

# Barriers and Reforms for Promoting ICTs in Rural Areas of Pakistan

Aneela Abbas<sup>1</sup>, Mubbashar Hussain<sup>1</sup>, Muddesar Iqbal<sup>1</sup>, Sidra Arshad<sup>1</sup>,  
Saqib Rasool<sup>1</sup>, Muhammad Shafiq<sup>2</sup>, Wasif Ali<sup>1</sup>, and NadeemYaqub<sup>1</sup>

<sup>1</sup>Faculty of Computing and Information Technology  
University of Gujrat, Pakistan

{aneela.abbas,mubbashar.hussain,m.iqbal,  
saqib.pk,wasif.ali}@uog.edu.pk, comcidra\_111@yahoo.com

<sup>2</sup>Department of Information and Communication Engineering  
Yeungnam University, South Korea

{shafiq.pu,nadeem.yb}@gmail.com

**Abstract.** Pakistan is a developing country and peoples of more than 50,000 areas, cover 64% of the whole population, belong to rural. ICTs are the essence of this modern age but unfortunately, the services of ICTs have failed to trickle down the rural masses of Pakistan. We believe that the inadequacy of infrastructure, i.e., behavioral, cultural and social barriers, is debarring ICTs to strengthen its roots in the rural areas. The most vital task is to wipe out this digital division to change the patterns of thoughts and behaviors of the masses of rural areas. In Pakistan many efforts are in the pipeline to reveal the concrete paybacks of ICTs for rural population. The need of the hour is to do so in a way that makes economic reimbursements. This paper deals with the potential barriers barring ICTs in far wide areas of the Pakistan, various fruitful steps taken by the Government of Pakistan to introduce ICT reforms, various policies framed for boosting ICTs and computer literacy in rural areas.

**Keywords:** Digital divide, IT infrastructure, ICT reforms, Computer literacy.

## 1 Introduction

A report by the World Economic Forum, illustrates a miserable condition of ICTs in Pakistan by assigning it at 105 among 144 countries. (The Global Information Technology Report, 2013) In comparison with urban areas, rural areas are far behind in adopting ICTs due to certain reasons. The importance of rural development is not always understood, as the urban people are more visible and more vocal than their rural counterparts [12]. Information and Communication Technologies (ICTs) denotes to the electronic centered technologies like computers, mobile phones and tablets to collect information, and to connect with others [2]. ICTs offer major opportunities to the developing areas in boosting the economic growth, local development and reduction in poverty [3]. Although, it seems absurd that modern information technology facilities, associated in our minds, have any relevance for remote areas of the country

where many millions still lack basic necessities of life. But nevertheless, this IT revolution may become a major source of social and economic development of the rural areas of the country. Rendering to Universal Service Fund, 480 cities and towns of Pakistan are deprived of broadband services with the chief percentage encompassing the rural areas [16]. Furthermore, extensive load shedding in the rural areas has aggravated the condition. Nevertheless, spreading of ICTs in rural areas of Pakistan will be a problematic task [15]. The goal can be endorsed to the point that with the fruition of technology, outspreading ICTs set-ups to rural zones has been a consistent challenge [1] [4].

Modern Facilities are concentrated in urban areas. Provision of health facilities, construction of universities, libraries and hospitals, all confined to the big cities, whilst, Rural areas are deprived of all these. If provided in villages, they are not sufficient or in poor condition. Online education and online libraries are alternative solution to the imperfect facilities of education. BHU (Basic Health Unit) commonly known as dispensaries and lady health workers are the only health facility provided to the villagers. Telemedicine is a feasible proposed solution to provide basic health facilities to the remotes areas of the country. This study is aimed at promoting ICTs for the development of rural zones. Part one of the paper deals with the barriers and hurdles, which ceased the multitudes of countryside to embrace technology. Second part of the papers is about the ICTs reforms introduced in the country. In third part some practicable solutions and recommendations are given to promote ICTs in rural areas of Pakistan. At the end conclusion and future work is stated.

## 2 Objectives

The core objectives of this study were:

- To explore the barriers refraining these underprivileged folks to reap the benefits of ICTs which have revolutionized the whole world.
- To see if the execution of ICTs in Rural areas of Pakistan would have any influence on the life of the masses living in the remote areas of the country.
- To give an insight to the Government of Pakistan about the depressed ICTs condition in rural areas of Pakistan, anticipating some necessary and corrective measures by the concerned authorities.
- To give some suggestions for stimulating and enriching information and communication technologies in rural areas of the country.

