Eradication of Poverty With the Use of ICT in the Third World: Botswana as an Example in SADC

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ABSTRACT

Penetration of information and communication technologies (ICTs) have managed to cover even some of the least developed nations. Mobile phones in particular have experienced phenomenal growth never witnessed before with earlier technological inventions. The internet, information and communication technology (ICT) services and increase in digitized content have led to interest in their role in improving economic livelihoods of people. Previous research or roles of ICTs on various aspects of human life was mainly carried out in developed countries. There is limited research on ICT services and content that focuses on the poor, particularly those that encourage entrepreneurship as a means to achieve poverty reduction in developing countries. This paper is using secondary data and document analysis from Botswana, a member country to Southern African Development Community (SADC), to find out how ICTs can be used in poverty reduction in developing countries.

KEYWORDS

Information and Communication Technology (ICT); Poverty reduction; Internet, Media, Communication, SADC (Southern African Development Community)

1 INTRODUCTION

The phenomenal growth in the use of internet and mobile phones has resulted in people using them in various innovative ways. Some of these innovative approaches are in the way people communicate for example sending text messages, run business, exchange money etc. The role of ICT has been a subject of discussion in literature especially on how ICT can improve human activities. This paper contributes to literature on ICTs applications and poverty eradication in developing countries.

1.1 Definition of Information and Communication Technologies and Poverty

Information and Communication Technologies (ICTs)

Information and communication technologies (ICTs) has been used to refer to the hardware, software, data, communication devices that are designed to support operations of information systems [5]. The internet is the backbone which supports information flow using ICTs. Today many businesses, organisations as well as individuals rely heavily on the use of ICTs for their day-to-day functions. [20].

There are numerous advantages that are derived from the use of technology in communication. Enhanced, faster communications as well as efficient provision of services are some of these benefits. ICTs deployments in majority of cities provide employment to many people. They are also enabling new working patterns such as working from home, which is ideal to groups such as working mothers previously disadvantage by work which could only be done in an office setting. More employment opportunities are also opening up as small

and medium enterprises (SMEs) also adopt use of ICTs [10], [39]. Management of many companies has been adopting e-commerce and e-business in their establishments to increase their market share [44]. Government institutions as well as private companies are increasingly using ICTs to market products, interact with customers, sell products/services etc [15].

More and more governments are adopting e-governance as a way of improving service delivery to their clients. In democratic states e-democracy is being introduced to increase interactions and chats as a way of communication at government and public forums [27]. Innovative use of ICTs can also come from small economic states as illustrated by Estonia becoming the first country to allow voting at parliament elections using internet, a method of voting called e-voting [3]. The importance of ICTs has led to their infusion in education system from elementary up to tertiary level of education to improve and expand quality of learning [46]. There has been a growing body of literature which looks at the significance of ICTs in relation to poverty eradication. As Duff 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. Many places now use ICTs." [16 p.354]. Today many innovative ways of using ICTs are emerging which have significant impact in the economy of a country for example two of the cellular phone providers in Botswana have recently launched a feature to allow money transfer and buying of airtime using mobile phones [34]. 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 these new technological developments [16].

Botswana is also experiencing expansion and growth of the ICT sector. Almost all of the major cities, villages and settlements have some form of ICTs being used such as mobile phone application or internet café. 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 [36]. 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

Poverty has no universal definition as it has many variables upon which it can be measured. World Bank defines poverty as lack of ability by an individual to achieve the basic standard of living [56]. Ravallion expands this definition further and state it as "poverty can be said to exist in a given society when one or more persons do not attain a level of economic well-being deemed to constitute a reasonable minimum by the standards of that society" [43]. There is a global interest by governments and international organisations to reduce poverty among people. The first UN millennium development goal (MDG) is on poverty and hunger eradication [50]. Von Braun & Torero have shown that increase in connectivity in a country can result with an increase of 0.03% in GDP [52]. Interestingly the increase in connectivity using mobile phones have an even higher increase in GDP as the figure is about 1% according to [14]. Research using data from Southeast Asia have shown a negative correlation between use of ICTs and human poverty index [17].

Discussion about poverty and its measure internationally has been a topic of discussion particularly from 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 [13] invention of "poverty line" [13]. This definition means that a person whose source of finance is below poverty datum line is considered to

be 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 [21]. This definition was adopted by many countries over the years. In any country, economic review often shows significant differences in level of poverty between urban and rural areas. 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 [32], [21]. 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 [51]. Vandenberg is of the view that people under economically poor category would not fit in such description [51].

