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RESEARCH PAPER

THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN GHANA'S RURAL DEVELOPMENT

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ABSTRACT

Information and Communication Technologies (ICTs) hold tremendous potential for rural development in Ghana in the areas of agriculture, health, Micro and Small Enterprises (MSEs), and education. Using the theoretical sampling method,this paper takes a closer look at the ICT scene in Ghana from 2000 to 2011 with emphasis on the role of ICTs in rural development.The paper also draws attention to the efforts made by past and present governments of Ghana to solve the major problems facing ICTs development in Ghana. Investigations from the study revealed that ICTs play major roles in the socio economic development of rural areas in Ghana with a huge potential for accelerated development in these rural areas. ICTs have contributed immensely to improve communications, deepen decentralization, and attract Micro and Small Enterprises (MSEs). ICTs have also contributed in automation of Rural Banks, networking, information sharing and the provision of ICT enhanced distance learning in the rural areas of Ghana. However, there are some serious challenges militating against the full realization of ICTs role in Ghana's rural development. Issues such as unavailability of electricity, lack of ICTs equipment, high level of illiteracy, user acceptance and local content have to be addressed before the full potential of ICTs role in Ghana's rural development can be achieved. Some recommendations are made as to what the government and other development agencies can do to address these challenges.

Keywords: Information and communication technology, Rural development, Ghana.

INTRODUCTION

Information and Communication Technologies (ICTs) refers to systems for producing, storing, sending and retrieving digital files (Bartlett, 2002). These files can contain text, sounds and images, both still and moving. Information and communication technologies, and particularly the Internet, are transforming all human activities dependent on information, including those in rural areas.

Though information technology and communication technology were developed independently, they are greatly fused together to produce a new information environment commonly referred to as Information and Communication Technology (I.C.T)

Individuals, groups and organisation have different perceptions about the use of new technologies to improve human efficiencies and quality of life, but if an organisation or a community is mostly affected negatively by the introduction of new technologies, then it could be the way in which that technology was applied and not the technology itself (Neumann, 1994).

In the developed world, the ICT revolution has affected every sphere of life and has been of immense benefit to the people. In India for example, information exchange by electronic means has revitalized the role of extension services in providing information, education and decision-making assistance to agricultural producers. The use of ICTs could therefore complement the conventional agricultural extension methods in rural areas in Ghana just like India.

DATA COLLECTION AND METHODOLOGY

The data for this paper was collected from both primary and secondary sources. The primary data was collected through interviews, field notes, conversations and personal observation.The study used theoretical sampling, a type of non – probability sampling technique in which participants are

selected according to the theoretical needs and direction of a study (Morse, 1989). Key informants were selected on the basis of their expertise in areas relevant to the study.Information for the study was solicited from Government officials, ICT specialist, rural banks, traditional rulers, farmers, rural workers and community leaders. For the secondary data, books, journals, technical reports, user statistics and other literature relevant to the paper were reviewed and analysed. The data was gathered from six regions in Ghana namely, Volta region, Central, Western, Ashanti, Eastern and the Upper East region.

ICT INFRASTRUCTURE IN GHANA

In response to global policy changes in the ICT industry, Ghana was among the first African countries to reform its ICT sector and establish the necessary legal and regulatory framework to support the growth of the sector. Since 1990, the government of Ghana has liberalized the telecommunications sector with the aim of enabling the private sector to actively participate in the provision of services to increase access and coverage, introduce value-added services and boost consumer access to the state-of-the-art technology (Frempong and Atubra, 2001).

The liberalization policy was based on a 5-year Accelerated Development Programme (ADP) for the telecommunication sector, introduced in 1994. It aimed at increasing teledensity from 0.31 percent to about 1.5-2.5 percent through provision of public and private pay phones; improve public access in rural and urban areas; expand coverage of mobile services; promote Ghanaian ownership of telecommunications companies; and retain overall public regulatory control of the sector through the creation of a single agency (Frempong et al., 2005).

