

# ICT in Regional Development

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## INTRODUCTION

Economic development and information and communication technology (ICT) are found to move together in the present day era of globalization. ICT can contribute significantly in economic development of a region by providing adequate information at the minimum of time and cost, thereby enhancing productivity in different sectors of an economy. This fact is substantiated by several studies (Kraemer & Dedrick, 2001; Pohjola, 2001). Some country specific studies like that of Singapore (Wong, 2001) also highlighted similar results. ICT diffusion in the world has been quite rapid since the mid 1990s. While the developed countries have benefited substantially from the ICT growth, the developing countries could not reap similar benefits out of it which has resulted in emergence of a digital divide across the countries (Economist, 2000; Nkrumah, 2000; Norris, 2001). This divide is noticed not only across countries but also within a country and this is more prominent in developing economies like India. ICT diffusion is another area which needs more attention in India as it will lead to ICT access and application of ICT in real sectors to increase productivity and output. During the past one decade India has made rapid ad-

*Table 1. Internet growth in India (Source: Adopted from Globalization, Inequality and the internet in India by Elizabeth C. Hansen [http://www.isanet.org/archive/hansen.html])*

Date	Number of Internet Connections	Number of Internet Users
1	2	3
August 15, 1995	2,000	10,000
March 31, 1996	50,000	250,000
March 31, 1997	90,000	450,000
March 31, 1998	140,000	700,000
March 31, 1999	280,000	1,400,000
March 31, 2000	900,000	2,800,000
August 31, 2000	1,600,000	4,800,000
January, 2001	1,800,000	5,500,000

*Table 2. Internet growth and usage in selected Asian countries (Source: www.internetworldstats.com)*

Countries	Internet users (2000)	Internet users (2004)	Use growth (%) (2000-04)	% population penetration
1	2	3	4	5
China	22,500,000	79,500,000	253.3	6.0
India	5,000,000	18,481,000	269.6	1.7
Japan	47,080,000	64,537,437	37.1	50.4
South Korea	19,040,000	29,220,000	53.5	62.0
Malaysia	3,700,000	8,692,100	134.9	35.3
Pakistan	133,900	1,500,000	1,020.2	1.0
Singapore	1,200,000	2,100,000	75.0	60.0
Sri Lanka	121,500	200,000	64.6	1.0
Taiwan	6,260,000	11,602,523	85.3	50.3
Thailand	2,300,000	6,031,300	162.2	9.4
Vietnam	200,000	3,500,000	1,650.0	4.2

vances in ICT growth as reflected in the increase in the number of Internet connections and users. The growth of Internet connections and users in the country is shown in Table 1.

Thus, Internet growth in India during the second half of 1990s has been phenomenal. However, the country is lagging behind other countries in ICT diffusion. The comparative position of India with some selected Asian countries in terms of Internet growth and usage is shown in Table 2.

The table clearly indicates that there is appreciable growth in Internet use in India over the period 2000-2004, but the penetration is abysmally low at 1.7% of the population whereas in China it is 6.0%. Some other small Asian countries like Japan, South Korea, Singapore, Taiwan have made substantial progress in terms of penetration which is evident from the table. Digital divide is glaringly obvious across different regions of the country. For example, while many states in Western and Southern region of India have witnessed rapid ICT growth and diffusion, states in regions like East and North East are found to lag behind. Out of 28 states and six union territories in India, only five states namely, Karnataka, Delhi, Tamil Nadu, Andhra Pradesh and Maharashtra accounted for 1.4 million Internet connections out of a total of 1.5 million connections in the country in 2000

(Prabhakaran, 2003). Increasing participation of non-governmental organizations (NGO) and private sector is important for bridging the digital divide. Efforts are already going on to achieve this objective by involving private sector companies in many parts of the country<sup>1</sup>. However, infrastructural bottlenecks in the backward regions of the country are found to be a major obstacle in effective participation of the private sector in providing benefits of ICT diffusion to different sections of the society. Hence, the government sector has a crucial role to play in this area. In view of this, the Government of India has initiated efforts to provide the benefits of the ICT revolution to the rural masses through disseminating information and to enhance productive capacity of the rural sector. In line with the stated objectives of ICT diffusion, the Community Information Centres (CICs) Project was conceived and implemented by the Ministry of Communications and Information Technology, Government of India in the North Eastern Region of the country. In terms of providing benefits of ICT, CICs is the first initiative by the government to provide ICT access to the people living in remote areas. Such an initiative may have an impact on the socio-economic development of the region and bring the region closer to the national mainstream.

North Eastern Region of India consists of the eight states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura with a total population of 39,125,582 in 2001 (Government of India, 2002). The CICs project was launched with a pilot project covering 30 blocks in the region including 15 in Assam and was inaugurated in August 2000. By August 2002, CICs were established in all the blocks in the region, including 219 CICs in Assam covering all the 23 districts. These CICs were expected to help the region avail the benefits of global connectivity through the Internet as well as other local benefits.

A year after the establishment of CICs in North Eastern India, including Assam, it was felt necessary to assess the functioning of the CICs in Assam and its role on regional economic development. It was also necessary at this point to find out the expectations of the rural people from these centers. Keeping these twin objectives in mind, the present study was undertaken to examine the achievements of the CICs in Assam taking into account the aspirations of the rural people of the state. An attempt was also made to record the expectations of the users from the CICs in terms of information dissemination and its catalytic role in increasing productivity in the rural sector. This type of study offered promise to provide valuable guidelines to the government and as a result provide different services to the society through diffusion of ICT. It also provided the opportunity for the users to communicate their requirements/local content to the service providers. Such studies also bring out

information on the stages of ICT infrastructure and acceptance of ICT as a tool of development by the users which may act as a guide to the private sector, NGOs, etc. in the process of ICT diffusion.

The following were the specific objectives of the study:

- To examine the functioning of CICs in relation to their stated objectives.
- To find out the socio-economic aspirations of the people at the block level and how CICs could help fulfill their expectations.
- To put forward recommendations for better functioning of the CICs in order to generate ICT awareness among rural people, to narrow the digital divide and achieve regional development.

## CICS IN ASSAM AS A TOOL TO BRIDGE THE DIGITAL DIVIDE

Assam is the gateway to the North Eastern region of India. Because of its prominence in economic activities, contribution of a larger share to the national income and a larger population in the region it was felt to provide a good base for a sample case in relation to ICT diffusion and impact of ICT in regional development.

The case was considered to be reflective to the region as a whole. CICs in the state were set up in order to establish ICT infrastructure, to create ICT awareness amongst the local populace, to provide computer education and training, to provide government to community (G2C) services and to use ICT for sustainable regional development.

To achieve these objectives, each CICs was well equipped with infrastructure including one server machine, five client systems, VSAT, Laser Printer, Dot Matrix Printer, Modem, LAN, TV, Web cam, UPS, generator, telephone, air conditioner etc. The project was jointly implemented by Department of Information Technology under the Ministry of Communications and Information Technology, National Informatics Centre (NIC) and state governments.

The present study was based on primary data, which were collected through field work with the help of structured questionnaires. For collection of data, a procedure of multi-stage sampling was adopted.

In the first stage, nine out of 23 districts belonging to different climatic, geographical conditions and socio-economic groups of people were selected. The districts selected for the study were Kamrup, Nagaon, Jorhat, Dibrugarh, Lakhimpur, Sonitpur, Goalpara, Bongaigaon and Cachar.

In the second stage, two CICs from each of the districts were chosen keeping in mind the intra-district variations in socio-economic conditions. The CICs covered

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