Linking ICTs to Community development: Case of Masendu community in Bulilima Mangwe District of Zimbabwe

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Abstract

In this paper we summarize our experiences in working on a rural ICT initiative with the Masendu Rural Community in Bulilima-Mangwe District, Matebeleland South Zimbabwe. We also explain the role that a rural information and communication center (a rural ICT initiative) can play in rural community development. The objective is to demonstrate the impact of incorporating ICT centers as sub projects in rural development programs. The project also intended to enhance access to developmental information in Bulilima Mangwe District through the provision of relevant knowledge management skills. Research has shown that ICTs and other development imperatives now complement each other. Experiences around the world show that, if used for the right purposes, ICT can play a key role in national and rural development strategies. The center is solar powered and the internet connection was via a radio link between Masendu Primary School and the National University of Science and Technology. The project was developed based on available technologies and cost consideration. The technologies used provide great opportunities to bridge the digital divide and rural development in Zimbabwe. Activities for the project helped us realize that with careful planning, such a project is economically feasible & self sustaining. Results from the project indicate that it is possible to incorporate information and communication technology (ICT) centers as part and parcel of rural development projects.

Keywords:

Community development, ICT, Rural development, Digital divide, Knowledge management

1. Introduction

Community Development is concerned with building the capacity of people to define and address their problems and visions within the context of their own culture. Good community development is action that helps people to recognize and develop their ability and potential and organize themselves to respond to problems and needs which they share. It supports the establishment of strong communities that control and use assets to promote social justice and help improve the quality of community life. It also enables community and public agencies to work together to improve the quality of government.

Experiences around the world show that, if used for the right purposes, ICT can play a key role in national development strategies. Countries have pursued diverse strategies: some have focused on developing ICT to boost exports, or to build domestic capacity, or other countries are pursuing strategies which seek to use ICT as an enabler of a wider socio-economic development process. [Aloyce R. Kaliba, 2003]
The unique characteristics of ICTs are derived from the fact that ICTs are crosscutting. Encouraging information sharing among people fosters community empowerment and participation. Using ICT, governments can improve the quality of the services as well as expanding the reach of services. Communities can share and exchange information on mutual interest, strengthen their collective power, and shape their own development solutions.

Knowledge management has become central to the achievement of developmental aspirations of various communities worldwide. Generally, access to information and the means to communicate play a strategic role in attaining food security, resource mobilization, job creation

and rural development. The need to empower people in Bulilima-Mangwe through the provision of information can be seen as in line with Article 19 of the Universal Declaration of Human Rights which has a provision of access to information and communication services to all without discrimination. This Initiative therefore can be seen as a potent instrument in empowering the community through access to information.

Research has shown that with networked computers, new software applications, and many other innovative tools, Information and Communication Technologies (ICTs) are changing societies and economies.

Part of ICTs' potential is to transform the landscape of social and economic development in poor communities. In recognition of that potential, attention has been focused on how to eliminate the "digital divide" – the gap between the levels of hardware and software resources that are available to poor communities and to more affluent sectors of society.

Far less concern has been devoted to two equally important questions: How well are the poor/low income communities able to take advantage of ICTs once they have them? And what difficulties and opportunities face these communities when they try to make innovative use of ICTs?

Many policy questions center on two points: access to data transit portals and computer access for the poor. Unfortunately, the dialogue does not go very far beyond these two points. Concentration on these two issues, while important, directs attention away from potentially creative uses of information technology to help revitalize communities.

There have been infrastructure assessment studies of what it would take for poor communities to access the "information super highway". What is lacking is an assessment of the challenges, opportunities and best practices using technology to accomplish community revitalization.

For this project we mainly focused on the following areas:

1. Community capacity to undertake development,
2. Use of the Internet to foster economic development.

We believe that by examining these areas, we can more effectively judge the impact of IT on community change.

