

Working Paper 4

TELECENTRE INITIATIVES IN RURAL INDIA: Failed Fad or the Way Forward?

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Foreword

This paper has been prepared as part of the TeleSupport project. Further details about the project are given in section 3.9 of this report, and on the project's website - <http://telesupport.org> We hope that the paper will be useful to others involved in improving rural people's access to and use of information; and we welcome comments on it, which should be sent to the author at: m.a.conroy@gre.ac.uk

The TeleSupport project is one of several projects implemented by NRI and its partners in the important area of *Communication for Development*. Further information about our programmes can be obtained by contacting our respective organisations as indicated below:

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Abbreviations

BPL	Below poverty line
COW	Computers on Wheels
DA	Development Alternatives
DISK	Dairy Information Services Kiosk
DRDA	District Rural Development Agency
GPS	Global positioning system
ICTs	Information and communication technologies
IICD	International Institute for Communication and Development
IP	Information Provider
IPM	Integrated pest management
ITC	Indian Tobacco Company
MACTCS	Mutually aided co-operative thrift and credit societies
MANAGE	National Institute of Agricultural Extension Management
MSSRF	M.S. Swaminathan Research Foundation
NDDDB	National Dairy Development Board
NFP	Not-for-profit
NGO	Non governmental organisation
PM	Profit-making
RKC	Rural knowledge centre
SHG	Self help group
TARA	Technology and Action for Rural Advancement
UHF	Ultra high frequency
UPS	Uninterruptible power supply
VoIP	Voice over internet protocol
VSAT	Very small aperture terminal

1. Introduction

Modern and high tech information and communication technologies (ICTs) have been championed with great zeal and enthusiasm by some as a means of poverty reduction. The impact of ICT-based projects has generally fallen well below the optimistic expectations generated by their protagonists, and consequently they developed a bad name in development circles (Beardon, 2005). The non-sustainability of many telecentre initiatives echoes that of agricultural projects in the past. Twenty five years ago Bunch wrote that the “rusting hulks of well-intentioned but long-forgotten giveaways are scattered all over the Third World ...tractors.. ploughs, cultivators, generators, threshers, pumps .. grain mills.. that were never repaired after the first time they broke down” (Bunch, 1982). Whereas, more recently Beardon wrote, in a similar vein, that “stories abound of government or NGO sponsored telecentres lying empty, equipment abandoned or stolen” (Beardon, 2005).

This paper critically reviews a number of themes and issues relating to one type of modern ICT intervention, namely rural telecentres. After reviewing some of the literature on telecentres in general, it focuses on telecentres in rural India, providing brief descriptions or case studies of nine initiatives. In the final section it revisits some of the themes identified from the general literature and relates the case study experiences to them.

India is an unusual country in having a large proportion of the poorest people in the world, while also having a rapidly growing economy and major commercial and manufacturing capability, including extensive expertise in modern ICTs. It is also densely populated compared with most of sub-Saharan Africa, and its rural infrastructure is improving quite rapidly in most areas. In many ways, therefore, it is better placed to exploit the potential of modern ICTs than most less developed countries.

1.1 What is a telecentre?

One narrow definition is that a telecentre is a place that offers the public connectivity with computers and networks (Roman and Colle, 2002). However, there is increasing evidence that projects are more likely to be successful if computer and internet-based services are only one of several components. Bearing this in mind the following broader definition may be more appropriate: i.e. a telecentre is “**a public place where people can get a variety of communication services**, and where a major part of the operators’ purpose is to benefit the community” (ibid). In the Indian context, however, the majority of telecentres are profit-making, and it is debatable, therefore, whether “a major part of the operators’ purpose is to benefit the community” – although they will, of course, claim that it is.

Even the term ‘telecentres’ is arguably out-dated, because of its implicitly narrow focus, and a broader term like ‘knowledge centres’ or ‘information centres’ may be more appropriate. Other related terms in the Indian literature, often used interchangeably with ‘telecentres’, are ‘information kiosks’ and ‘cyber dhabas’.

2. Key Parameters, Themes and Issues

2.1 Type of telecentre model

A simple distinction can be made between profit-making and not-for profit models.

