

Reduction of Poverty Using ICT in SADC Region: A case Study

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Abstract

Poverty reduction is a prominent issue for both governments and international organisations. It is one of the millennium development goals of the UN. Developing countries have high poverty levels than developed ones. However the diffusion of basic information and communications technologies (ICTs) services have penetrated majority of developing countries. Using SADC (South African Development Community) region as a case study, this paper explores ways through which ICTs can help in poverty reduction. Data from Botswana is used to investigate how ICTs can be used in poverty reduction. Some Asian countries, India in particular have shown that it is possible for developing countries to position themselves and improve their economies using ICTs. Previous research on impact of ICTs concentrated more on issues of education, national economic development, social and cultural aspects and less on ICTs as a means to achieve poverty reduction in developing countries. ICT landscape within some SADC countries shows the realisation that ICT can leverage economic development. However, there is lack of concrete practical steps on making the necessary social and administrative adjustment to promote ICT use. Administrative operations in majority of these countries are still paper based. Commercial banks are far ahead of government institutions in innovative use of ICT for example major banks have embraced internet, telephone and mobile banking. Lack of cyber law in SADC is the major limiting factor for expanded application of ICT. The ability ICTs to allow working from “anywhere anytime” means that if well implemented ICTs can distribute employment opportunities within a country as well as reduce rural to urban migration which is the major cause of poverty in urban areas of developing countries.

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1. INTRODUCTION

1.1 Definition of Information and Communication Technologies and Poverty

Information and Communication Technologies (ICTs)

Information and communication have been advancing very fast. Today ICTs are generally regarded as the driving force behind the economy in every country. ICTs include all communication devices or applications, electronic networks services including hardware applied through networks services [1], [24]. These include mobile phone, internet, software systems, hardwares, computing information services, multimedia, telephone, fax, and electronic news. Businesses, organisations and the commercial sectors depend heavily on this technology [15].

Some of the benefits of using technology in communications may include faster and enhanced communication, and provision of services efficiently. In many cities, ICTs are a source of employment for citizens (ICT professionals), providing faster and easier working patterns, helping to define the role of organisations and simplifying the nature of work and also helping in growing the country's economy through its adoption by SMEs [8],[34]. Public service, commercial and industrial organisations are using ICTs to do purchasing, marketing, operations, customer profiles, suppliers profile, information exchanges, clients contact, suppliers contact and customers contact [11]. Today, many company directors and managers have taken advantage of e-commerce and e-business as new concepts in their day-to-day service delivery, to ensure that their services and business decisions are promoted to attract many customers efficiently [38].

Governments have also resorted to e-Governance, to better offer their services to clients. Others have also adopted e-Democracy especially in democratic states where governments would want to allow participatory majority through dialogues and chats as a means of communication at government and public forums [22]. At schools ICTs are fused into education to enhance research and expand the quality of learning [40]. One of the major concerns has been the importance of ICT as a means to reduce poverty. As Duuff has put it, "History shows how ICTs have developed over years: from the agricultural society, through the industrialised society and now to the information society" [12 p.354]. Many places now use ICTs. Today, more benefits of ICTs are even extended to the economical status of each country which is made up of a wider society. According to Duff, it is important to look at such areas where ICT has been developing, to find out whether society has been informed and whether they have benefited from it as a result of new technological developments [12].

Botswana like many other countries worldwide is not left behind in ICTs. In local cities, towns, villages and settlements there are some form of ICTs that are being utilised. The country has also introduced policies for expanding and enhancing ICT use. These policies are part of the liberalization of the national telecommunication plans to bring the government and the whole country into the global information age [30]. One significant effect of the policies is that usability of ICT in the country is growing faster due to level of access rollout across the country.