In determining the activities for this project we considered the following important points:

- The Internet is a powerful tool for the promotion of knowledge acquisition and creation;
- ICT can be used as technologies for facilitating knowledge acquisition, sharing and utilisation in communities.
- Building human capacity of individuals through knowledge creation and acquisition is an influential factor in sustainable development that should not be overlooked;
- The low penetration of ICT is related to either poor infrastructure and/or the cost of services;
- The issue of culture resistance to the sharing of tacit knowledge is complex and difficult to measure since it involves social and physiological elements.
- Knowledge resides in each community. It can be created, shared and utilized in each community.
- Analytical models demonstrate that knowledge is the main engine of economic development.
- Sustainable ICT projects should be locally owned and accompanied by human capacity development.
- Capacity in effectively using ICTs for development is often the main constraint, not equipment.
- The private sector is instrumental in expanding ICTs for development access and applications.
- Governments play a key role in establishing a well-regulated, competitive enabling environment for ICTs to flourish.
- For ICTs to have a positive development impact, the various social groups must have equal access to them, particularly disadvantaged groups such as the poor, children and indigenous people.

The paper is organized as follows. The following section presents a brief about Bulilima- Mangwe district; the section that follows will present an overview of the ICT situation in Zimbabwe. The objective of this section is to give the highlights of what is happening in terms of infrastructure development, capacity building and policy

changes. In the subsequent sections we then present the project methodology and challenges before presenting the results, lessons learnt and conclusions in the last sections.

1.1 Bulilima-Mangwe District

The population of Bulilima-Mangwe is estimated to be approximately 225 900. The population in the district is extremely youthful, with some 51% under 15 years of age and 43% within the economically active category. Only 6% are beyond the age of 65%. There is also a predominance of females over males especially the young adults age groups, mainly due to the high rate of out-migration to South Africa and Botswana by the young adults males. The percentage of women in the district is estimated to be at 53%.

The district is made up of 35 wards of which 29 are within communal and Resettlement Areas. The whole district is under the jurisdiction of Bulilima-Mangwe Rural District Council. In the communal and Resettlement Areas of the district, committees are responsible for the management of natural resources in their areas.

Major economic activities in the district consist of agriculture, wildlife utilization, commerce, social services, light industries, public services and informal sector. The importance of these sectors can be seen in terms of wealth creation and income generation. Field crop cultivation is often not a sustainable form of land-use, and pressure on the land increased dramatically. Communities rarely have surplus agriculture produce for sale. Irrigation schemes in the district are inadequate due to shortage of dams. There are only two schemes in the District and these are Moza (55 hectares for 149 plot holders) and Ingwizi (45 hectares for 100 plot-holders). Cattle rearing appear to be the main agricultural activity in the District although there is a critical shortage of grazing land.

Unemployment and underemployment are major problems. The unemployment are much higher due to an increase in school-leavers, which was not complimented by an equal number of employment opportunities.

The District has a wide range of natural resources ranging from soil, vegetation, and wildlife species (including kudus, elephants, lions, impalas, buffaloes, wildebeests and zebras), birds species and mopane worms. However these resources are under threats of extinction due to over-exploitation for both trade and consumption. This condition is induced by the inadequacy or unavailability of income generating resource base of the community.

Activities for this project were conducted in the Masendu ward. The project centre was located at Masendu primary school. Some activities of the project were also carried out at the National University of Science & Technology (NUST) in Bulawayo.

2. ICTs in Zimbabwe

The role of ICTs in development has been recognized by the Zimbabwean government through such landmark measures as the e-Readiness Survey (2004), and the National ICT Policy Framework (2007) that recommended the institution of a National Information and Communication Technology Authority and a Converged Regulator. This has led to the current participatory work on the draft ICT Bill which sets out the key legislation and regulation framework regarding the access and use of ICTs in Zimbabwe. The Ministry of ICT was set up to oversee all ICT issues in Zimbabwe. The Ministry has already drafted its Strategic Plan in which it spells out some of the critical issues (short and long term) that need to be addressed in the area of ICT in Zimbabwe. This visionary Strategic Plan of the Ministry of ICT guides and consolidates the priorities to transform Zimbabwe into a knowledge society, and pulls the entire nation around a single game plan for execution. Through this document the nation of Zimbabwe is able to solve major developmental issues at a macro level, address critical performance issues, communicate the quick wins, short, medium and long term strategies whilst creating the right balance with respect to implementation approaches and options.