Profit-making (PM) In India the majority of telecentres have been established as profit-making initiatives, by national organisations like Indian Tobacco Company (ITC) and Drishtee. The relationship between the parent company and the telecentre manager may vary. Both the parent company and the telecentre manager may be working in a profit-making mode. A franchise business model is usually used in PM initiatives in which the franchisee pays a license fee and a deposit at the outset, and then an annual fee.

Not-for-profit (NFP) In India, only a minority of telecentres operate in a not-for-profit mode: these are established either by NGOs or local government. Within this type, some projects may charge for services, so as to at least partially cover costs, and some not.

2.2 Services offered by telecentres and uses made of them

Some projects/initiatives seek to improve access to government services and to increase transparency and accountability (e-governance); some are more market and commerce-oriented (e-commerce); and some provide a combination of these services. Sectors commonly covered by services include agriculture, education and health. In this paper the provision of information designed to improve agricultural production or marketing is categorised as an e-commerce service.

It has been suggested that telecentres, if they are to be successful, “must be in the information and communication business (or the community development business), not only the computer and Internet business ... It is this broader approach to the Information Society that helps centres become more firmly woven into the fabric of the community and puts them on the road to self-sufficiency” (Roman and Colle, 2002). Others might argue that community development comes first, and that this should shape the approach, technologies and priorities followed in relation to information needs and uses (Beardon, 2005).

2.3 E-readiness: local and state-level context

As far as location is concerned, three different categories of e-readiness have been suggested, namely high, medium and low (Heeks, October 2005a). Some aspects of e-readiness are determined by local conditions, and some by regional ones. In India, state e-governance policies are an example of the latter.

Local context At the local level e-readiness can be defined in terms of factors such as:

- incomes of rural people in the area (higher incomes means better chance of payment for services)

- education/skills of potential users (illiteracy and low levels of education are barriers to use)
- ICT infrastructure (e.g. quick and reliable access to internet)
- transport infrastructure (influences physical accessibility of telecentre).

ICT infrastructure includes:

- whether broadband is available/used
- power supply situation
- access to ICT skills to maintain & repair computers.

State context Government policy, at both the state and national levels, can strongly influence the success and sustainability of telecentres and other ICT initiatives. This is another dimension of e-readiness. “A national policy can give visibility and help mobilise resources for building the infrastructure and programmes that promote access and use of information and communication technologies” (Roman and Colle, 2002). At the state level in India, some governments have given policy support to ‘e-governance’, and made a positive effort to facilitate access to their services via telecentres and the internet. Key indicators of government e-readiness are (Department of Information Technology, 2003):

- Special efforts made to promote e-governance in particular sectors
- Online facilities available to the public
- Government network coverage
- Computerisation of records
- Development of skills among government employees
- Re-engineering of government processes.

2.4 Community involvement/ownership

Experience suggests that, at least in the case of NFP initiatives, a high level of community participation and ownership in the operation and use of a telecentre has a major bearing on its success and sustainability (IICD, 2006); and it has been recommended that “Telecentre management need to develop an explicit participation strategy in the planning stages” (Roman and Colle, 2002). One of the three guiding principles proposed by M.S. Swaminathan Research Foundation (MSSRF) is that the provision of telecentres (or Rural Knowledge Centres) “is a people-centred programme based on community ownership. The community as a whole must endorse it” (MSSRF, undated).

However, participation will only work if there is a genuine demand and if people perceive the services offered as important and potentially valuable to them. For this and other reasons it has been argued (Heeks, 1999) that the following three questions should be asked where participation is being considered:

1. What is the political and cultural context?
2. Who wants to introduce participation and why?
3. Who is participation sought from? Do they want to, and can they, participate?

In some developed countries (e.g. Australia, Canada) **volunteers** from the local community have made an important contribution to the success of telecentres – in supervising facilities, and also by providing telecentre clientele with (role) models with whom they can identify and feel comfortable (Roman and Colle, 2002). The same is also true of some initiatives in India.