Poverty

The debate on the definition of poverty and its measures has been on-going since the first half of the 20th century. Poverty has no generally accepted definition. For many people poverty is state of vulnerability which makes the people susceptible to abuse and exploitation by those who have a better life. The old school definition of poverty was premised upon Charles Booth's (cited in Davies 1978) invention of "poverty line" [10]. According to this definition, a person whose incomes fall below poverty datum line was regarded poor. Booth's original work also showed that poverty is a social condition. By contrast, recent studies argue that poverty cannot be understood based on figures only. In other words, poverty is regarded as a multifaceted issue, which cuts across all sectors of the economy. It has a social, economic, political and cultural dimension which makes it a priority to policy makers worldwide [16]. According to World Bank, poverty is defined as "the inability to attain a minimal standard of living" [48]. This definition was adopted by many countries over the years. An overview of the economy with regard to poverty shows that there are some disparities between urban and rural centres across the world. Rural areas are hard hit by inequalities and high poverty levels. Most studies perceived a "poor" person to be somebody who is unskilled, unqualified and have little power to make demands [27], [16]. However, Vandenberg view is that, although some of the perceived causes of poverty can be related to intelligence, it is erroneous to equate poverty with low ability and character defects [44]. Vandenberg is of the view that people under economically poor category would not fit in such description.

Due to levels of poverty in Botswana, the country is classified among the third world and developing nations. Many of these countries worldwide have since looked for means to fight poverty [7]. Some developmental goals have been set to push the standard of living for citizens. This include millennium development goals especially the provision of a good life to citizens. National leaders seem convinced that ICTs can be used in this area to counter crises of poverty, especially through complex situations which are economic, educational, political, and even the other challenges facing the poor [24].

1.2 Scope of the paper

Based on the introductory notes, one on ICTs use as an economical player, and the other on the definition of poverty, this paper provides links between the two, giving glimpses of a wide variety of research and action regarding ICTs and its uses in the society. Such links include human development as part of provisions by the government of Botswana to improve the lives of citizens, universal access based on pricing of the information communications technologies and services offered and ICT innovation for faster service delivery, all of which have the potential to lead to poverty reduction. The paper seeks to look into data from literature and other sources especially reports on the impact of ICTs and poverty reduction. Literature is then reviewed to find out the impact of ICTs as a means to reduce poverty. Recommendations are proposed at the end to foster extra supplementary improvements for the rollout of ICTs, issues around ICTs adoption and use by members of the society in an attempt to reduce poverty. While the paper seeks to inform on the relationship between ICTs and poverty reduction in Botswana, its other objective is to help address the paucity of the literature of ICT in Botswana.

1.3 Research Questions

In order to investigate the role of ICT in reducing poverty, the following research questions were formulated to guide the study. The escalation and use of ICT worldwide has been emerging faster, what has been the case in regard to its readiness and use in Botswana? What about the relevance of ICTs to the society, and its impact to Botswana in the indices of poverty reduction? Does ICT reduce socio-economic divisions between the rich and the poor?

2. METHODOLOGY

The study used case study approach involving the use of multiple sources of evidence to understand a phenomenon [47]. Document and textual analysis involving the use of data from reading and analysing reports, news and information were sourced from the Ministry of Communications Science and Technology of Botswana government, Botswana Telecommunications Authority and local ICT service providers. News on the efforts by the state government and other local ICT service providers to enrich the citizenry regarding ICT access and policies were studied from online newspapers and other internet sources for evidence. Telephone interviews were conducted with senior personnel at Mascom Wireless and Orange Botswana (mobile phone and internet providers), Botsnet (Internet service providers) were asked to define their roles in rolling out ICTs in Botswana to help reduce poverty from affected members of the society. The study was undertaken in March 2010.

3. LITERATURE REVIEW

There is limited research on the role of ICTs in the reduction of poverty and promoting socio-economic development in developing nations [21], [33], [8]. Clarke and Englebright have attempted to define ICT as a basic skill, which includes computing technologies, domestic and commercial systems and equipment [8]. This paper supports literature that ICT covers the use of technology to handle information and aid communications, and that its main characteristic is that it keeps changing and improving for the better, with newer versions released from time to time.