## 3 Barriers in Adopting ICTs in Rural Areas of Pakistan

### 3.1 Language Barrier

A key handicap in implementation of ICTs in rustic areas is that the information content is not pertinent to the masses for which it is deployed. As these systems are developed by the people living far away from the rural areas, consequently they have a dense urban-bias. Low literacy rate is a big factor, which debars people to clinch

technology, as mostly kiosks and software's are in English language and the people only know their national or regional languages in most of the areas of the country. So the ICTs and kiosks, therefore have limited efficacy for the masses of rural areas. This problem can be overcome by developing relevant content in native languages and propagating it to more and more rural zones.

### **3.2 Cultural Barriers**

There are some demographic and cultural barriers in promoting ICTs in remote areas of the country. Due to gender divide and stereotypical attitude of the people towards the females, particularly in the far wide areas of the country, acceptance ratio of ICTs in rural areas is far more less than the urban areas. It would be perceived very bizarre in underdeveloped and backward areas, if females use technology and latest communication conveniences like cell phones, Face book and Skype.

### **3.3 Lack of Awareness**

Another key aspect is the unwillingness of the people to adopt change. Low literacy rate is a major cause of this conventional approach of people towards technology. People with backward mindset repel latest technology. They will prefer to do their work manually rather than invoking ICT's. Lack of awareness is a major reason of low penetration and acceptance of ICTs by villagers as they are unaware of the benefits they could reap by opting ICTs.

### **3.4 Computer Literacy**

An acute impediment in promoting ICTs in rural areas is computer illiteracy and ignorance. With poor literacy rate of 53%, the ICT literacy rate particularly in the rural areas of Pakistan is insignificant [3]. The ICT curriculum presently introduced in schools all over the country, does not cater to localization. Even though some schools have facility of computer labs, yet student lack sufficient knowledge to operate computers. Some prominent grounds of low computer illiteracy in these areas are lack of adequate facilities such as adverse IT infrastructure and scarcity of computers, labs and skilled IT staffs in schools of rural areas.

### **3.5 Affordability of ICTs**

Poverty and insufficiency of resources are predominantly a rural problem in Pakistan. It is widely concentrated in rural areas where most of the people are living their life below the poverty line. Rural folks comprising of 2/3 of the country's population, encompass 80 per cent of the country's deprived people [5]. Poor economic condition of the rural masses is a major barrier for less adaptation of technology. In rural areas most of the people have low purchasing power. It's not easy for the people depriving of basic necessities of life to afford these expensive technologies. Subsequently, there

are a very limited number of expected users of technology. However, extension and adaptation of ICTs in rural areas can help to accelerate economic growth. These can play crucial role in eradicating poverty in vulnerable remote areas of the country.

### 3.6 Electricity Shortfall

Pakistan's desperate energy crisis is proving a serious mess for its economy. The energy crisis has shattered Pakistan. Pakistan's development has come to a standstill due to the energy crunch. The country's energy problems are deeper and complex in rural areas. This prevailing power crisis throughout the country, in the rural areas particularly, is another significant factor affecting the smooth operations of the operators and service providers. Thousands of cell sites have to remain functional (24×7 basis) in order to keep the network alive and maintain the quality of service as well. Resolving Pakistan's energy catastrophe will no doubt, help to promote ICTs in rural areas and urban areas as well, but it depends, after how long Pakistan rides out this storm. Extension and promotion of ICTs in rural as well as urban areas owes greatly to viable sources of power [13]. Fig.1 illustrates the barriers debarring ICT's in rural areas of Pakistan.