2.5 *Relevance of information offered*

Much of the information available via electronic networks may not meet communities' needs for local information (e.g. on agriculture, health, nearby markets); and that which is available may have questionable content (e.g. unproven technologies) or be presented in forms that are not user-friendly. Furthermore, "few telecentres or web page hosts do systematic research on a community's information needs and wants ... they tend to *sell* rather than to *serve*" (Roman and Colle, 2002); and needs analysis is sometimes done in a top-down fashion (Heeks, 2005b).

2.6 *Gender, access and equitability*

Access has been defined as "the economic, sociological and psychological factors that influence persons' opportunities to use the technologies" (Roman and Colle, 2002). Many projects have talked about community access as a general concept (Beardon, 2005), failing to recognise that there is often a high degree of socio-economic differentiation within villages; and that this differentiation means that access to the centre and to information will tend to be skewed towards the powerful and better-off unless the project makes a conscious effort to ensure access and involvement of more marginal groups.

Anyone making a visit to a telecentre will incur costs, either the opportunity cost of the time taken and/or the financial cost of a bus fare or fuel costs – and some people may be less able to afford these costs than others. Cultural factors could also deter or restrain members of certain groups from visiting a centre; and in India lower castes may find themselves excluded. A large proportion of women may be similarly affected, and those that are able to visit may be restricted to daylight hours and particular times of day. Literacy, or lack of it, is another obvious barrier – and literacy rates among women are generally well below those of men.

2.7 *Financial viability*

Telecentres require a high level of investment, and need a substantial and steady income to cover the capital and operating costs and to break even or generate a profit. In poor rural areas low incomes, and low awareness of potential services, may make it difficult to generate a significant income from charging customers.

2.8 *Training*

Experience has shown that the training provided to telecentre operators/managers can have a crucial influence on the viability of the project. Another key issue is whether effective training is provided to community members – for example, in MS Office software, accessing government services, using email and telecentre management.

3. Nine Telecentre Initiatives in India

This section describes eight previous/existing Indian telecentre initiatives in terms of the parameters/themes described above; and also the Telesupport Project. They were selected to cover a wide variety of initiatives, in terms of models (profit and NFP), initiating agencies (NGOs, government and private sector), objectives, locations etc.

3.1 Gyandoot

Project description: initiator, objective(s), hardware and location(s) Gyandoot was initiated in January 2000 by the district administration of Dhar, a district of Madhya Pradesh. Kiosks were established in several blocks in the district. Gyandoot is managed by a society called ‘Gyandoot Samiti’. Its *objectives* were to provide useful information to people in rural areas, and to act as an interface between the district government and ordinary people.

Hardware Information kiosks have dial-up connectivity through local exchanges on optical fibre or ultra high frequency (UHF) links. The server is a Remote Access Server housed in the computer room in the district Panchayat.

Type of telecentre model The telecentres follow two models of ownership: a purely entrepreneurial one, in which a local entrepreneur makes all the investments (*entrepreneur model*); and one in which the Panchayat makes some major contributions (*Panchayat model*).

Services offered by telecentres and uses made of them Gyandoot has provided both e-governance and e-commerce services. These have included:

- copies of land records
- agriculture produce auction centres prices
- on-line registration of applications
- on-line public grievance redress
- village auction site
- information about government programmes
- on-line matrimonial advertisements
- email, STD-PCO, photocopier (at some kiosks).

The telecentre operators (*soochaks*) are also allowed to offer services outside the purview of Gyandoot, mainly so that the centres can be economically viable.

E-readiness: local and state-level context *Local* Dhar is a “typical tribal and backward district of India”. Sixty percent of the people are classified as below poverty line (BPL). The ICT infrastructure in Dhar was poor. “Lack of reliable basic infrastructure such as power supply and connectivity has led to the partial or total closure of many *soochanlayas* (telecentres)” (IIMA, 2003). Steps were taken to improve power supply through the use of solar power; and to improve connectivity through WiLL technology.

State-level The government of MP cooperated in making various government services available on the internet. However, the backend processing for all government services continued to be manual, and the delivery of services followed the traditional routes instead of taking advantage of the ICT infrastructure available at the telecentres; and consequently response times were slow.

