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*ICTs and development: A Study of Telecenters in Rural India*

## **ICTs AND DEVELOPMENT: A STUDY OF TELECENTRES IN RURAL INDIA**

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### **INTRODUCTION**

Telecentre is a generic term for all kinds of arrangement seeking to provide shared and mediated access to information and ICT-enabled services in rural areas through new technologies especially computers and Internet. The concept of shared access emerged as response to the perceived constraint that individual household in rural area cannot afford such technologies (Proenza, Bastidas-Buch and Montero 2001:2). Access is mediated because a telecentre operator mediates between information, technology and the people to overcome the barriers of low literacy, awareness about technology and availability of required skills. In the broad context of ICTs for Development, telecentres have emerged as a popular strategy for bridging the digital divide, providing access to information/technology and delivering a host of applications and services directed towards poverty alleviation and rural development.

### **RATIONALE**

Existing literature on telecentres in the form of reports, case studies in print and on the web, articles etc. is voluminous and consists mainly of descriptive, anecdotal case studies and donor-directed evaluations. The purpose of such publications has been to disseminate experience for directing policy and strategy various agencies. Empirically grounded field-based research is sparse though emerging. But the literature gives a mixed perception regarding the "success" and "failure" of the telecentres (see IIIT-B 2005). Only few projects are cited repeatedly for creating impact (Dagrón 2001). Further, many celebrated and award-winning projects could not scale-up or sustain beyond the pilot phase (Keniston 2002: 3-6; Kothari 2002). The socio-economic impact of telecentres has not been adequately substantiated by field-based investigations (Gómez, Hunt and Lamoureux, 1999:6). The sense of "not knowing for sure" as to whether telecentres and ICTs for development is "more hype than hope" warrants empirical evidences, especially to comprehend their long-term social and developmental impacts. This study is an attempt to contribute to this important and emerging area of research. Its significance lies in that as on 2006, a rough estimate indicated around 12,000 telecentres dotting the various parts of rural India. With the formation of a national alliance under the aegis of Mission 2007 to establishing knowledge centre in 100,000 villages and the policy level endorsement by the Government of India to set up around 100,000 Common Service Centres all across the countries under its National E-Governance Plan, telecentre in rural India is expected to increase manifold ([www.gga.org.in](http://www.gga.org.in); [www.mit.gov.in](http://www.mit.gov.in)). It thus becomes imperative to examine the changes induced by telecentres in rural India.

### **CONCEPTUAL FRAMEWORK**

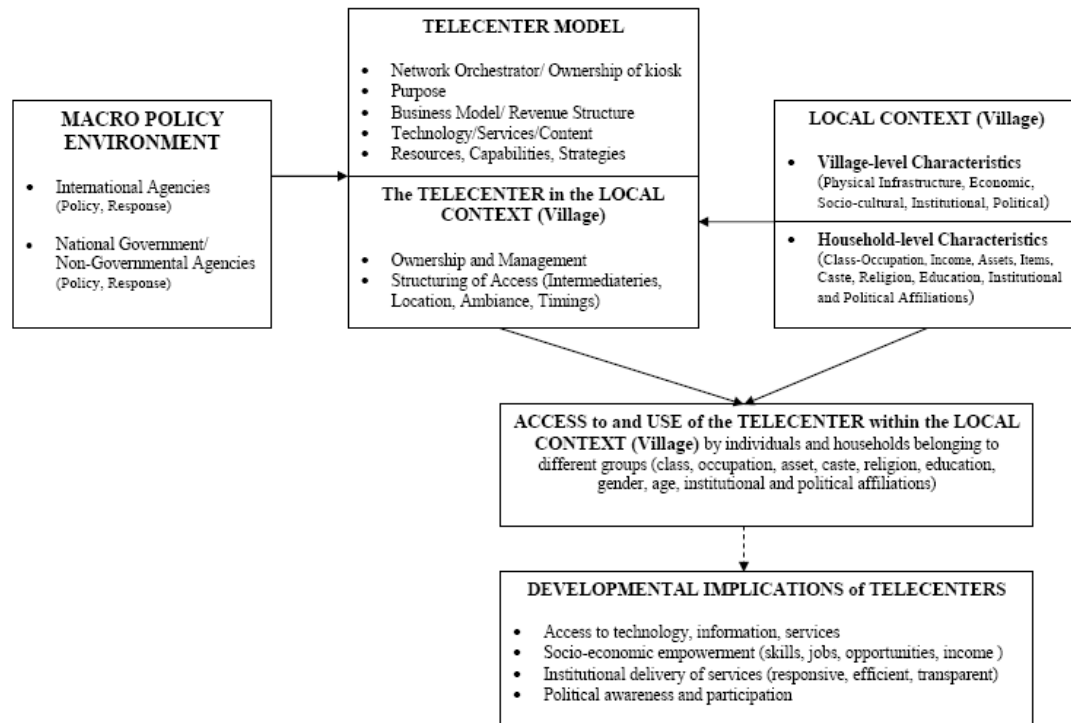
Review of literature and preliminary fieldwork revealed the elusiveness of observing, measuring and establishing the causal linkages between provision of technology/information and development. As interventions, telecentres are often deployed as part of broader development/business goals, making it difficult to map explicitly a particular development outcome say enhancement of the quality of life, increase in income or increase in efficiency of service delivery to the provision of information and new technologies via a telecentre. Thus, this study attempts to draw the developmental implications of telecentres by examining