By 2000, the ADP had achieved an increase in teledensity from 0.34 lines to 1.16 lines per 1,000 inhabitants and public phones from 0.001 to 0.16 per

1,000inhabitants. A Second National Operator (SNO),Westel, was licensed, and numerous private FM and TV stations were operating(Wilson III, 2005).

The government of Ghana introduced its Information and Communication Technology for Accelerated Development (ICT4AD policy) in the latter part of 2003. According to the basic premise of the policy, Ghana's development process can be accelerated through the development, deployment and exploitation of ICTs within the economy and society. The overall aim of ICT4AD was to engineer an ICT-led socio-economic development process with the potential to transform Ghana into a middle-income, information-rich, knowledge-based and technology-driven economy and society (Ghana Government, 2003).

Mobile Telephony

Access to telephone services improved considerably in the early stages of the liberalization. With respect to the market, telephone penetration at the end of 2008 was 52.4%; composed of 99% mobile and 1% fixed. The equivalent access lines in service were Eleven Million, Five Hundred and Seventy Thousand, Four Hundred and Thirty (11,570,430) mobile; and One Hundred and Forty-Three Thousand, Nine Hundred (143,900) fixed (National Communications Authority, 2008). At the end of 2011,the penetration rate of mobile telephony was 75% equivalent to seventeen million (17,000,000) access lines.

Internet Usage

The emergence of new wireless and satellite-based solutions is positioning the country to

take advantage of the benefits to be derived from ICTs (Cohbinah, 2003). The use of computers have increased tremendously while the numbers of Internet Service Providers (ISPs) have also increased. At the end of 2008, the National Communications Authority (NCA) had licensed a total of 114 companies to provide Internet services in the country. Out of these, 36 had actually commenced business (National Communications Authority, 2008).

Internet penetration in Ghana is relatively low. According to Statistics available from the International Telecommunication Union, (ITU), the number of Internet users in Ghana increased from 30,000 in 2000 to 1, 297,000 in 2011. Even though the increment in terms of absolute figures was encouraging, the penetration rate was 5.2%,which was lowerthan the African average rate of 11.5% (ITU, 2011).Ghana's internet usage as against its' population growth from 2000 to 2011 is presented in Table 1.

Table1.Ghana's Internet Usage and Population Growth

YEAR	Users	Population	% Pen.	Usage Source
2000	30,000	18,881,600	0.2 %	ITU
2006	401,300	21,801,662	1.8 %	ITU
2008	880,000	23,382,848	3.8 %	ITU
2009	997,000	23,887,812	4.2 %	ITU
2011	1,297,000	24,791,073	5.2%	ITU

Source: International Telecommunication Union, (ITU) 2011.

Broadcasting

At the end of 2008 there were 237 Broadcasting Authorization holders with 165 in operation comprising of 146 radio stations and 19 TV stations, (NCA,2008).

Table 2: Composition of Communications Space by number in Operations at the end of 2008

Category	2003	2004	2005	2006	2007	2008
Fixed Line	2	2	2	2	2	2
Cellular	4	4	4	4	4	5
ISPs	22	25	29	32	34	36
FM Radio	82	84	84	127	129	146
TV	8	8	8	10	11	19

Source: National Communications Authority (NCA) 2008.

Radio Stations

As at the last quarter of 2011, the National Communications Authority (NCA) has authorized 247 FM radio stations in Ghana out of which 217 were operational. The 247 authorizations were made up of 34 Public radio stations, 37 Community radio stations, 11 Campus radio stations and 166 Commercial radio stations.

Television Stations

The National Communications Authority (NCA)had authorized 28 Television stations as at the last quarter of 2011.The summary of categories of the TV stations is presented below.

Summary of TV Stations in Ghana as at Fourth Quarter, 2011.