Community involvement/ownership There was substantial ‘buy-in’ at the district level, where the District Collector was President of Gyandoot Samiti. At the telecentre level *the entrepreneur model* does not encourage community involvement. In the *panchayat model* the Gram Panchayat provides the physical space, and pays for the hardware and other infrastructure and electricity costs (IIMA, 2003). Nevertheless, it appears that local people do not have much sense of involvement or ownership.

Relevance of information offered During the design phase, villagers were consulted at various meetings, and information needs identified. Nevertheless, an evaluation concluded that the “information and application services related to schemes for the socially and economically backward citizens have not received adequate attention” (IIMA, 2003). According to the evaluation, the rural poor do not perceive Gyandoot as a platform for them to seek services from the government, even when they have a need (IIMA, 2003). Although some of the services are relevant to the poor there are alternative and preferred ways for them to obtain these services.

Access, gender and equitability This initiative has been quite inequitable in that “Users of Gyandoot services are overwhelmingly male, in the higher socio-economic categories and in the young to middle age grouping” (Jafri *et al.*, 2002). This is at least partly due to lack of relevance of the services to the poor. It is not clear whether the poor and women experienced any barriers to accessing information, although ActionAid has suggested that information about land records that was meant to be available to the poor was deliberately withheld from them by village councils (Beardon, 2005).

Financial viability A nominal transaction fee was charged to each user for services provided; but the revenue generated from the Gyandoot services was grossly inadequate to break even (IIMA, 2003). The number of transactions was low, and the average monthly revenue per *Soochanalay* was about Rs 150 in 2003¹.

Success The villagers perceive a shift in corruption levels, especially in terms of access to information and reduced harassment by government officials; and government officials believe that Gyandoot has improved their accountability. However, in most respects this initiative has largely been a failure. The evaluators concluded that “the project management needs to seriously examine the suitability of the current approach to the solution of improved service delivery to the poor” (IIMA, 2003).

3.2 Computers on Wheels

Project description: initiator, objective(s), hardware and location(s) Launched in 2003, computers on wheels (COW) is a mobile information delivery system. The

¹ At exchange rates prevailing on 1 July 2003 this was equivalent to about 3 Euros or 2 British pounds.

project is managed by ViDAL, a non-profit charitable trust based in Hyderabad. *Objective* It explores ways in which opportunities for social and economic development can be created by overcoming health and agricultural problems. *Location* It currently works in 14 villages of Mahboobnagar district, Andhra Pradesh. *Hardware* Each village is visited once a week by one of two trained Information Providers (IPs) equipped with a modified motorbike, computer equipment (laptop) and cell phone internet link. The COW equipment is packed into a weather- and shock-proof solar-powered case that carries and recharges the laptop. The case also holds a printer, camera and accessories, as well as a portable tent. The entire system mounts onto the rear of a dirt bike, which is designed to enable access to villages without passable roads. The IPs demonstrate interactive software and content, which is stored on the laptop's hard-drive. Internet access is via the cell phone, but the connection is expensive and signal coverage is limited – so the system is used for short uploads and downloads rather than extended web browsing. If villagers make requests for particular kinds of information, the IPs can also return to the village after having connected to the Internet elsewhere.

Type of telecentre model It aims to be profit-making for the IPs, but it also has a pro-poor philosophy.

Services offered by telecentres and uses made of them The IP provides a range of services designed to address health, educational and agricultural needs. Each service draws upon the knowledge of many outside experts and well wishers who support the project voluntarily or with little remuneration. The services are:

- Health queries and replies
- Agriculture queries and replies
- Digital images and printing
- Adult computing education services, such as tutoring in Photoshop, word processing and desktop publishing
- CD ROMs with local cultural content, like mythological stories
- Web-based services with health examination results.

Another service has been developed to help women's SHGs to keep electronic and digital records of their accounts and photographs for group management (Crompton, 2006). There are plans to expand the range of services offered, including: government-related information, market price information and trading support.

E-readiness: Local and State-level Context *Local* Mahboobnagar is one of the poorer districts in AP. It is semi-arid, and drought is a continual problem. Seventy percent of villagers do not have access to telephones or electricity.

