

## Information and Communication Technologies (ICTs) Poverty in Rural Areas: Implications for Development in Nigeria

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**ABSTRACT** Information Communication Technologies (ICTs) remain the most pervasive of man's invention at the turn of the millennium. However, the question can easily be asked about the level of unavailability of the 'electronic inventions' in rural areas of Nigeria. The paper, therefore, attempts to bring to the fore, the inadequacy of ICTs in the rural areas since its introduction into the Nigerian society, and its implication for development. Using the Barja and Gigler's formulation of how, information and communication poverty is measured. As basis, the paper was able to describe how ICTs availability (or lack of it) has become the yardstick through which the level of development of societies is measured. Also, the individual's socio-economic status is influenced by the right quantity and quality of exposure and access to ICTs. The paper recommends that there is urgent need for the Nigerian state and other major stake holders such as organised private sectors, informal sectors, representatives of communities to develop the process of collective engagement that will lead to the integration of the rural areas of Nigeria into the developmental process through ICTs.

### INTRODUCTION

#### Economy and Rural Infrastructure

The Nigerian economy has enormous potentials for growth and development but its performance has consistently failed to add value to the well-being of her citizens. The poor economic score card results in the country being rated 158<sup>th</sup> out of 177 countries in the Human Development Index. Consequently, about 70% lives on \$1 per day while 34% of the population is estimated to be living below the poverty line and with about 80% of them living in the rural areas (UNDP 2007).

Poverty is especially severe in rural areas, where social services and infrastructure are limited or non-existent. Majorities of those who live in rural areas are poor and depend on agriculture for food and income (International Fund for Agricultural Development (IFAD) 2006).

Ironically, while infrastructural developments of urban areas seem to attract attention from government agencies (though the expected results of such attention are hardly noticeable), the rural areas' infrastructure continues to suffer from near complete abandonment. Thus, poor economic growth leading to poor living conditions is prevalent.

The pervasive poverty is reflected in International Telecommunication Union (ITU) (2007) report which states that:

*Although Africa has a share of around 14 percent of the world's population, it accounted for little over two percent of the world's Gross Domestic Product (GDP) in 2006 (Figure 1.1). While the global GDP amounted to 48'800 billion USD, Africa accounted for a GDP of 996 billion USD1. Within Africa, the distribution of wealth is rather uneven between countries. Out of a total of 54 African economies, South Africa alone accounted for a GDP of 240 billion USD, 25 percent of Africa's total GDP. The GDP per capita of the region stood at 1'079 USD in 2006, compared to 3'197 USD in Asia and 19'358 USD in the Americas.*

The thesis of this paper, therefore, is to present a descriptive analysis of the level of Information and Communication Technologies inadequacy in rural areas of Nigeria, by analysing the concept of information and communication poverty developed by Barja and Gigler (2007). The paper is not precluding urban areas from Information and Communication Technologies poverty neither does it suggest that it is only rural areas that suffer from Information and Communication Technologies poverty. It is simply that the area of focus is rural areas in Nigeria. At the end of the paper, it is hoped that, perhaps, it will be able to implicate Information and Communication Technologies poverty, particularly in rural areas, as one of the militating factors against Nigeria developmental problems.

## THEORETICAL AND CONCEPTUAL FRAMEWORK

### Information, Communication and Development

Gigler (2005) points out that information is not only a source of knowledge, but also a special source of advancement of economic, social, political, and cultural freedoms. It can be said that access to and use of information and communications are essential conditions for development, as they affect every dimension of life.

According to Kumar (2001)

*Communication and development are inseparable from each other. Communication is part and parcel of human life and helps in the process of development. People use communication sources to articulate their grievances on local problems. There are several development issues facing the rural poor. The development messages have not necessarily produced the desired results. Solution to poverty alleviation lies in raising the capacities of people through education and resource transfers, social and physical infrastructure development and removing a multitude of social barriers. All these development activities need appropriate communication support.*

Communication and development are viewed from two paradigms, the old and the new paradigms. The old paradigm, also known as the dominant paradigm, approaches communication and development from the top down, or development made simple approach. Following the failure of the dominant paradigm, the new paradigm, which sees communication as participatory and inclusive was proposed (Soola 2003; Manyozo 2006). However, for the purpose of this paper, we hope that Sen's (2000) definition will suffice.