The synopsis of the ICT indicators for teledensity, mobile access, internet access and number of PCs per 100 people for the SADC region shows that the environment is challenged, where the average teledensity and average mobile access levels of SADC region is half of the Africa average. The Government of Zimbabwe is geared to rectify this developmental anomaly through the implementation of the National ICT Policy Framework and the Strategic Plan spearheaded

by the Ministry of ICTs. Tremendous opportunities abound in Zimbabwe in ICTs for development with respect to the following areas which at best can be addressed through collaboration, consultation and smart PPPs:

- Infrastructural facilities for connectivity and equitable access;
- a common electronic–business framework;
- information and content development and sharing platforms;
- e-Government platform that serves Government and citizens;
- a conducive enabling political, legal and technical environment;
- ICTs industry and support services and;
- human resource development.

[Hon. N. Chamisa, Foreword, Ministry of ICT Strategic Plan 2010-2014]

One of the major functions of the Ministry of ICT is to develop supportive and enabling infrastructure to ensure equitable access to ICTs by all citizens including disadvantaged groups and rural communities.

This Ministry of ICT in its Strategic Plan 2010-2014 identifies the issue of Communications Infrastructure as one of the projects that can be implemented in a short space of time subject to availability of resources (Quick wins).

Communications Infrastructure *– There is need to develop a communications master plan to ensure reliable and efficient communication and applications development in Zimbabwe. The project covers the entire country and will be executed in phases. Access to the Internet backbone through the current gateway has serious capacity challenges and therefore development of an optic fibre link between Harare and Mutare is important in view of connecting to the undersea cables (EASSy and SEACOM) in the Indian Ocean through Beira. An alternative route is to lay an optic fibre cable from Harare to Beitbridge for the same purpose and to facilitate fast and reliable communication between our country and South Africa. The optic fibre is a cost effective solution compared to the costly VSAT communication link.* [Ministry of ICT Strategic Plan 2010-2014, pg 51]

Work on the proposed project to connect to the undersea cable (EASSy and SEACOM) in the Indian Ocean through Beira, Mozambique has already been started. This has also been complemented by similar projects inside Zimbabwe being done by Network Operators, ECONET and Tel-One. ECONET embarked on a project where they laying fibre cables linking major cities (Harare-Gweru-Bulawayo-Plumtree) within Zimbabwe.

These measures provide for an enabling ICT environment for business, public administration and services delivery, education, and communications.

2.1 Internet Access:

In Zimbabwe just like most African countries most people who access the internet do so via Cyber cafes, colleges, varsities, work place an some at home.

The limiting factors are basically cost and unavailability. Most urban dwellers either can't afford it or the ISPs serving them are out of capacity

Internet Usage Statistics in Zimbabwe

1,481,000 Internet users as of December 2009 13.0% of the population, according to ITU.

Zimbabwe: Internet Usage and Population Growth

YEAR	Users	Population	% Pen.	Usage Source
2000	50,000	14,712,000	0.3 %	ITU
2002	500,000	13,874,610	3.6 %	ITU
2005	820,000	12,247,589	6.7 %	ITU
2008	1,351,000	12,382,920	10.9 %	ITU
2009	1,481,000	11,392,629	13.0 %	ITU

Table 1: Internet Usage and Population growth

Source: *Zimbabwe Internet Market and Telecommunications Report, Internet World Stats: Usage and Population Statistics, www.internetworldstats.com/af/zw.htm*

Zimbabwe just like most African countries basically faces a number of hurdles in order to roll out effective computing technologies to the general population. Rollout issues and challenges do include but not limited to;