· **Number of Authorized TV Operators - 28**

· **Number of Free on air TV Operators -** ***20***

· ***Number of pay per view TV Operators - 7***

· **Authorized for research purpose- 1**

Unfortunately, ICTs have not played major roles in the development of rural areas in Ghana as expected. Although some advantages, such as efficient and effective communication systems for socio-economic development, easy and efficient information gathering, storage and dissemination, easy and fast access to information for various purposes have been derived from ICTs, rural dwellers rarely have direct access to them, and even in areas where they are available, they are hardly affordable to the rural dwellers ,most of whom fall within the low income bracket, subsisting on less than USD1.00 per day.

INFORMATION NEEDS IN RURAL AREAS.

Rural people constitute 56.2%per cent of the population in Ghana. They mainly depend on subsistence agriculture and often lack access to basic needs such as water, education, health care, employment and sanitation (Ghana Statistical Service, 2002). These have led to life expectancy at birth of 54.4 per cent and an infant mortality rate of 59 per 1,000 live births in these areas. These conditions also result in their migration into urban areas, often in search of non- existing formal employment and better life.A study of the information needs and information seeking behaviour of rural dwellers in Nigeria indicated the following as their information needs (Momodu,2002):

1. **Agricultural Information**- from `where to purchase fertilizers' to 'how to use them', information on pesticides, herbicides, storage ... to information on speedboats and net making.

2. **Health Information-**how to handle the outbreak of certain epidemics, where to get the best treatment for different ailments ... to what they can do by themselves to get good health facilities.

3. **Political Information-**traditional leadership; civic rights; political parties, voting rights, etc.

4. **Community Development Information** – viable self-help projects, how to mobilize people for the projects, what government agencies to contact andto lobby, etc.

5. **Educational Information-**school calendar, opportunities for educational self-development, higher education and how it affects children, adult education, continuing education.

Furthermore, rural dwellers also require economic (industries; services; marketing) social (education; religion; culture,) and environmental (natural resources; ownership rights,) information.

In spite of the enormous importance of these information needs to rural dwellers in Ghana for their socio economic well- being, accessibility is very limited due to lack of well- developed I.C.T infrastructure. Despite the introduction of ICT4AD in 2003 by the Government of Ghana, rural areas are still underserved in terms of ICT infrastructure and capacity building. As a result, ICTs have not been able to play their expected roles in the development of rural areas in Ghana (Alemna, 2006).

The 1992 Republican Constitution of Ghana guarantees the right to information to all citizens in Ghana without discrimination. Article 21(1)(f) of the 1992 constitution states that:

"All persons shall have the right to information, subject to such qualifications and laws as are necessary in a democratic society''

However, in practical terms, there is a wide disparity between urban and rural dwellers in terms of access to information in Ghana.

According to the Group of Eight (G8) Digital Opportunities Task force (DOT Force) the digital disparity among individuals, groups and organisations is a symptom of much profound and long - standing economic and social division within and between social societies.It emphasizes that ICTs, if appropriately used can be effective tools to combat those deeper divides.

The G8, which consist of the Heads of states from the USA, Russia, France, Germany, Italy, Canada, United Kingdom and Japan, is an institution for systematic co-operation on economic policy among the participating countries and for influencing the wider world (DFID, 1992). The DOT force was launched by the G8 government leaders to look at how ICT can bring digitally enabled opportunities for developing communities and help bridge the widening global Socio-economic divide.

ROLE OF ICTs IN DEVELOPMENT OF RURAL AREAS IN GHANA

Improved Communications

One of the main attractions of ICTs in rural areas in Ghana has been the ability to get in touch with relatives in urban areas andabroad. This accounted for the high rate of telecommunication centres in rural areas in the 1990s. Most people in rural areas in the country relied on communication centres for access to telecoms services, but the popularization of mobile phones in the country has reduced this tremendously (Frempong et al., 2005). Mobile telephony networks have now reached most parts of rural Ghana. Rural dwellers in Ghana use the mobile phones to communicate easily with their relatives and friends in Ghana and abroad. Before such ICTs developments, contacts were mainly by post and personal contacts.