Sen (2000) establishes that the expansion of freedom is development's means and ultimate goal. Among the freedoms highlighted by Sen (2000) as development means are: political freedom, economic facilities, social opportunities,

### Information and Communication Technologies Poverty

A brief look at poverty here will assist us in providing a richer understanding of what Information and Communication Technologies

poverty entails. Let us quickly point out that there has been several works on delimitation of poverty (see Robeyns 2004; Lora et al. 2004; Ravallion 2000; Dollar and Kraay 2000; Attanasio and Székely 1999; Foster et al. 1984). However, what distinguishes them from Sen (2000) is that they focus on variables such as income or expenditure patterns of the poor or determining a set of criteria to identify the poor and assessing aggregate poverty. Sen (2000) however, equates development with expansions of freedoms; though he is willing to agree that expansion of freedoms will not guarantee freedom from poverty in itself, but rather freedoms strengthen an individual's capability. Poverty, therefore, is the lack of basic capabilities or freedoms. From the foregoing, absence of 'capabilities' is a gateway to poverty. Poverty limits aspirations of man. Identified fault lines in 'capabilities' (for instance) include among others, information and communication, education, health, social amenities.

Likewise, information and communication poverty may only be one dimension of poverty, but affects all other dimensions. Poverty reduction is interdependent on the other dimensions. Therefore, a default in any of the basic capabilities will transmute to limiters of human abilities and signpost poverty.

In the same vein, Barja and Gigler (2007), proposed how information and communication poverty can be measured, on a wider scale, using poverty line in rural areas of Latin America. The poverty line represents the minimum capability required to participate in the information society. Thus, Information and Communication Technologies poverty can, therefore, be measured, either as an abstraction or using geographical locations. However, the geographical location must have a minimum assets related to ICT, basic health care, education, social capital and productive capability.

The minimum (low) capabilities of information and communication do play a catalytic role for the advancement of the freedom in other aspects of life of the poor. Definition of information and communication poverty (ICP), therefore, means the deprivation of basic capabilities to participate in the information society. The related ICT assets must be able to exchange (receive and provide) a minimum transparent information about political, institutional, economic processes.

**MEASURING INFORMATION AND COMMUNICATION POVERTY**

Barja and Gigler (2007) formulated how information and communication poverty can be measured. Their postulation is broken down below:

Desired demand for freedom –  $L^i_j$   
 $j$  = location

Current Freedom achieved =  $L^i_o$   
 $i$  = not defined

$DL^i = L^i_j - L^i_o$   
 where  $DL^i_o$  = need for advancement in freedom

$PL^j$  = those suffering from lack of freedom

$L^j_o < L^i_o$

$PL^j = L^i_o - L^j_o$

Minimal level of information and communication  $IC^i_o$  Minimum capacity level  $CAP^i_o$

Observed capabilities  $CAP^j$

Rural area = poor geographical location with population < 1;000

Constraints = poor neighborhoods in Urban areas are not included

$ICP^j = CAP^i_o - CAP^j$

**Measurement of Poverty**

$EC^j$  = Economic cost refers to the investment of assets and to the operational expenditures in information exchanges.

$CAP^i_o$  = minimum

$LC^j$  = local constraints of location  $j$

$TC^j$  = Technological constraint of location  $j$

$VC^j$  = ICT usage constraints of location  $j$

F = function that transform the character of the characteristics of poverty line location dependent.

The requirement of expansion of each kind of freedom is not the same, as some of them may be more desired than others according to the circumstances.

The approach highlights  $L^i_o$ , as what a society has achieved and, therefore, the minimum required for all its geographic locations. From this point of view, the geographic locations suffering from a lack of freedoms  $PL^j$  are those that have not yet reached  $L^i_o$ , but a lower level of  $L^j_o$  for each location  $j$ :  $PL^j = L^i_o - L^j_o$ . From this abstract point of view, there also exists a minimal level of information and communication  $IC^i_o$ , consistent with the minimum freedoms attained by a society  $L^i_o$ . In addition,

there should be a minimum capability level  $CAP^i_o$ , consistent with the disincentives.