- cost of computers and equipment
- inadequate access technologies (data & voice)
- inadequate electricity
- poor national & international bandwidth

- regulation and licensing
- Censorship and control
- brain drain & lack skilled manpower & I.T. certifications
- poorly designed and optimized websites
- egov

2.2 Similar Initiatives promoting ICT usage in schools

In Zimbabwe there are some similar projects that have been initiated in schools to allow school pupils access to computers. These initiatives have however been based more in urban areas where electricity readily available. The programs include

- The WorldLinks program mainly focused on schools (both primary and secondary) – mainly located in urban areas and at growth points (district centers) - Sponsored by the World Bank
- SEITT (Science Education In-service Teacher Training) program mainly targeted training science teachers on the use of computers and internet for research purposes.
- President's office initiative. During the period 2003-2008 President R.G Mugabe was donating 10 computers per school (Official figures as to how many schools benefited, not available).

3. Project Methodology

Many ICT for development projects fail because they are technology-led rather than development-led or people-centred. To be successful and sustainable, projects must be tailored to a community's needs and ways of working.
Development agencies should be analysing, and mapping, social network structures. This would help them understand communities' socio-cultural contexts and provide a guide for introducing ICTs in a sensitive way.

A report prepared for the African Connection Secretariat [www.carlsonwireless.com/] identifies three major actions for ICT development in Rural Africa. Step1: Identify and promote rural market opportunities through market studies in the targeted regions, and create forums to present market information to stakeholders and investors. Step 2: development of a dynamic rural toolkit that provides recommended basic standards, and steps for rural ICT projects initiatives. This toolkit would bring about a basic level of standards for rural ICT initiatives in order to guide agencies, research institutions, and private sector companies in networking activities. Step 3: building on the experience of Latin America, a government should work with private sector to promote and support the establishment of rural ICT funds for local projects, and ICT application in rural areas.

We started by conducting a baseline study to identify developmental issues in the Masendu community, the challenges faced and possible ways of intervention. The baseline study helped us to establish that there was limited access to information essential for development due to the absence of local radio (ZBC) and television signals (ZTV) resulting in the local community not benefiting from developmental programs broadcast and telecast by the national broadcaster. We also found out that the local community was experiencing problems in sharing developmental news from their own area with other communities in Zimbabwe. In baseline study, we engaged communities in interactive group and individual discussions which saw the communities cataloguing their general problems and developmental needs. Indications were that there is generally an information blackout in the district with villagers being the worst affected. Villagers have problems accessing various newspapers. Reading stale news has become the order of the day with the community scrambling for a single issue of a newspaper whenever they lay their hands on it – even if it is six or three months old. Masendu Primary School headmaster said: "It is a pity that we are cut off from the rest of Zimbabwe. We never get newspapers here. We sometimes get three-month or six-month old newspapers which are sometimes brought by our colleagues or visitors and in most cases, they (newspapers) don't even carry news from our area."

The community was also experiencing problems of communication, for example with other communities in Zimbabwe and the outside world in terms of mobile and fixed lines. The community had access to the Botswana's Orange Cellphone Network service which was expensive and unreliable. They had no access to local mobile networks.

This situation is also worsened by the poor transport network with a single unreliable bus plying the Plumtree-Masendu route. Private vehicles, especially South African registered cars owned by local people working in that country, at times serve the community but at a very high cost. This literally forces the Masendu community to be confined to its rural environment with no access to newspapers, radio, television, Internet and other modern means of communication.

It was against this background that we saw this project as a potent instrument in empowering the Masendu community in accessing vital information for their developmental needs as development is enhanced if communities are able to share developmental news. When used effectively, information and communication technologies can have a positive impact on development. [Gollakota, G (2008)].

The baseline study was then followed by a needs assessment study which helped us focus on ways of intervention through a series of activities.