Kelles-Viitanen concurs with the UNDP report that “using ICT in pursuit of developmental goals allows countries to achieve a wide diffusion of benefits from ICT, which, in the end will benefit broad-based economic growth, too” [23 p.85], [43], [29]. In her report, Kelles-Viitanen mentions that ICTs can create some employment opportunities for the poor, citing examples such as Grameen Bank in Bangladesh, and other countries such as Malaysia and Taipei. In a report by the World Bank, Information communication technologies are reported to have played an important role in the growth of the economy across many countries [17]. In their study, the researchers considered ‘Trade and the reduced transactions costs of business,’ and ‘capital accumulation,’ as significant factors around ICTs and economic theory. Trade and the reduced transactions costs of business as a result of ICTs refer to the level of business increase, increase in variety of service related activities, efficient supply chain across borders. These factors according to Grace et al., “have created new opportunities for large and small firms from developing countries to increase their sales range and tap into the global market for goods and services” [17 p.7]. Capital accumulation through the use of ICTs refers to the situation when finance networks become digital, and get expanded. An example cited here is ‘AutoBank E,’ a fully automated savings system which minimizes paperwork and transactions costs. This system has been developed and intended for use by the poorest depositors in South Africa [28]. This simply increases the ability of the poor to access financial services.

A study by Spence & Smith has also revealed that indeed there has been some booming of ICTs in many countries irrespective of their economic status, and its use is known to facilitate the expansion of markets, social businesses and public services [42]. A couple of examples cited by Spence and Smith include the explosion of mobile phone use, internet communication and networking services, which enable banking systems and financial transactions, marketing and distributions, employment creation, personal and public services [42]. While some of these can be equated to major economical impacts, expectations are that they improve the personal well being of an individual, thereby reducing and preventing poverty. Mobile phone service providers employ many people to serve as ICT shop managers, back office staff, networking specialists, cashiers, marketing and advertising agents thereby adding to their wealth and improving their well being. Mobile phone

users are able to save money by utilising their cell phones instead of going to the banks for financial transactions, and their personal securities are improved [4]. Another benefit cited by Spence & Smith is communication and networking enabled by ICTs as these have the potential to transform the economics of a country even the poorer ones [42]. When connectivity is expanded to the poor, through ICT services, they would get employment, be served better, faster and efficiently through these networked services.

It has become a surety in many countries that information communication technologies are being utilised to become instruments of government policies. ICTs have been used to create information intensive activities to serve national goals and also serve as the developmental opportunities of information for intensive industries [3]. Examples cited here include the impressive economic success of Singapore, Korea, Hong-Kong and Taiwan. Many countries like India and Indonesia have used mass media technologies for national building purposes. In India, SITE (Satellite Instructional Television Experiment) project – a satellite – was used to reach and educate remote communities, while in Indonesia the satellite communications were used to reach many people in the country's many islands (Morison cited in [42]). Other countries like Mauritius have developed several cycles of e-strategies as part of their broader national development programs, and others are already looking into the potential role of ICTs in the developmental efforts to help reduce poverty among citizens [39].

Many developing countries have faced challenges to fight health related issues including the HIV/AIDS scourge. In India for example, the development of Health-care databases, telemedicine, web-based initiatives, and health information systems are some ICT initiatives that have been adopted by the health system [37], [5]. Examples elaborated in this research include “the management of HIV programmes which requires data from various sources such as the mother, child and HIV- specific programmes” [37 p. 268] While the Indian health sector has gone through challenges at its initial stages, the results also proved that as ICT in India developed during those years, signs of serious rewards were also emerging. One other example of ICT use is ICT as an enabler for education for Africa. With the call for education for all, governments have since been committed to meeting the growing demand for the delivery of education services to its populations. ICTs have been placed at the centre of educational developments especially in Africa [20].

4. PRESENTATION OF SECONDARY DATA

4.1 ICT infrastructure and access in Botswana

Many of the Sub-Saharan countries fall in the low-income category. Botswana is counted among the countries regarded as middle-income due to the higher levels of per-capita telecommunications infrastructure, personal computers, internet hosts, telephone main lines, and mobile phones [39]. Compared to other countries in this spectrum, the economical performance of Botswana has a direct bearing on the state of education, infrastructure, health and services through the availability and affordability of ICTs for public, business and private use.