Disincentives refer to the following: unsuitability and obsolescence; existence of a process of creative destruction; need of technological substitution and reorganization of the productive activity; creation of winners and losers, and resistance from the latter; attitude of the society towards the innovations within a democratic environment; shortage of factors complementary to new technologies; uncertainty of the technological direction of the future, and its economic result; attraction of innovations towards geographical concentrations.

Minimum level of information and communication  $IC^i_o$ : Access to information may be instrumental for identifying a person’s desired demand of freedom. Usually, the poor are not aware of the opportunities available for improving their standard of living. In this sense, the minimum capabilities of information and communication also play a ‘catalytic’ role for the advancement of the freedoms in other aspects of the life of the poor.

The definition of information and communication poverty ICP is therefore the deprivation of basic capabilities to participate in the information society as expressed by Barja and Gigler (2007) as follows:

$$ICP^j = CAP^i_o - CAP^j_o \quad (1)$$

The minimum capabilities  $CAP^i_o$  define the information and communication poverty line, and the observed capabilities  $CAP^j_o$  for each geographic location,  $j$  establishes the distance to the poverty line (Barja and Gigler 2007).

Examining the applicability of the above theoretical abstraction to human setting particularly in rural Nigeria could be streamlined as follows:

Isolation of available freedom giving capabilities in rural areas, such as-

- 1 Ability to own physical, human, social and economic assets. In other words, are individuals in a given rural community able to own and to also have the capability to use any of the identified ICTs. The level of ownership and capability to use the assets can thereafter be scaled to pave way for their quantification.
- 2 The level of information generation capabilities that will enhance participation in (a) political process, (b) institutional process (c) social protection mechanism and

- (d) process of technology and information management
- 3 In the communication capability, are rural individuals able to analyse and exchange ideas about the political, institutional, control and evaluation, social protection and technological productive systems?

The information and communication poverty can therefore be measured by the juxtaposition of the 3 freedom capabilities with need for advancement, the desired demand of freedoms and the current freedoms achieved for the selected individuals who are the selected reference point.

### **RURAL AREAS IN NIGERIA AND INFORMATION AND COMMUNICATION TECHNOLOGIES POVERTY**

It is possible to safely abstract from the foregoing that to be above the Information and Communication Technologies poverty line, we must first determine the type of 'freedoms' producing 'capabilities' available in rural Nigeria. In what 'quantity' are they available for the rural dwellers? Has access to ICTs been able to enhance demand for 'freedoms'? An acceptance of the above premises will not only lead us to the application of the degree of freedom proposed by Barja and Gigler (2007) to measure Information and Communication Technologies poverty but also to identify the level of ICTs poverty in rural Nigeria.

Going by the definition of ICTs, radio, television, telecommunication, computer are the common information and communication technologies in Nigeria. Therefore, let us look at the available technologies in Nigeria with guidelines on required interrelated capabilities. The date line on radio and television reveals that in 1976, there were about 3,500,000 radio sets in Nigeria. Also, by 1987, the country has 29 radio stations, 32 television stations. In 1986, the number of television sets in the country was 4,900,992 with over 20 million potential viewers. By the total number of radio and television sets in the country, the country had met the UNESCO standard of 20 television receivers per 1000 population (Adesanoye 1988).

Between 1960 and 1985, the installed switching capacity at the end of 1985 was about 200,000 lines. The total number of subscribers to telephone lines as at the end of December 1986 was put at around 230,000. Telex subscrib-

ers were only 5,300 in number. In 1996, the country had about 1,000,000 subscribers to telephone lines (Tella et al. 2007).

However, the significance of the above is that virtually all the significant elements of the Nigerian population were excluded from accessing and using any form of telecommunication. It remained the exclusive right of only the elites of the country.