Botswana human and economic resource development makes the country to be classified as a developing country. Majority of developing countries, Botswana inclusive are looking for ways and means through which they can minimize poverty [9]. 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 [29].

1.2 Research Questions

The research questions which were used to guide the study on how ICT can reduce poverty were promted by the global ICTs expansion, use and its fast evolution. These questions were as follows:

- Can ICTs reduce the gap between the rich and the poor?
- What have been the role, readiness and diffusion of ICT use in Botswana?
- Has ICTs been of relevance to society and how does it relate to poverty eradication effort in Botswana?

2 METHODOLOGY

This paper used a case study approach using different source of evidence in order to understand the phenomenon under investigation [55]. Document and textual analysis was done using reports from 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

Literature on the role of ICTs and how they can reduce poverty and improve standard of living in developing nations is limited [26], [38], [10]. Clarke and Englebright have attempted to define ICT as a basic skill, which includes computing technologies, domestic and commercial systems and equipment [10]. This paper conforms to literature that ICT encompass technology use in managing information and enhancing communication. By its nature ICTs change frequently as they are continuosly striving to improve on existing technologies.

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" [28 p.85], [49], [35]. 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 [28]. A World Bank report has shown that information and communication technologies have been the catalyst of economic growth in many countries [22]. 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 "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" according to [22 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 it is intended to be used by the poorest depositors in South Africa [33]. This simply increases the ability of the poor to access financial services just like the use of mobile phones that allow subscribers to access and manage their money in Botswana [34].

Spence & Smith research has shown that ICTs are growing and expanding in many countries even among those with low economic activities. The use of ICTs in every country facilitates the expansion of markets, social businesses and public services [48]. 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 [48]. 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, paying for utilities, and their personal securities are improved [4], [8]. 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 [48]. 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 [2]. 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 [2]. Some countries like Mauritius have embrace ICTs in their development plans and periodically device 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 [45].

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 [42], [6]. 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" [42 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. Not underminding other ICT benefits, for Africa one of the most impotant issue is ICT support in education among disadvantage groups. 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 [25].

4   PRESENTATIONS   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 [45]. In comparison with other countries in Africa, the state of education, infrastructure, health and other services, ICTs can be made available and affordable for public, business and private use in Botswana.

Through Ministry of Communications Science and Technology, Botswana government has set up tele-centres in rural communities. These tele-centres are equiped with internet facilities, telephone, fax and other tools to support secretarial services. 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 [47]. Commercial developments especially at the rural areas are also supported through tele-centres, and there is 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 (Omang) and passport, one can obtain funding and school registration, etc. There is growing evidence that despite some challenges that these tele-centres face, they are having a positive impact in the economy of rural communities. One of these centres users recently stated "when I want to find out prices from the Botswana Meat Commission, I can just find out here over the internet. I can even communicate with customers from different places." [12].

Though Botswana has numerous health challenges, application for ICTs in health have been very limited. However there are steps now been taken to introduce ICTs in the health system especially by non government organisations and private health care providers. 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. Botswana has recently launched telemedicine with the intention of addressing shortage of health care professional in the country [7].

4.2 Level of ICT use in Botswana

There is significant disperate in access to ICTs in Botswana despite Botswana's ICT infrastructure being regarded among the best in Africa. Urban areas are served better than rural areas when it comes to ICT availablity. There are several factors that lead to this digital divide such as lack of skills, previous economic development. ICT is being used to address some of the factors that leads to the digital divide for example expanding education, some cost reduction by Botswana major mobile phone providers (Orange and Mascom Botswana).

It has been shown that information and communication technology enable new ways of payment, and this in its own right creates new job opportunities while at the same time reducing manual labour in relation travelling costs [54]. ICT based applications like computers; faxes are being used by government as well as private sector employees in Botswana as well.

The communication landscape has significantly been transformed by the emergence of mobile phones. Mobile phones have a lot of advantages over fixed lines telephone which has led to their expansion surpassing those of land lines where ever they have been introduced. The added featuers of internet access, camera and digital video capabilities have increased their use even further. The cell phone has rapidly transformed the lives of many individuals [24]. Mobile phones have positively impacted social bonds between people especially after decline in the cost of handset [30]. Some service providers of mobile phones in Botswana promote local business by contracting local artists for the provision of caller tunes [18]. Besides generating income, this also acts as a marketing tool for the less popular artist in the country.