Enhanced Decentralization

The decentralization of government in Ghana also means that rural areas must be capable of playing the new roles prescribed by the central government. Some of these include the promotion of rural tourism which is done better and more cheaply with the use of web pages than traditional advertising media, participation in governance at the local level through the District Assemblies and initiation of development projects with funds generated at the local level. Through the numerous Frequency Moderation (FM) and Community Radio stations and the advent of mobile phones in the rural areas, rural dwellers are able to bring their views and problems to the attention of their District Assemblies for response.

Attraction of Micro and Small Enterprises (MSEs)

Another role of ICTs in rural development in Ghana is the attraction of Micro and Small Enterprises (MSEs) to the rural areas. With the improvement of ICTs in the rural areas in the last decade, there have been significant improvements in the number of MSEs and Rural Banks thereby creating enabling avenues for employment and financial assistance for the rural folks. For example, results from the Ghana Living Standard Survey-3 indicate that about 69% of the population of Ghana is employed in the MSE sector, with a significant number of them located in the rural areas (Ghana Statistical Service, 2002).

SMEs in rural areas are now taking advantage of the Community and FM radio stations to advertise their products and services to many communities within and beyond their areas of operation. This enlarges the frontiers of their market and ensures the sustainability of their businesses.

Automation and Networking of Rural Banks

One of the major beneficiaries of ICTs in rural areas in Ghana are the rural banks. Through ICTs and the internet many rural banks in Ghana are now automated and networked. This has saved many MSEs, traders and farmers in rural areas from carrying huge sums of money on them for their transactions since they can now deposit their money at one bank and withdraw it in another rural bank with ease. Some rural banks like Bia Torya Rural Bank in the Juaboso District of the Western Region of Ghana and Kakum Rural Bank in the Central Region of Ghana have moved a step further to provide International Money Transfer Services for the rural dwellers in their areas of operation. In Ghana, a vibrant MSE sector in the rural areas is very important since 56.2% of the population reside in these areas where poverty is more pronounced with 86% of the population living below poverty line (Ghana Statistical Service, 2002).

ICT-enhanced Distance Learning Services for Rural Dwellers

The introduction of distance education in Ghana by most public universities in Ghana provides learning opportunities to rural people, who, because of geographical distance to the centres of education or for limited financial resources, would be otherwise excluded from improving on their educational qualifications. The use of radio, television and video in education is now common in Ghana. Currently four public universities offer distance education programmes. These are University of Cape Coast, University of Ghana, Kwame Nkrumah University of Science and Technology and the University of Education Winneba. All the four universities have study centres in most of the ten regions and some district capitals in the country. Computers have been acquired for the Study Centres so that both tutors and students can make use of them to facilitate effective teaching and learning.

The extension of the ICT-enhanced distance education to the rural areas has reduced the annual problem of teachers and agriculture extension workers seeking transfer from the rural areas to the urban areas to upgrade themselves. Other workers are now willing to accept postings to the rural areas since they can now take advantage of the ICT-enhanced distance education to upgrade their knowledge and skills. In an interview granted by a lady Agricultural Extension Officer at Sefwi Asempaneye in the Western Region of Ghana, she said that she was posted to the community as a certificate holder but she has been able to acquire a diploma and a degree from University of Cape Coast through distance learning. She indicated that she would continue to stay in the community and help them with her newly acquired knowledge. It was also gathered from an interview granted by an Assistant Director of Education in charge of Training and Manpower in the Upper Denkyira West District in the Central Region of Ghana that Sixty-Seven (67) Post - Secondary Certificate teachers have upgraded themselves to diploma and degree levels through distance learning in the district between 2003 and 2010. He added that as a rural district it is very difficult to attract and retain qualified teachers and as result, the distance learning programmes have contributed immensely to the development of education in the area. The impact of this development is that people

with requisite knowledge and skills can be retained in the rural areas and more attracted to help in the development of these areas.