Despite the pent up demand for mobile phone, the fact remains, however, that there are enormous gaps in ICT access not only between developed and developing countries, but also between urban and rural areas of developing countries. To some degree these differences may reflect differences in the returns to technology use in different environments. There are, however, technical difficulties in providing ICT access to rural populations of the developing world that often raise the unsubsidised costs beyond what they are for typical urban users (Casparry and O'Connor 2003).

The above is further reinforced through the ITU (2009) ICT Development Index (IDI). The IDI is a benchmark tool used to assess the information society developments of economies, as well as to monitor the progress of the Information and Communication Technologies divide. The IDI is a composite index made up of eleven different indicators, grouped in three sub-indices. Group 1- sub-indices measure ICT infrastructure and access, Group 2- ICT use and intensity of use, Group 3- the capacity to use ICTs effectively. The report goes further to say that only 5.1 % of Nigerian households have computers, 7.3% have access to the internet, while 3.6 % households have internet connectivity.

From the foregoing, it may be possible to estimate the level of Information and Communication Technologies poverty in rural areas in Nigeria. Although literacy rate is high in Nigeria, 73.1%, the IDI skills generated out of the literate population is very low – 3.9%, hence the 125 rank out of 154. The use and access indicators do not present any cheering discoveries. From the foregoing, we can therefore examine the implication of the above on development.

### **IMPLICATIONS FOR DEVELOPMENT**

There is no gain saying the fact that the rural dwellers are really below information and

communication poverty line. The state of ICT in rural areas is not healthy for Nigeria development when between 45-70% of the population, are shut out of the information society. The inadequate level of ICT is compounded by poor infrastructure in the areas of power, running water, roads, health services, thus diseases like HIV, TB, and malaria are more common. As a result of poor infrastructure, employment, apart from agriculture is virtually non-existent; hence ICTs cannot be seen as an important partner for growth (Afolabi 2007). The implication for development of the rural areas can better be explained by showing what they are losing through by highlighting the benefits of ICTs. According to Caspary and O'Connor (2003), quoting Hardy (1980), telephones contribution to economic development can be felt through:

- 1 the expansion of social networks beyond the immediate neighbourhood,
- 2 the better co-ordination of entrepreneurs over long distances,
3. the timely access they can provide to valuable information (particularly but not only price information).

Caspary and O'Connor (2003) further states that valuable information on price movement can increase the annual rice-crop income of a typical Asian rice farmer on an average land holding of one hectare by roughly 6 per cent

There is substantial anecdotal evidence to suggest that timely price information can make a major difference to earning prospects.

In another example, Caspary and O'Connor (2003) suggests that the utility of ICT access extends beyond timely agricultural price using the examples of rural areas of Bangladesh, where overseas remittances are a very important supplement to local incomes, arranging low-cost funds transfer and conversion to local currency at a favourable exchange rate can be important benefits of ICT access.

The internet is an enhanced means of acquiring and sharing useful information and of multilateral communication (as opposed to the bilateral sort characteristic of the telephone). Weak information infrastructure, just like weak transport infrastructure, can reduce attractiveness of merchandise trade with particular areas. Evidence from Botswana and Zimbabwe show that areas lacking telephone access see significantly less entrepreneurial activity than those with access (Kenny 2001). ICTs can diminish — though

generally not completely overcome — the isolation of rural communities. For example, crop price information transmitted by telephone or internet from the nearest urban centre may permit a better timing of trips to markets.

## CONCLUSION

The Nigerian state needs to re-order her priorities if the Millennium Development Goals (MDGs) and the vision to be one of the 20 economies in the world by year 2020 (Vision 2020) are to be attained.

There is therefore, an urgent need for major stake holders, particularly in the ICTs, that is, governments, organised private sectors, informal sectors, representatives of communities below information and communication poverty line to develop a working partnership that will lead rural areas out of the present doldrums. Such partnership and cooperation should reflect in the areas of policy and project design and monitoring. Stake holders should pay attention to infrastructure requirements, local availability of materials for sustainability, skill and training requirements, when determining ICTs technology to be adopted for rural areas.

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