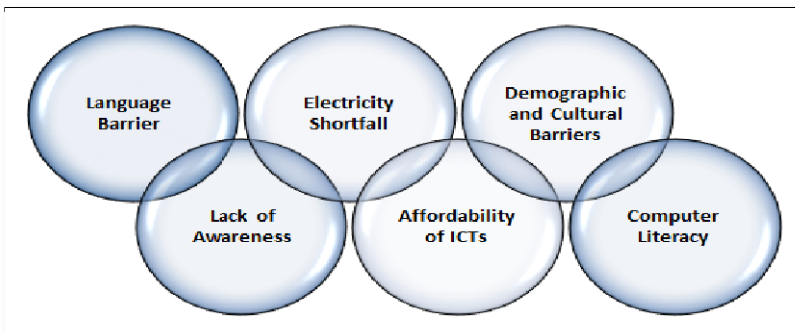


Fig. 1. Barriers of adopting ICTs in Rural areas of Pakistan

## 4 ICTs Reforms: Steps towards Improvement

Being abreast of the problem and admitting the need of ICTs public and private sector has taken some initiatives to promote ICTs in rural areas of the country. Many NGOs are also playing their role in this context. Below are discussed some reforms introduced in the country.

### 4.1 Laptop Scheme

Pursuing ICT reforms in country, Laptops distribution scheme was introduced by Chief Minister of Punjab Mian Shahbaz Sharif in January 2012 for the students of the Punjab. Now government of Pakistan has made a decision to begin Laptop scheme for

students throughout the country. Nevertheless, it's a major milestone in promoting ICTs in far and wide areas of the country. This scheme, no doubt; would leave an extensive impact on the education sector by delivering a prospect to the students of both urban and rural areas to benefit from the latest technology in their academic hunts [20].

## **4.2 IT Labs Project**

Introducing IT labs in far wide areas of the country is a big milestone and achievement as well. Targeting to boost computer literacy in the state, the Government of Punjab laid down the foundation of an ambitious initiative of Punjab IT Labs Project [7] [8]. The Punjab Government envisioned this project to provide computer access to 3.4 million students all over the province. Chasing this goal, the government set up well-resourced computer labs in the 4,286 schools across the far wide areas of the province. If same schemes would be introduced in remote areas of other provinces, it will surely promise ICT revolution throughout country.

## **4.3 Computer Education and Training**

To make the students of the country computer literate, computer education is declared mandatory right from school to university level. Government and policy makers should concentrate on updating the syllabus regularly to keep the students abreast of latest computer knowledge and expertise [6]. Many technical and vocational training institutes like TEVTA are playing their part in this context by offering computer short courses and certifications.

## **4.4 Contribution of Private Organizations**

Many private organizations like 4CCI, ADP and SACHET are also contributing for promoting computer literacy in rural areas of the country.

### **4.4.1 Children Community Initiative (4CCI)**

Rendering to 4CCI (4 Children Community Initiative) computer technology is a solo factor that would take schools and educational institutes from good to best. With this perception, they offer technology incorporated syllabuses augmented by technology setup. These organizations are trying to boost computer literacy all over the country by introducing computer labs crossways the rural areas of Pakistan. This access to computers is intensely complemented by trainings of teachers and students [17].

### **4.4.2 Association for the Development of Pakistan (ADP)**

ADP (association for the development of Pakistan) is backing for launching computer lab and computer learning program in a government school in Noor Lakhani (NLS), Ghotki, Sindh. It targets to extend computer literacy in rustic zones to develop necessary competencies for both education and job effectiveness [4].

#### 4.4.3 SACHET

SACHET established its first computer training center in Village Shahdara in January 2000, for promoting computer awareness and skills in computer illiterate masses of this area. Now it has stretched its branches in other remote areas of the country as well [19]. Fig.2 demonstrates various steps and reforms introduced to promote ICTs in rural areas.

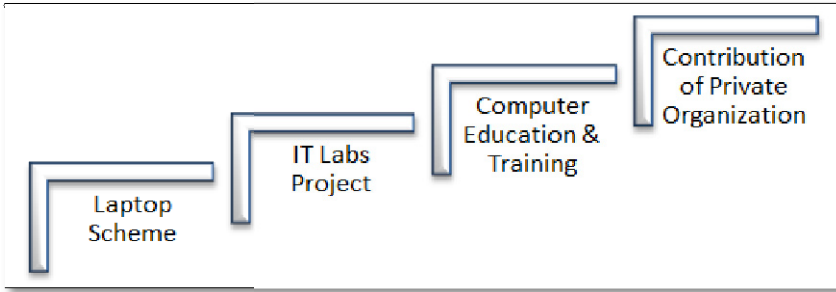


Fig. 2. ICT Reforms- Steps towards improvement

## 5 Solutions and Suggestions

Beneath are revealed some viable solutions and suggestions to resolve this desperate condition of ICTs, envisioning a revolution in the destitute rural areas.

