0782014368
St. Mary's College, Rushoroza	P.O Box 185	Pius Tibaijukason Besigye	Teacher	Tel: 0782108220 besitib@yahoo.com
Hornby High School	P.O Box 575	Mercy B. Orikiriza	Teacher	Tel: 0782203789
NAADS	P.O Box 5, Kabale	Rogers Akatwijuka	NAADS coordinator	Tel: 0772670508 akarogerz@yahoo.co.uk
L. Bunyonyi Dev't Company	P.O Box 794 Tel: 0486-26110	Patrick Tumwijukye	General Manager	Tel: 0772686787 busharaisland@africaonline.com

Bubaare Secondary School	P.O Box 717, Tel:0392548277 bubaare@yahoo.com	Gad Barinawe	Headmaster	Tel: 0772903103
African College of Commerce	P.O Box 301, Tel: 0486-22165 Fax: 0486-26491	Julius Ndemere	Instructor	Tel: 0782557156 ndemerejulius@yahoo.co.uk
NARO	P.O Box 421, Tel: 0486-26492 kachwekanoardc@yahoo.com	R. Kakuhenzire	Ag. General Manager	Tel: 0782266391 rmkakuhenzire@hotmail.com
PRIME WEST (USAID)	Tel: 0486-23363 Fax:0486-23363	Jennipher Kabakuba	Administrator	Tel:048623363 jennipher_kabakuba@dai.com

Appendix 3

Summary of partners

Name of Partner	Number of Employees	Number of computers	Fixed phone line	Other Equipment	Contribution (Ug.shillings)	Distance from Telecentre
Uganda College of Commerce	4	40	Yes	None	185000	C[11]-4km, S-2km
Kabale Secondary School	49	14	Yes	DSTV dish	37000	C-4km, S-2km
St. Mary's college, Rushoroza	59	10	Yes	None	37000	Not established
Hornby High School	37	10	Yes	None	Not established	S-2km
St. Maria Goretti S.S	36	6	Yes	None	111000	C-4km, S-4km
St. Maria Goretti P.S	17	3	Yes	None	37000	C-4km, S-4km
NAADS	14	1	None	None	37000	C-4km, S-2km
L. Bunyonyi Dev't Company	50	1	None	None	74000	C- 2km
Bubaare S.S	88	14	None	VSAT dish	37000	S-3km
NARO- Kachwekano ZARDI	36	16	Yes	Fax, VSAT, Radio Call	74000	C-10m

Appendix 4

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[11] C-Kachwekano CMC, S-Kigezi High School SBT

Summary of Partner Interests

Interest	Number of partners interested	Percentage (%) of total partners
Computer Training	7	70
Email/Internet	9	90
Telemedicine	0	0
Telephone	6	60
Fax service	2	20
Library Services	10	100
Photocopy	6	60
Printing	8	80
Distance Education	4	40
Community Radio	1	10

Appendix 5:

Telecentre survey questionnaire

Partner survey questionnaire

Reference:

1. http://edirisa.org/thelake/index.php?cnt=kabale_depth

2. http://www.cmc-uganda.org/indexo.php?page=about

3. questionnaire answers