the pattern of access and use of the telecentre and its services by individuals and households in the village. This approach is based on the assumption that technology access and appropriation is differentiated across different groups and sections within the village; an examination of access/non-access and use/non-use of its services would give an indication of the possible impact on different groups and consequently to the village as a whole. The framework and design was also shaped by the exploratory nature of the endeavour because of the newness of the phenomenon in terms of technology deployed, and in the method, process and context of deployment.

While the literature on telecentres in rural India contributed towards identifying the key components of the conceptual framework and focussing the topic of research (for example, Blattman, Jensen and Roman 2002; Harris 2001; Whyte 2000 ); literature from other disciplines and area of studies like rural sociology, diffusion of innovation, village-level studies on media and technology adoption, and digital divide were also referred (For example Hartmann et.al. 1988; Johnson 2000; Desai 1979; Rogers 1983). The framework thus is a generic one, not situated in a particular discipline or adheres to a particular theoretical framework. The conceptual framework (See Figure 1) puts forth that the telecentre located in a village is embedded within the external macro policy environment and the local contextual characteristics of the village. Further the organizational characteristics associated with a particular model shape some of the characteristics of the particular instance of the model in the village and the pattern of its access, use and impact.

The macro policy environment is taken as the policy environment related to telecentres at the international, national and state levels. The policy environment is shaped by the policies and plans of the various types of governmental and non-governmental (both for-profit and non-profit) agencies at each different level. Broadly they set the directions of the developmental programmes, influences issues like research and development of technology, provision of funds etc. The response at the national and state level to the macro policy environment especially in terms of allocated resources, programmes/projects initiated and other support also influences how the telecentres are deployed in rural areas.

FIGURE 1: CONCEPTUAL FRAMEWORK



The local context is the environment immediate to where the telecentre is located. It is described in terms of both village level features and household level characteristics. Table 1 delineates the parameters considered under various dimensions: infrastructure, economic, social, cultural, institutional and political. These dimensions and the parameters are not independent of each other, but have categorized for conceptualization and data collection. Along with the characteristics of the telecentre, the local context determines the short-term impact and the long-term developmental implications of telecentres in general and the specific model in particular. Within villages, members belonging to different households access and use the telecentre depending on their need, available resources and capabilities which in turn is shaped by interplay of various contextual level characteristics.

TABLE 2  
DIMENSIONS AND PARAMETERS FOR DESCRIBING THE LOCAL CONTEXT  
(VILLAGE AND HOUSEHOLD LEVEL CHARACTERISTICS)

Sl. No.	Dimension	Parameter
1	Infrastructure	Physical infrastructure (electricity, roads and transport, telecommunication facilities)
2	Economic	Class structure (occupational pattern, income and assets)
3	Social	Caste hierarchy, Gender relations, Literacy level/ Educational status
4	Cultural	Norms (governing interactions between groups), practices (social, religious, cultural)
5	Institutional	Formal and informal institutions in the village
6	Political	Representation of the village in elected bodies.

Table 2 and Table 3 list the main descriptors for the telecentre model and its instance located in the village. The type of the agency carrying the responsibility of orchestrating the network primarily determines the model of a telecentre. The agency has a basic purpose of setting up kiosks in rural area that in turn effect issues like ownership of kiosks, business model, technology deployed, and services provided etc. The type of agency also determines the

organization structure and managerial capability to handle bottlenecks like infrastructure, content availability etc, replicate and scale in different geographic locations, and in general the capability to take risk and tolerate it. The instance of a particular type of particular model at a location would inherit some features of the telecentre model and since it is located in the village, would also have some influence of the local contextual characteristics.