### 5.1 Encouraging Telecom Operators

Government and concerned authorities should encourage telecom operators to invest in rural and far wide areas of the country. By facilitating and giving incentives to operators and ISPs government could “play its role” in encouraging ICTs all over the country. It would be productive if private sector lends a helping hand to the government. Government should encourage competitive entrants of technology to reduce the cost of ICTs. New connection fee should be reduced for rural area.

### 5.2 Vernacular Language Software

The problem of language barrier could be overcome with vernacular language software. Softwares are mostly developed in English language. The need of the hour is to realize that most of the people in rural areas are familiar with their native languages only. So it would be a big deal for them to understand and operate softwares in extrinsic language. In this scenario, it would be desirable to develop computer softwares in vernacular languages, just like China, France, Saudi Arabia and others, to cater non-English speaking people, to ease our illiterate people and to draw them towards latest technologies.

### **5.3 Community Information Centers**

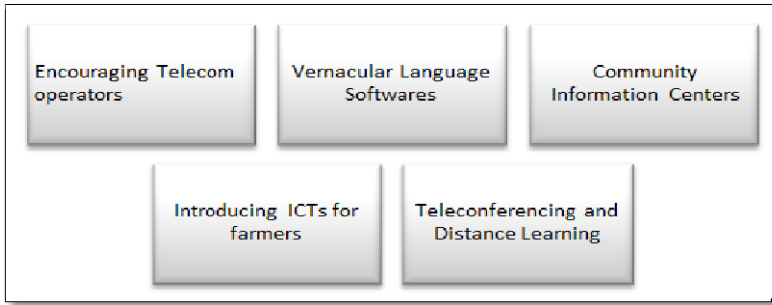
Let's go for notion of "Community information centers", community library Centers and Panchayat Centers throughout the country, making sure the availability of IT infrastructure and services. This worthy concept of a community information center has been proposed by IT Task Force. These community centers could turn into pivots of information and education and it would be a source of ICTs awareness to the people on a mass scale. The community computer can be positioned in internet booths at public places, where people can get information for a small price. Practice has revealed that any kind of workout for the training of the rural people inevitably requires interactivity. By invoking ICTs tools, collaborative learning along with dissemination media such as television and radio would be imaginable [10], [11].

### **5.4 Teleconferencing and Distance Learning**

If, after incurring huge expenditure on various educational schemes, rural areas have not become fully literate, the need of the hour is to transform the education system. There is unanimity among experts and scholars that assimilation of ICTs in education will have a progressive influence on the learning atmosphere and consequently boosting education in these areas. It is evident that ICTs could be implemented fruitfully to stretch out a larger number of students, to whom education was hitherto not easily manageable. In presence of ICTs geographical distance will no more an unbeatable impediment to promote education in far wide areas of the country. Verily, teleconferencing and distance learning would be a viable solution for promoting education in these areas [5].

### **5.5 Introducing ICTs for Farmers**

To improve socio-economic status of folks in villages is to make certain that their yields and merchandises trace right kind of markets within no time and without involving various middle men. Introducing ICTs in rural areas will definitely provide promising opportunities to the producers of rural harvests. By providing direct access to rural markets, internets will permit to promote merchandises of rural and remote areas of country to global markets. The farmers can access latest information on farm technology and produces. The government and development agencies have acknowledged the potential of ICTs and online technologies as an essential tool in promoting agriculture, hence various radical communication and technology schemes have been launched [2]. Fig. 3 gives some guidelines and recommendations to promote ICTs in depriving areas of the country.



**Fig. 3.** Solutions and suggestions

## 6 Conclusion

In nutshell, Improvement in adverse conditions of rural areas owes greatly to ICTs. Information technology could play a crucial role in improving socio-economic conditions of the far wide areas of the country. The upswing of various ICTs and their growing reception and implementation by rural zones will no doubt, provide distinctive openings which could possibly stimulate education, accelerate health facilities and uphold agriculture sector of the country. It's vital need to gauge the adverse situation of ICTs and to take corrective measures to promote them in remote areas of the country. This is the only way to eradicate this digital divide between urban and rural areas.

## 7 Future Work

Future research is needed to augment this research study by conducting a survey in the rural areas to figure out which barriers are more hampering and to identify the views and anticipations of rural masses regarding ICTs.

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