The government of Botswana through the Ministry of Communications Science and Technology has established ICTs tele-centres nationally equipped with necessary infrastructure for ICT related businesses. At these centres, citizens, especially the youth are provided with internet facilities, telephone, fax and other secretarial services on daily basis. These tele-centres are under the care of district youth officers. As confirmed by Saboo in email, at these centres the government wants to develop human resources - especially among the youth - that support the deployment and rehabilitation of modern ICT infrastructure [41]. Commercial developments especially at the rural areas are also supported through tele-centres, and there are computer training, thereby giving desktop skills to the unemployed youth who could later get employment elsewhere. Also at these centres, there are job advertisements, application forms for national identity (Oman) and passport, one can obtain funding and school registration, etc.

One area which has not been effectively impacted by ICT in Botswana is health services. Recently, there have been reports of introducing ICTs at health centres of hospitals and clinics to provide fast and modernised health services to citizens. The Internet nowadays is loaded with most popular sites offering health services to online audience members. Specific health agencies like NACA (National AIDS Coordinating Agency), BOTUSA (BOTswana-USA), BOCAIP (BOTswana Christian AIDS Intervention Programme), BOFWA (BOTswana Family Welfare Association) and even the Ministry of Health, provide all members of the public with information and advice on health issues through their websites. Other ICT services found in Botswana's health sector include free direct telephone services, and new hospitals like Bokamoso (<http://www.bokamosohospital.com>) have websites where patients from all walks of life can contact their medical doctors from time to time. At some local private clinics, medical records are kept in databases and this is beneficial to all people since doctors can easily deal with patients understanding their medical histories. Recently, in a survey report by BOPA (BOTswana Press Agency) in the *Daily News* Mr Nick Ndaba (columnist) indicated that the newly introduced telemedicine in Botswana would help reduce the shortage of health professionals and extend health care resources in Botswana [6]. Mr Ndaba also mentioned that Botswana intends to implement national telemedicine centre, and this will be carried out in stages.

Local post offices are equipped with relevant ICT infrastructure to ease service delivery. There is electronic mail service, fax, electronic money transfer, emailing and internet services provided. Significant efforts are being made by the government to make sure that citizens at rural areas utilise ICT through these post offices. Vehicle registration and licence fees can be paid at most of the post offices in the country.

The government of Botswana has recently launched e-governance service, to ensure that its citizens are provided with information which calls for public participation in national developments. Through e-governance, there is a government portal – a web portal- where citizens are provided with information as to how the government can serve them better. Information on the portal is linked with websites of all the ministries to also extend the information to citizens about how such ministries can serve them better. Other ministries have gone an extra mile to reach their potential customers through ICTs. At the Ministry of Agriculture, video films are provided through television broadcasts (BTV-Botswana TeleVision) and DVDs to reach to potential farmers, training them on farming and arable agriculture skills so that they can improve yields out of their farming businesses. Using ICTs, the ministry of Defence and Security through Botswana police has also produced videos on Botswana television to alert citizens on issues of crime. Through telephoning 999, which is an ICTs service, customers with telephone lines can call for help in cases of danger and when in need of emergency. The police, the ambulance and the fire department can send help and appropriate action will be taken.

The government of Botswana through the Ministry of Education intends to build an educated and informed nation and ICTs are critical in making this possible. Many ICTs are utilised to expand knowledge sharing through educational centres, television, radio, newspapers, electronic billboards and many other mediums. The Botswana Examination Council has also provided e-service through the internet, where graduating students from primary, junior secondary and senior secondary schools can access their examination grades online. At the local schools, the University of Botswana for example, part of the teaching and learning is done through e-learning. Other services provided in the education sector include advertising schools through ICTs, via the Internet, offering services like online registration through ITS systems, etc. Libraries of data are also available through the internet; therefore working from home in your own natural environment instead of commuting to school library is possible.

Financial institutions in Botswana have introduced e-banking and through use of debits cards customers do not have to carry money around when shopping. At some banks including FNB and Barclays, telephone banking has been introduced. Through the service, customers are able to communicate with bank representatives who will assist them anywhere they are at any time. In addition, automatic teller machines (ATMs) are availed to

many towns and large villages in Botswana. These technologies allow customers to transfer money and provide them with extra facilities, such as mini statements. Commercial banks in Botswana are exploiting existing ICT infrastructure to meet their business needs. They have enabled online banking, mobile banking as well as online bill payments. Commercial banks in Botswana are in the forefront of application of ICT than even central government.