TABLE 3  
DESCRIBING THE TELECENTRE MODEL

Sl. No.	Descriptors
1	Network Orchestrator (Type of agency, ownership of kiosk, purpose, structure, processes)
2	Business model / Revenue structure
3	Services and Technology (hardware, software including content, connectivity, electricity/ power)
4	Resources, Capabilities and Strategies of the NO (including partnerships)

TABLE 4  
DESCRIBING THE PARTICULAR INSTANCE OF A MODEL (THE TELECENTRE IN THE VILLAGE)

Sl. No.	Descriptors
1	Ownership and Management (kiosk owner, staff and volunteers)
2	Services provides (as per model characteristics and other localized services)
3	Structuring of Access (intermediation, location, ambience, timings)

As stated before, the developmental implication of the telecentre within a local context is assessed in terms of the pattern of access and use of its services by households belonging to different socio-economic groups and individuals living in the village. Access itself has multiple meanings. Apart from the implied technological connotation, access is also a physical, social and structured construct. The telecentre has to be located at a place that is physically accessible to all, including women. Further, it should be socially accessible in that people are able to enter its premises irrespective of socio-economic status, caste, education etc. Access is structured because often the network orchestrator and the kiosk operator design it to be so. Use refers to the actual services availed by the people. Since telecentres provide shared and mediated access, use does not necessarily indicate that people have to use computers and Internet.

## RESEARCH QUESTIONS

Based on the conceptual framework, the research questions are:

1. What is the pattern of access and use of a telecentre and its services by households belonging to different groups (class, caste, occupation, religion, education, age, and gender) in a village?
2. How is the pattern of access and use shaped by the local context, the telecentre model, and its particular instance located in the village?
3. What implications can be drawn with regards to telecentres and development?

## RESEARCH METHODOLOGY

The exploratory study follows the interactive process of research design as put forth by Maxwell (2005); some aspects of the methodology were made prior to the framing of the research questions and various aspects of the design has been kept flexible and emergent. It adopts a qualitative nature of inquiry with case study as the research strategy using multiple and mixed methods of data collection. The unit of analysis is the particular telecentre located within the village. The fieldwork was conducted between November 2005 and May 2006 at four different villages in Gujarat, Kerala, Maharashtra and Uttar Pradesh with Chiraag-Banas,

Akshaya, e-Choupal and Drishtee respectively. All the chosen kiosks were considered to be “successful” by the related network orchestrator. Access to the field was facilitated by the organization and the key informant was the kiosk entrepreneur. The researcher stayed in the village with the kiosk entrepreneurs and their families for 10-20 days and collected data via observation, semi-structured interviews and group discussions. Semi-structured interviews were conducted to collect the details about the selected households and the nature of their interaction with the telecentre. The households were selected on a purposive basis to cover those a) belonging to different socio-economic categories within the two dominant religious groups, b) at least one representative household from the multiple castes in the village and c) had availed some specific services like education or soil testing.

The conceptual framework, propositions and simple descriptive quasi-statistic is used for within case and cross-case comparative analysis. Households at all the locations were grouped on the same socio-economic parameters (like socio-economic status of the households, occupation, possession of land and other household items, caste, religion, education, institutional and political affiliations). The pattern is then examined in terms of number of services and type of services availed by these groups. Although the findings of the individual case studies on telecentres located in particular villages cannot be generalized to any other context; the comparative analysis of case studies enabled drawing commonalities and differences with regards to the pattern of access and use across different contexts.

## **PRELIMINARY FINDINGS**

The preliminary findings are based on the first-cut analysis of the empirical data. It is affirmed that the pattern of access and use of telecentre services varies across different socio-economic groups (class, occupation, caste, religion, education, age, gender, political and institutional affiliation). In general, the variation in pattern of access and use by households/individuals depends on the service and the way its delivery is structured. At an aggregate, households with lower socio-economic status access and use telecentre less than those belonging to higher socio-economic class. Within a village, the extent to which individuals and households with particular occupation access and use more depends on the occupational pattern of the village, the services provided by the telecentre and the extent to which the telecentre caters to the information/service needs related to occupation. Education of the user plays a role for services like computer education or web browsing, but not for services like digital photography, bill payment, photostat etc. Households belonging to all castes access the telecentre, although at some locations the percentage of user households belonging to lower castes is comparatively less than others. In general, individuals of all age groups access and use the telecentre although there is a variation in the service being used. Further, there is much variation across the four locations in terms of access of the telecentre by women belonging to different age-groups. Influence of physical infrastructure like roads and transport on the pattern of access and use depends on the service, presence of alternate channels, and the cost versus quality provided by the two channels. Electricity affects the pattern of access and use depends on the service, its dependence on electricity, and the way the kiosk owner is managing its availability. Similarly, the extent to which Internet connectivity is important/ critical depends on the dependence of these services provided on Internet and the amount of revenue the services generate.

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