Networking and Information Sharing

Networking and information sharing among rural dwellers is another major role being facilitated by ICTs in the development of rural areas in Ghana. With the proliferation of mobile phones, community information centres and community radio stations in the rural areas, information sharing and networking have been greatly enhanced. Information and experiences on agriculture, fishing, marketing of produce, health, education and climate change and environmental pollution is easily shared among rural dwellers for the improvement in their standard of living. In the Upper Denkyira East District in the Central Region of Ghana, a community radio station, Solar FM, has a programme called "Social Forum" which is aired on Friday evenings. Prominent farmers, agriculture extension officers, health and other rural workers are hosted to share their experiences and expertise with the rural folk. A similar programme called"Farmers Hour" is aired by the Rainbow Radio another community radio at Sefwi Juaboso in the Western Region of Ghana to educate farmers on new developments in agriculture.

Telemedicine Services

Information and Communication Technologies (ICTs) contribute to improving the coverage of national health services in rural areas (Zappacosta, 2001). The application of ICTs to health-care delivery, called telemedicine, enables access to professional expertise irrespective of the geographical location of the patient or the doctor. ICTs have helped rural health workers to communicate easily with the district and regional health directorates for fast and prompt supply of drugs and medical equipment to save lives in the rural areas. Patients are also able to communicate easily through mobile phones with health workers to report side effects of drugs administered to them at health centres and clinics for advice

in the rural areas most of which have poor road and irregular transport networks.

Information Gathering for Development

There is also the important role being played by ICTs in gathering and updating information from rural areas to help the central government to build databases on issues such as climate change, environmental pollution, food production and deforestation. In particular, satellite and remote sensing technologies are increasingly being used for planning purposes and the rural areas stand to benefit from them.

Source of Entertainment

Another role of ICTs in rural development is in the area of entertainment. Different forms of entertainment can now reach rural areas through the diffusion of ICTs such as radio and video (VHS cassettes and DVD) and television broadcasting. This has not only improved the quality of life for rural people, but has also reduced their isolation and cultural distance from urban areas. In spite of the fact that most rural people lack electricity, they have an ingenious way of receiving transmission by using dry cell batteries for their radiosand car batteries for their television set whiles the well to do ones use fuel powered generators.

Visibility for Rural Non-Government Organizations (NGOs)

ICTs have also enabled non-governmental organizations (NGOs) that are based in rural communities to gain visibility at regional, national and international levels. Rural NGOs are widely and effectively using ICTs, particularly e-mail, to contact people and international organizations, to organize events, coordinate actions and to establish networks.

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CHALLENGES OF ICTs ROLE IN RURAL DEVELOPMENT

The role of ICTsin Ghana's rural development is faced by many challenges.

Unavailability of Electricity

Critical to the use of ICTsfor rural development in Ghana is the availability of electricity. Many rural areas in Ghana have no access to electricity. In places such as Kpassa in the Volta region and Wachau in the Upper East region, where solar power has been experimented, this has largely been unsuccessful due to lack of proper maintenance on the part of the local people. The poor electricity power supply also account for the over-concentration of ICT centresin district and regional capitals where they are mostly connected to the national grid for regular supply of power.

High Cost ICTs Equipment

Another challenge in ICTs for rural development is unavailability and affordability of computers and other equipment, as well as their maintenance. At present, the major means of access to ICTs in the rural areas is through the few telecentres that have been established in these areas. Even then, there is a major disadvantage because most of themare mainly locatedin the regional and district capitals (Falch, M. 2004). In areas where ICT facilities are available, there have been problems when they break down because of lack of spares parts to replace equipment or the skill to repair the equipment.

Low Literacy Levels and Lack of ICT Personnel

Literacy rates are very low in rural areas in Ghana. The situation gets worse when it comes to computerliteracy. There are fewer computer-literate personnel in the rural areas compared to the urban centres. On the other hand, if farmers are to make good use of ICTs, the Extension Officers who advise and train farmers need to acquire more knowledge and skills in ICTs. As this is presently not the situation, it has created a negative effect in the use of ICTs in the rural areas of Ghana. In relation to rural development, one major target group is women. They form a large proportion of the workforce in these areas. They also make up the largest number of illiterates in these communities. In the area of ICT, there is an even smaller number of women in rural areas capable of making use of these facilities. (Ghana Government, 2003).