Commercial banks in Botswana are gradually introducing online, mobile and telephone banking in order to sell their products to customers easily. Gradually many bank customers are using these ICT based services as they save them time and cost [37]. Petrie also stated that "computers and communication systems provide instant information on the state of accounts and provide fast transfer of transcations between branches of the same bank and between different banks" [40 p. 120]. Two of Botswana's commerial banks (Barclays and Standard Chartered Bank) sponsored a study that showed that use of mobile phones banking is a way of extending financial services to the poor [53]. 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 based commerce will rise [23]. 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 [31]. 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.

Botswana's connections to the East Africa Submarine System (Eassy) will exapnd bankwidth in the country, opening up more opportunities for online businesses. Further bandwith expansion will be realised with a further connection to West Africa Cable System (WACS) once it is in use [1].

4.3 Level of Readiness

A person's readiness and wilinngness to use ICT gives an indication of the level of readiness for ICT within a society or country. 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 governemnt, 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" [19 p. xi]. Limited access to technology has been cited as one of the reasons why the poor can not access and use ICTs fully [29]. The latest estimation of internet use in Botswana is about 6% of the population, although this is a low figure by European countries standards, it represents an increase from previous year's estimation [57]. This low figure may indirectly imply low level of readiness. This low level of readiness will gradually increase as the youth are showing interest in ICTs use and the government is also making efforts to roll out ICT using post offices, tele-centres etc. Majority of countries even in Europe have used tele-centres as a way of helping rural communities to also benefit from use for ICT based applications [41]. Incorporation of ICT must be considered in its own merit and seen as a broad reform agenda for improving Botswana government service

to the people. 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 [11]. There is a need to address access to ICTs even before the roll out is made so that the marginalised groups and the poor and rural communities are not left out.

5 CONCLUSIONS AND RECOMMENDATIONS

ICTs expansion in Botswana is an indication that despite its initial huge capital cost, it is vital to the lives of the citizens. If the rate of ICT growth continues at the current rate, it will soon be accessible to many social groups of Botswana irrespective of their location. The result of this will be increase in the use of ICT that will also stimulate economic growth in rural areas, improving the lives of people in these areas who are more vulnerable to poverty. Developed world have made efforts to globalize the rollout of ICT as a way of expanding their market share. This has helped to introduce equal standards of ICT practices and some level of profesionalism. The foundation of ICT roll out in Botswana was laid by the economic liberalization that took place in Africa in the 1980s as it has stimulated ICT use, ownership, acquisition among Botswana citizen.

It has become increasingly clear that ICTs value gain cannot be attained unless there is full access to the technologies by majority of the population. The cost of technologies associated with ICTs in Botswana is beyond financial capability of the poor despite the fact that these technologies can contribute to improvements in the living standards of such people. Connection to the national

electricity grid does not cover the whole country. The other problem is that Botswana imports over 80% of electricity, resulting in the cost of electricity being too high for the poor. Yet electricity is the backbone on which even the smallest ICT gadget like a mobile phone needs to function. Probably developed countries should sell ICT technologies at reduced costs to support the growth of the ICT sector in developing countries. The governments in developing countries should do their best to rollout these equipment and services even to the poor and rural areas for use by everyone.

There should be maximum level of access to ensure greater impact to everyone. It is an identified problem that most often the poor are marginalised in matters of education and learning. Efforts should be made to make sure that access to infrastructure is equated with training to ensure full and proper participation and utilisation of the ICTs infrastructure.

While focusing on expansion of ICT use, there is also need to address problems of unsavoury and illegal content distribution these are common with the use of ICTs. It can be difficult to address some of these problems as providers of them might be operating from locations outside the jurisdiction of the country. Developing countries like Botswana need to urgently develop cyber laws that can be used to address illegal activities that are internet based. Economic value is derived from ICT activities if the economic landscape supports and promotes e-commerce so that there can be exchange of goods and services over the internet. Security and adequate training in relation to use of internet for commercial purposes need to be provided so that the Botswana society does not become easy targets to any act of fraud and misuse.

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