Community involvement/ownership Not known – except IPs are recruited from local area.

Relevance of information offered Not known generally. However, “many community members have embraced COW's educational and training services with almost unreserved enthusiasm” (Crompton, 2006).

Access, gender and equitability The mobility of the computers makes this system highly accessible physically. In addition, the IPs visit the villages in the evenings, when farmers have more free time. Information accessed from Internet is in English, and hence has to be translated by the IPs.

Financial viability Each IP is provided with a fixed monthly wage; and it is hoped that each IP will earn enough revenue from the service (s)he provides to become financially independent of the project. The IPs are also paid a percentage of the revenue gathered from COW services, and it is envisaged that this will rise as the project scales up. In the future, COW is hoping to subsidise the medical advice service using revenue from non-essential but popular services, such as events photography (Crompton, 2006).

Success There seems to be a lack of information about the project's achievements.

3.3 MSSRF's Rural Knowledge Centres

Project description: initiator, objective(s), hardware and location(s) This programme was initiated by M.S. Swaminathan Research Foundation as an experimental project in Pondicherry in 1998. The *objective* is to use ICT for poverty alleviation in rural areas. By December 2004 it had established Rural Knowledge Centres (RKC) in 12 villages in Pondicherry (initially there were seven), based on a 'Hubs and Spokes' model. The technological hardware was originally a makeshift modem-and-radio set-up, but now new commercial wireless networking equipment gives villagers high-speed wireless telephone and Internet access. The current phase is utilising and assessing: WiFi, 2.5 G mobile technology, geographical positioning system (GPS) for fisherfolk, VoIP for low-cost long distance voice communication, and RailTel. There is solar power backup, and video-conferencing facilities. MSSRF recommends that each RKC should have 2-3 computers, a web camera, phone, printer and notice board.

MSSRF has been scaling up its ICT work, which now comes under the umbrella of the Jamsetji Tata National Virtual Academy for Rural Prosperity (NVA). There are now a further four block level hubs in Tamil Nadu, each in a different district; and there is also a state-level hub in Chennai. The state level hub, located at MSSRF, is the knowledge resource that creates and maintains web sites and databases for the local hubs – in close collaboration with national and international agencies. "It is an information system that establishes lab-to-lab, lab-to-land, land-to-lab and land-to-land linkages" (MSSRF Annual Report, 2004-2005).

Type of telecentre model This is a NFP model. There is a charge for some services and not for others. Local people are expected to make financial contributions to the operation of the centre.

Services offered by telecentres and uses made of them The NVA aims to provide information and knowledge related to drought, climate management, augmentation of water, maximizing crop yield and markets. It provides the services of tele-education, tele-medicine, online decision support, interactive farmers' advisory services, tele-fishery, weather services and water management.

Media offered/used by RKC/telecentre MSSRF RKC also use radio and produce a newspaper. A twice-monthly newspaper was launched in early 2002 “to reach those beyond the knowledge centres’ ambit”. The newspaper has been particularly popular. In addition, “All the centres regularly hold video conferences between the rural communities and experts, between farmers, between SHGs and between farmers and manufacturers” (MSSRF Annual Report, 2004-2005).

E-readiness: Local and State-level Context *Local* When the project began there was a near-total absence of modern telephone infrastructure in the area, and a 3-5 years wait for standard phone lines. Rural power supply was sporadic, so solar power was provided as backup. The system moved data at less than a tenth of the speed of current dialup modems in N America and Europe. The ICT hardware context is now far more favourable. Literacy rates are very high in Pondicherry.

Community involvement/ownership MSSRF says that its aim is to transfer ownership of its RKC to the local communities. It also recommends that there should be a management committee consisting of several experts, representatives from NGOs and members from the rural community.

Relevance of information offered There do not appear to be any publicly available independent assessments or evaluations, therefore it is difficult to comment on information relevance. However, MSSRF advocates conducting a needs assessment early on.