Lack of Telecommunications Services

The provision of ICTs in rural areas in Ghana also requires access to telecommunication services. However, as in the case of electricity, most of the telecommunication servicesare highly concentrated around the regional and district capitals.Telecommunication companies are reluctant to move to the rural areas due to lack of electricity and fear of incurring loses. In a study by Frempong et al (2006), it was noted that majority of mobile phone users (about 83 percent) were from the major towns in the country, 16 percent from other urban areas and an insignificant 0.4 percent from rural areas. The trend cannot be disputed because most of the operators have concentrated their services in the major cities and towns, where there is a huge market for their services. This is also confirmed by the urban-based pattern of telecommunication development in Ghana and other developing countries.

Internet Access

There is also the problem of access to the Internet in the rural areas in Ghana which is a major pre-requisite to the provision of effective telecommunication services to these places. Owing to the small number of Internet Service Providers (ISPs), access to the Internet is very expensive and highly limited to a few urban areas. A number of small businesses known as communication centres or internet cafes provide public access to Internet services. This confirms the assertion by Ahiabenu II as quoted by Frempong et al. (2006) that most of those using the Internet gain access at collective access points such as work, school or cyber cafes. But most rural areas are largely cut off from these services.

Local Content

Poorlocal content and unavailability of instructional manuals in local languages is also a major challenge in the role of ICTsin Ghana's rural development. Statistics indicate that over 85 percent of the content on the internet is in English. Thus, if one is not literate in English, there is very little or no benefit to be derived from the internet (ITU 2011). The problem of local content is compounded by the multiplicity of languages in Ghana. Each tribe in Ghana has rich information that can be harnessed for development. However, because of the oral nature of information provision, transfer of information from one tribe to another is often difficult (Alemna, 1998). The same problem arises when some technical terms have to be translated from English to a local language.This is not even to mention the fact that many languages in Ghana use characters that are not found on computer keyboards.

User Acceptance

Another challenge is user acceptance of ICTs in the rural areas. It is often taken for granted that any technology transfer to the rural areas would be accepted. What is often forgotten is that the rural dwellers have their own established cultural and traditional ways of

doing things. Any outside imposition of ideas or systems might therefore not be easily accepted. While recommending the need for sensitization, it should also be noted that information available through global networks must have some technical relevance for people living in rural areas.

THE WAY FORWARD

Policy Framework and Implementation

In order that a country can utilize ICTs effectively for rural development, a strong policy framework is needed. Fortunately, Ghana has an ICT policy. According to the policy, the government shall encourage, promote and support the implementation of nation-wide ICT systems for development. This includes the modernization of agriculture to encourage rural development in order to achieve long-term growth in the agricultural sector and the economy as a whole (Ghana Government, 2003). The policy also aims at promoting and facilitating the development of the physical and social infrastructure, targeting the rural areas to support the development of the agricultural sector.What is required now is policy implementation with emphasis on the provision of information to the rural areas. This can be effectively done through public- private partnership and incentives packages to corporate bodies to provide ICTs in the rural areas.

Energy Subsidy for Rural Areas

Availability of energy is a pre-requisite to the use of ICTs in rural areas in Ghana. The cost of producing energy is high and far beyond the means of individuals and communities in rural areas who have low incomes.

The government should therefore step in to provide the necessary infrastructure for energy production and subsidizeits cost for the rural dwellers. The Minister of Finance and Economic Planning stated in

2012 budget statement that four hundred and thirty- four (434) rural communities have been connected to the national electricity grid through Self- Help Electrification Project (SHEP4) Phase II.Work on Six hundred (600) selected rural communities is scheduled to be completed by the end of 2012 (Daily Graphic, November 14, 2011). The effort is commendable and a step in the right direction but the government should do more in that sector including the provision of solar energy which is freely available in the rural areas. The use of solar powered ICT equipment should also be encouraged in the rural areas and skilled personnel to maintain the equipment must be readily available.