Internet shopping, which is a new development in Botswana, is likely to widen choice for goods, lower costs and better selection especially those coming from physical shopping, and increase convenience as it expands [32]. With ICTs, a lack of transport can at least be partially removed. Although not all shoppers have access to online shopping especially the poor, it is still a welcome development and hopes are that this will soon be possible for all shoppers in the near future, when everyone will have access to the internet.

An area where ICT use has the potential to have significant impact in Botswana's environment is in e-commuting. This is because urban areas are facing acute shortage of accommodation forcing property prices to be beyond reach of many. A significant number of employees in Botswana commute long distances and yet the transport sector is well behind in application of ICT to improve e-commuting as practiced in developed countries where a single ticket can be used in buses, trains and airplanes, a feature that serves the tourism sector well.

4.2 Level of ICT use in Botswana

While ICT infrastructure in Botswana is among the best in Africa, not many Batswana (Botswana nationals) especially in rural areas benefit directly from it. Several factors including lack of skill to utilise ICT equipment, lack of skill to utilise ICT service and levels of acquisition in relevance to the economical stand of each household are a hindrance to the use of ICTs in Botswana. Research has been made easy through the internet, and new teaching and learning methods' including the use of WebCT at the University of Botswana has been a welcome development. In an interview with Mr Grant Son, General Manager of Botsnet, his organisation has realised that not many Batswana have access to ICTs services of internet; therefore they have decided to reduce the pricing for internet service provision. They have embarked on a wide marketing campaign for this service, and other additional benefits to make sure it is accessible to customers including laptop vouchers as part of the package. Other mobile phone company managers interviewed (Orange and Mascom Botswana), mentioned that reducing prices for the internet service at Botsnet has made it affordable to many Batswana and other internet service providers are compelled by these low market prices to also reduce theirs.

As researchers have put it, information communication technology provides the necessary to pay for services, and through this, new job opportunities are created and labour intense duties become easier [46]. Civil servants and officers at private institutions and other organisations are utilising the computer, phone and fax machines provided in their office to their benefit and to the benefit of the society. With the use of the internet, through online and virtual communications, the poor communities are assisted easily and quickly. Even during national disasters, citizens are given information faster through televisions, radio and telephones, and this makes them understand national issues.

The advent of mobile telephony has transformed the communication landscape and added value to personal communication. This new form of communication has a number of advantages over fixed lines. Many cell phone models now have digital video and still cameras, radio, and internet capabilities thus making the device a digital media hub. Users are not limited to any location as long as network coverage is availed by their service providers. As a consequence, users can make calls, send text and multimedia messages, chat, send email and voice mail, play games, music and videos. The cell phone has rapidly transformed the lives of many individuals [19]. The device provides some nearness in relevance to communication, and through its use it has positively

impacted the social bonds between families and friends [25]. Mobile phone service providers support local artists by signing contracts to provide ringtones, caller tunes etc [13]. Through these services, even the less popular artists benefit through advertising since they are able to reach over 1 million Mascom subscribers and sell their music to them through this platform.

Through online and telephone banking services provided by some of the local banks, they can now sell their products to customers easily. Studies have shown that many bank customers have resorted to the services, citing that it saves both time and costs [31]. Although this sector may pose threats due to challenges of security and full access; such developments have been welcome by many who now see it as an important way to cut costs. There is no need to pay transportation fees to travel to banks, and the prices of using ICTs provided by the banks from anywhere is less compared to those of getting the service straight at the banks. Also at the banks, “computers and communication systems provide instant information on the state of accounts and provide fast transfer of transactions between branches of the same bank and between different banks” [35 p.120]. In a survey sponsored by two of the commercial banks in Botswana (Barclays and Standard Chartered Bank), it has been noted that cell phone-based remittance and banking services may be one way to extend the reach of financial services to the poor [45]. Online services requiring e-commerce are found in almost every commercial webpage. As the number of products sold on the web keeps increasing, the web becomes populated and internet commerce will rise [18]. The incentive for both users and host is that the services are catering for everyone and provided at cheaper prices.