Access, gender and equitability Before setting up the RKC project staff ask participating villages to agree to certain conditions, including guaranteeing access to Dalits, and ensuring that at least half of the trained volunteers are women. The newspaper is intended to extend geographical coverage. Even illiterate villagers can benefit, as information is sometimes downloaded from the internet as audio files and then played over public address loudspeakers. The initiative has aimed to recruit mainly women and volunteers at the centres, and claims that this has “changed traditional gender roles”. Nevertheless, according to Sarkar, research by Prof. Ashwani Saith, from the Institute of Social Studies in the Hague, suggests that the poor remain under-represented in accessing the knowledge centres (Sarkar, 2004).

The computers run Microsoft Windows and Office software with Tamil fonts developed by GoI.

Financial viability Not seen any independent assessment/evaluation, therefore difficult to say. The *costs* appear to be quite high, but the *benefits* may also be high.

Success This programme has benefited a wide range of villagers in numerous ways. For example, “..female agricultural labourers who are paid partly in grain use the centres to stay informed about grain market prices. Fishermen, dairy farmers, and coconut sellers also keep a watch on product prices. Teachers prepare lessons and students do homework. Panchayats, or local councils, do their accounting and correspondence, and gain access to grants for infrastructure Many morning users come to centres to read newspapers. Everybody relies on weather reports” (Shore, 2005).

3.4 E-Choupals

Project description: initiator, objective(s), hardware and location(s) ITC has established 5,100 computer kiosks (eChoupals) in 5 states covering 31,000 villages, servicing 3.5 million farmers. The transactions in 2003/4 were worth US\$ 100 million. This is the largest information technology-based intervention by a corporate entity in rural India (ITC website). ITC aims to have 20,000 Choupals in 15 states covering 100,000 villages by 2010.

Lead farmers are trained in the operating aspects of the technology, while children in the villages are able to use ITC's computers for schoolwork. A trained farmer is called a *Sanchalak*, and the choupal is located in his house. Warehousing hubs are also established.

Type of telecentre model It aims to be profit-making for ITC. It is a "flexible business model". Farmers do not pay for information, but may purchase inputs from ITC or market their produce via ITC. ITC argue that "latent value [is] extracted from the unevolved markets in an emerging economy" (Sivakumar, 2004). It appears that ITC's model creates a win/win situation for itself and its farmer clients.

Services offered by telecentres and uses made of them Include:

- Real-time information on commodity prices, local weather, news
- Customised knowledge (on farm management and best practices, risk management)
- Supply chain for farm inputs
- Direct marketing channel for farm produce (resulting in lower transaction costs, better value through traceability).

Through the Choupals ITC sources a range of agricultural commodities, i.e. oilseeds (soyabean), grains (wheat), coffee and aquaculture. There are vernacular websites relating to each crop that ITC deals in. ITC is also running a pilot project to provide rural health services.

E-readiness: local and state-level context For this model to work ITC has to change both the local and state-level context. It upgrades power supply and telecom bandwidth (by investing in broadband) **locally**. It has also set up VSAT links to overcome connectivity problems. At the **state level** it has to wait until the state has reformed the Agricultural Produce Marketing Committee Act (APMC Act) before it can purchase grain from farmers directly. It also encourages the state to charge "moderate taxes", so that it is on a level playing field with competitors who are involved in tax evasion (Sivakumar, 2004).

Community involvement/ownership Seems to be pretty limited.

Relevance of information offered Much or most of the information is presumably highly relevant, otherwise farmers would not participate, and ITC would not be able to make a profit. However, it is relevant primarily to commercially oriented farmers growing particular crops.

Access, gender and equitability This initiative does not have equity as an objective. It appears to be mainly servicing better-off male farmers, and has been criticised for not involving women and lower caste farmers (Gurumurthy, 2004).

Financial viability ITC obviously believes that this is, or will be, profitable for them. Whether they are yet making a profit is not yet clear, and may be commercially confidential. It is rumoured, however, that this initiative will not move into profit until at least 2010.

Success ITC says that farmers are benefiting from its services in the following ways:

- Lower transaction costs
- Empowerment through information (e.g. in negotiating with traders other than ITC)
- Technical knowledge for higher yields.