Hire Purchased and Subsidised ICT Equipment for Rural Dwellers

The District Assemblies (DAs) and the government should collaborate to provide rural dwellers with subsidized computers and other ICT equipment on hire purchase. In the cocoa producing areas, payment for hire purchased ICT equipment can be done by deducting at source two kilogrammes of cocoa from thefarmers any time they present their cocoa for sale at the buying centres.

More community based ICT centres should be set up in the rural areas and people with requisite knowledge and skill be put in charge to ensure good maintenance culture. The ICT centres should be attached to schools in the communities to enable the schools children to have hands- on experience in using ICTs.

One Computer per Child Policy and Basic ICT Training

The government‘s One Computer Per Child Policy which was formulated in 2006, should be implemented to the letter to increase the interest of rural children in ICTs. This can positively influence their education and socio –economic lives in future.

The high illiteracy rate in rural areas which is above the national average of 45.9% (Ghana 2002) should be reduced progressively by the government. Rural workers like agric extension officers,

teachers and local government staff should be trained to acquire ICT Skills for them to pass on their knowledge and skills to the rural dwellers to improve their lot especially in agriculture.

Incentives for ICTs Corporate Bodies operating in Rural Areas

Since the provision of ICT in rural areas in Ghana demands access to telecommunication services, the government should encourage more telecommunication companies to extend their services to the rural areas.The statement by the government in 2012 budget that tax incentives would be granted to telecommunication companies which would extend internet service to the rural areas is commendable. However, to achieve results, service targets and their correspondent tax incentives should be stated in figures and made known to the companies to motivate them further and to also make up for low profit and loses they may incur in operating in the rural areas. This would encourage more companies to move to the rural areas.

The tax incentives for telecommunications service providers should also be extended to radio and television operators who would dare extend their services to the rural areas too.These measures would help rural dwellers to have easy access to information and technologies for rapid socio economic development in these areas.

Local Content and User Acceptance

The problem of low local content in ICT development in Ghana should be addressed. Development and production of key boards in major Ghanaian languages is essential. In order to improve access to indigenous and modern knowledge, the key lies in creative mechanisms for content development. Internet content should be produced in ways that are easily understood by rural people with low literacy, including streaming media, audio-visual and web designing formats .This is because the issue of user acceptance of ICTs in the rural areas is very crucial to the success of ICT policies.

Policy formulators and implementers should involve the rural dwellers in the planning and implementation of ICT programmes. By so doing the culture, traditions, belief systems and values of the rural people can be incorporated in the programmes to ensure acceptance and sustainability.

Sensitisation

Sensitisation of the importance of ICTs in the development of the rural areas should be given serious attention in the planning of ICT programmes in the rural areas. It is imperative for the government and other development agencies to ensure that the content of ICT policies and programmes are relevant to the needs of rural dwellers.

CONCLUSION

There is a great potential for the use of ICTs for rural development in Ghana. Unlike some other African countries, Ghana is fortunate to have developed an ICT policy, which indicates the government's commitment to support ICT programmes in the rural areas.What is required now is policy implementation with emphasis on the provision of information to the rural areas.

One of the ways of improving access to ICTin the rural areas in Ghana is through the promotion of community ICT Centres.This has the advantage of mass usage, maintenance, the security of both service and equipment and the easier collection of charges. Individual communities should be assisted to build their own knowledge centres where indigenous knowledge is combined with exogenous knowledge to improve livelihoods.

The government alone cannot carry out this programme. Support is needed from various non -governmental organisations, corporate bodies and individuals in this area. In all these, the urban-rural disparity in the distribution of ICTs which has created a localized digital and information divide must be tackled and dealt with decisively if the rural areas in Ghana are to take full advantage of these technologies to enhance their socio - economic development.

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