Through e-governance, the government of Botswana managed to push service delivery for the betterment of its citizens. The idea by many countries to do this is to make sure that all government services are available electronically [26]. Most ministries and departments in Botswana now provide services through ICT infrastructure. E-passports are now provided at the ministry of Home Affairs, with the idea to catch up with the developed world standards and also to check frauds. Such services are also extended to short message services where clients to the ministry are sent messages to alert them that their passports are ready. The service is good for all, ensuring that customers do not have to keep coming to the ministry (losing a lot of money through transportation) to check if their passports are ready.

ICTs are also available in Botswana for recreational purposes. This includes radio broadcast online, computer games, webcasts, DVDs, and social networking through sites like <http://www.facebook.com>, <http://www.twitter.com> and <http://www.myspace.com> etc, which are essential for the youths and academics as well in Botswana. In fact, ICT based entertainment is expanding. While studies have shown that youth from poor communities are vulnerable to criminal acts, recreational activities through ICTs will engage them and keep them away from illegal acts.

Although low bandwidth is currently limiting advance application of internet ICT based application, this will soon not be the case as connection to the East Africa Submarine System (Eassy) begins to yield results [2]. This will be improved further once Botswana has connected to the West Africa Cable System (WACS) which will further increase internet speed in Botswana [2].

4.3 Level of Readiness

A level of readiness refers to the degree to which the user is prepared and willing to make use of ICT. As Gasco-Hernandez, Equiza-Lopez, & Acevedo-Ruz, have put it, “Often the true value of ICT for poor people will reside in how their intermediaries – local government, public-service institutions like schools or clinics, non-governmental organisations, community radio stations, and so forth – can use ICT to better address their individual needs” [14 p.xi]. One of the reasons why the poor cannot access ICTs fully is their limited access to technologies [24]. Internet use in Botswana is estimated to be about 6%, a very low figure in comparison with

European countries; however this is a gradual increase from figures of previous years [49]. The level of readiness is gradually increasing, since many young people are showing interest and the Ministry of Communications Science and Technology is busy making sure that citizens are given access through rollout to post offices, youth centres and tele-centres. In many countries especially in Europe, these tele-centres have been developed in rural areas to assist local groups to collect, manage, and disseminate information that other citizens needed to live independently [36]. As part of Botswana government's service to its people, incorporating ICTs must come secondary to broader reform agenda considered on its own merits. In the process of introducing and implementing ICTs, acceptance by all key stakeholders is necessary, there should be identification for reform, identification of system requirements, and identification of the need for ICTs. While such efforts by the government of Botswana to rollout ICT services through tele-centres, post offices, there is need to monitor these projects and ensure that every member of the society is guaranteed access. With these efforts in place to push for access for all, maximum impact is guaranteed especially through service delivery [9]. Access should precede service rollout and prioritization should be given to the members of the rural community, marginalised groups and the poor.

5. CONCLUSIONS

Current status of ICT in Botswana shows a political will to develop and expand ICT infrastructure within the country. However, in terms of poverty reduction, the impact of infrastructure and connectivity is limited because ICT is used as a commodity. There is a need for Botswana in particular and the SADC region in general to undertake paradigm shift from paper based data/information exchange and develop models for the future that will enable competitive differentiation using ICT. For instance, India has shown exemplary achievements by focusing on high quality tertiary education in ICT domain as a country and it has become a net exporter of ICT graduates who are highly in demand globally.

The potential for ICT role in reduction of poverty in developing countries is enabling access to global markets, expansion of markets of goods, minimizing rural urban migration etc. ICTs generate economic value when they are used to support innovation. The banking industry in Botswana is a motivating factor in the area of ICT and has continuously been growing. At the moment there is a need for Botswana to develop security, stability, integration of information systems to facilitate secure digital data and information exchange to meet global business needs. This will open up market opportunities in Botswana as soon as bandwidth and internet speed problems are solved through Eassy/WACS and indirectly reduce poverty levels in the country through ICT based business operations. There is also an urgent need to develop cyber law in Botswana which the country has been striving of with an output soon.

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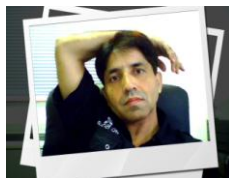
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