It says that farmers' output prices have increased by 20 percent, and that crop yields are also increasing.

3.5 *Drishtee*

Project description: initiator, objective(s), hardware and location(s)

Initiator Drishtee describes itself as an India-based platform for rural networking that provides IT-enabled services to rural and semi-urban populations. Drishtee facilitates the creation of a rural networking infrastructure. Through a network of village kiosks, Drishtee and the local entrepreneurs deliver ICT-based services to the rural population. So far it has licensed 309 kiosks. Drishtee has developed its own proprietary software platform: other service providers can use the existing network by plugging their services into the Drishtee software.

Hardware Basic package includes a computer, modem, printer and a 4-hour battery. The total cost is about US\$1000 and is borne by the operator. Almost all kiosks have dial-up connections.

Locations Drishtee is active in six districts in six states: Sirsa in Haryana, Jaipur in Rajasthan, Dewas in Madhya Pradesh, Trichy in Tamil Nadu, Sonitpur in Assam and Madhubani in Bihar.

Type of telecentre model This is a PM model. It is a tiered franchise and partnership model, in which the kiosk/telecentre is owned and operated by a local villager. The person operating the kiosk is a local high school graduate and entrepreneur. They only need basic maintenance and numeric data entry skills, as most of the Drishtee portal is menu-driven. (S)he bears the operating costs and pays a flat fee each month to Drishtee for providing ongoing technical and marketing support and also maintenance and upkeep of the portal. Both Drishtee and the operator are aiming to make a profit from the business.

Services offered by telecentres and uses made of them Users are provided with enhanced access to e-Governance, education, health, insurance and local services. Drishtee is providing localised content for educational and health services. In the case of e-Government services the aim is to provide rural citizens with doorstep access to several services for which they previously spent a lot of time and money to get the job

done, such as: driving licence, land records, and online grievances. Commercial services are implemented in partnership with corporate institutions and include market-related information, agricultural inputs, digital photography, auction sites and matrimonial services.

E-readiness: local and state-level context Where the existing telephone connections are non-existent or of inferior quality, Drishtee investigates cellular connections for connectivity and negotiates with the service provider to provide improved telephone connections. The e-government services are framed in partnership with the district administration. The willingness of a state or district to provide e-government services might be a criterion in selecting locations in which to operate?

Community involvement/ownership From the limited information available it appears that there is little sense of ownership among local communities.

Relevance of information offered Much or most of the information is presumably highly relevant, otherwise Drishtee and the operator would not be able to make a profit and people would not pay for the services.

Access, gender and equitability This initiative does not have equity as an objective. It is probably mainly servicing better-off male farmers.

Financial viability Drishtee describes its approach as a financially sustainable and profitable model offering profits at all levels in the hierarchy.

Success It says that a Social Return on Investment Analysis showed that for every US\$1 of social cost incurred, US\$20 of social benefit is generated.

3.6 Dairy Information Services Kiosk (DISK) & Dairy Information Portal

Project description: initiator, objective(s), hardware and location(s)

Project description: DISK was initiated by the National Dairy Development Board, and is building on the success of the milk co-operative movement in India and of an automated milk tester machine. The milk co-operative movement has made India the largest producer of milk in the world and spans over 70,000 villages in 200 districts of India. The unit of operation is a village-level co-operative where men and women deposit their milk twice a day and get paid in return. DISK and the dairy information portal were conceived by IIM Ahmedabad. DISK is being piloted at two dairy cooperative societies in Kheda district, Gujarat, while the dairy information portal is being tested at one point in Gujarat.

Hardware DISK builds on the use of an automated machine that is used by about 2500 dairy cooperative societies (DCSs). The machine immediately tells farmers the quality and quantity of their milk, while generating price information on the procured milk. The automated machine is being implemented in 600 locations in Kheda district. A PC/PCs kept at the village co-operative is hooked up with the automated machines and is used for analysis. DISK is an exercise in upgrading this PC into a kind of management information system. So each of these PCs is equipped with data analysis

and decision support capabilities vis-a-vis improving productivity and yield of milch cattle (for the villager) and in improving milk collection (for the co-operative).