3.1 Project activities

The activities of this project involved mainly setting up the tele-center and skills training for the youths, the community and teachers at the school.
Initially we intended to source funding for 15 computers to start with but we were lucky to get a donation of 25 Computers. With funding sourced from Intergrated Rural Development Program (IRDP) and National University of Science and Technology (NUST) we managed to purchase 2 printers, 2 scanners a photocopier, a fax machine and networking equipment. We also used the same funding for the purchase and installation of a solar system to power the computers and all other equipment. NUST also made available their internet link. So a radio link was setup between Masendu primary school and NUST to allow access to the Internet via NUST network infrastructure.

The youths and the teachers would in turn help us train the school kids and the community. Masendu ward consists of 6 villages. We started by training 3 teachers from Masendu primary school and 6 youths per village. Skills included basic computer operation, word processing, spreadsheet, database management, internet usage and basic computer maintenance. The youths also received basic news gathering and newsletter editing training. These youths were then given a special name in the community, Knowledge Workers.
The Knowledge Workers would gather developmental data, eg records of livestock per household, number of people per household, dipping schedules etc in their respective areas and maintain a database of that data. The 6 youths per village were then responsible for maintaining and updating their village's database. They would also gather community news, eg cattle sales, cultural events, health news etc, and other general interest news and publish this in the Masendu community newsletter.

3.2 Centre management

The center is managed by a team of 9 people that comprises of 2 teachers, 6 village youths (one per village) and one community leader.

3.3 Services offered at the center

- Computer Applications Training
- Secretarial/Typing and printing services
- IT Consultancy
- Internet and Emails
- Photocopying
- Scanning
- CD Burning
- Video hire/shooting/show (seeking video cameras, etc.)
- Fax and Telephone
- Access to village data

4. Challenges

- The sustainability of the project (during the start) was very difficult due to internet cut off at NUST.
- Poor telecom infrastructure (Telephone connection)
- Availability of power, problems are usually experienced especially if it rains continuously for several days or if there is cloud cover for prolonged periods. Alternatives could have been to use generators but we could not even think about it given the prevailing economic conditions and fuel situation in Zimbabwe.
- Constant power cut off at NUST
- Language barriers
- Few computers while we have a large population to serve.

- Small room to operate from.

5. Results

We managed to establish an ICT telecenter with 25 networked computers is now operational at Masendu primary school. Regardless of our poor computers at the center, we managed to train a total of 120 youngsters, 3 Teachers, 89 women and 58 men. Many NGO personnel, working in the area, use the telecenter for printing and typing their works and for communication. The center has attracted great attention from the community and all are asking to train their kids and family members. We have received numerous requests from different parts of the district requesting us to establish similar projects. 29 youngsters out of the 120 trained have secured places for studies in institutions of higher learning (11 in universities, 7 in Polytechnic Colleges, 6 in Teacher training colleges and 5 are doing nurses training) while 23 have secured employment elsewhere. 21 women out of 89 trained have secured employment at the District center and elsewhere. A village bulletin Masendu community Newsletter, *Masendu Bhalule-Ngina KaMasendu* was launched. The school teachers and the community youths we trained, are providing training to the local people in other villages.

Government departments, the rural district council, Ministries and community development organizations/agencies like ADRA, CRS, CARE, and World Vision that work in the area are finding the data maintained to be very useful for their planning and for implementing their own programs.

5.1 Users of the center by age group

The figure 1 shows that there are more users in the age groups below 30 years of age. This is the more active part of the rural population that includes youngsters that are still in primary and secondary school and those that have just finished their secondary school education and are still looking for something to do.

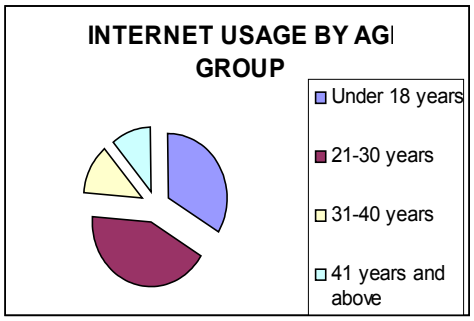

Fig 1: Internet Usage by age group

5.2 Centre Usage by Gender

The figure 2 shows that to a large extent there are more females who use the center. This possibly is due to the fact that most of the male in the age groups 15 – 40 have left the area to look for employment elsewhere in South Africa and nearby Botswana. Mainly because of the economic problems prevailing in the country during the period covered by the project.

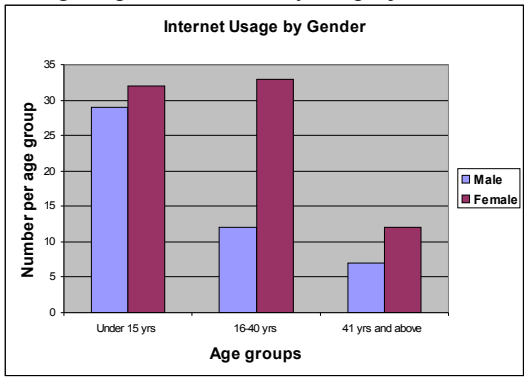

Fig 2: Internet Usage by Gender

5.3 Factors that contributed to the success

Accountability/Good Management Team, Community Participation, Good policies, Services that address community needs, Use of volunteers from local community mainly the youth, Good Customer Care, are the main factors that contributed positively to the successful implementation and completion of the project. Obviously we cannot forget the unwavering support we got from community leadership, the National University of Science and Technology, IRDP and the Bulilima-Mangwe Rural District Council (RDC).

6. Way forward

In our view this project is a success story and we would therefore want to see it continue to grow.

Now that the construction of Masendu Cultural Centre has been completed, there may be need to move the telecentre from the school to the cultural centre. It is our intention to seek for funding enable us to try and establish similar projects in other areas. As part of the project expansion drive we also intend to conduct ICT seminars and workshops for youngsters and other people in other communities in other provinces within the country.

7. Lessons learnt

We observed that the factors that mainly affect the uptake of ICTs in rural communities center around issues of social behavior, infrastructure, inadequate skills and lack of awareness. Partnerships between community groups and institutions of higher education appear to be a promising way to foster IT innovation. But in general community groups, which have many competing claims on their budgets, and lack of adequate skill, find it challenging to take the step of adopting new technologies because skills shortage and high costs – both the direct costs of purchasing applications and the indirect costs of securing the technical assistance to support their use. Funders, institutions of higher learning and intermediaries can play important roles in helping community groups meet these challenges. Through the project implementation we noted that governments can use ICTs to balance sustainable economic growth with social empowerment.

8. Conclusions

Our main goal was to bring ICTs as an enabler of Community development closer to hands of people (especially rural areas and marginalized groups) and let them exercise and use it. The main factors limiting the innovative uses of ICT in community development is lack of awareness, knowledge management skills and lack of access to training. Institutions of higher learning can make positive contributions by way of developing customized training programs and technology models that suit the conditions and the people in rural communities.
From our experience working on this project we noted that ICTs have yet to transform the field of rural community development in Zimbabwe. There is a need for pro-poor policies that ensure that the ICT sector covers rural areas. We noted during the project that the people in the area have embraced the idea of community-based tourism, and we think this can actually become a pump-primer for introducing the telecentres into rural communities. Telecentres can subsequently be used to foster the other forms of development that ICTs make possible. Telecentres that target income-generating opportunities from the onset are more likely to survive after the initial start-up funding dries up. Above all there is need to incorporate information and community centers as part and parcel of rural development projects.

Measuring the success of ICT projects is also important. Output indicators such as the number of subscribers are easy to measure but do not report on what the technology is being used for, who is using it or how it is helping to improve livelihoods. More complex analysis is needed that considers impact on money, skills, motivation, confidence, trust and existing knowledge.
We feel that a lack of action, risks increasing the digital divide and losing out on sustainable development opportunities offered by ICTs.

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