In addition these PCs are connected by the internet to a dairy portal that has information on dairying and best practices on milch cattle. The place where the PC is kept also doubles up as a communication centre with fax, e-mail and telephony, e-banking facilities. Government forms can also be downloaded from the internet.

The portal is equipped with intranet facilities to meet the official and transaction needs of the co-operative structure.

Type of telecentre model: This is a for profit model. (This milk testing system goes by the name of *Akashganga* or Milky Way.) DISK is being positioned as a value-added offering by the entrepreneurs. The IIMA initiative has chosen to involve small private sector companies in taking the DISK project to a large number of rural areas.

Services offered by the telecentre and uses made of them: DISK facilitates the creation and maintenance of databases of cooperative society members in the regional language. This includes information about members, their cattle, various service transactions (artificial insemination, veterinary, cattle feed etc.) and the daily milk transactions. More specifically, services include:

- Data analysis and decision support to help a rural milk collection society in improving its performance i.e. enhancing milk collection
- Data analysis to improve productivity of milch cattle
- Information on dairying, government and private sector agency services, feedback on quality of service
- Access to multimedia database on innovations captured by SRISTI (Society for Research Initiatives for Sustainable Technologies and Institution) on agricultural practices, medicinal plants, home remedies, tools and implements
- E-mail, fax and Net telephony
- Net banking and ATMs which will enable the milk societies to credit payments directly to sellers' bank accounts
- Download government forms; place orders for agricultural inputs
- Intranet facilities.

Use: Farmers are still to realize fully the value of information. However, the potential is immense as DISK is essentially working on an upgradation exercise of a successful participatory model, viz the dairy movement and the automated milk testing machines.

E-readiness: local and state-level context Most of Kheda district is quite well developed: literacy rates are quite high and about 20% of the population is classified as urban. It is adjacent to the districts of Ahmedabad and Anand (where NDDB and the milk cooperatives' apex body are located).

Community involvement/ownership: The DISK software is installed on the PC at the milk collection centre of the DCS, which should give DCS members a sense of ownership. The person who runs the automated teller system doubles up as the DISK operator. There could be great competing pressures vis-à-vis her/his time.

Relevance of information: IIMA interacted with NDDDB and several experienced managers of dairy unions in developing the initial specifications, and Amul Dairy provided the initial resources to pilot test DISK (Rao, 2001). Thus, most of the information provided should be relevant to dairy producers.

Access, gender and equitability: The DISK software is used by all producers bringing their milk to the two collection centres where it is being piloted. Many DCS members are women, and are using DISK. The DISK software facilitates creation and maintenance of databases in the regional language of the DCS and generates messages for farmers in the regional language. Much of the contents of the dairy portal is in the regional language as well as in English, and the interaction can be facilitated in either language.

Financial viability: The prospects for DISK are good – the district dairy unions are expected to invest in the system because it increases the efficiency and effectiveness of the services delivered to their dairy producer members.

Success: DISK is still a pilot project and has a long way to go before it becomes established. What is going for DISK is the huge potential for mass usage and access as it rests on the dairy cooperative procurement model. Estimates indicate that about 1000 milk collection centres could opt for the application.

It appears that for mass replicability a partnership is needed with non-dairy agencies for the physical delivery of outputs relating to the information. So essentially this means government agencies and companies involved in rural marketing. Also IT service companies and telecom companies need to be involved in this partnership.

3.7 Tarahaat

Project description: initiator, objective(s), hardware and location(s)

Initiator Tarahaat.com is a portal of Technology and Action for Rural Advancement (Tara), which is the marketing arm of the Delhi-based NGO Development Alternatives (DA). Tarahaat was launched in 1999. Tara markets information on products and services through Tarahaat.com. The content is developed by DA. Users can also set up their home page in Tarahaat.com. The aim is to create a virtual pipeline for delivery of not only DA information but also of other rural-based companies. The information can be accessed through telecentres called Tarakendras. *Location* There are 38 such Tarakendras in Punjab's Bathinda district and the Bundelkhand region (primarily near to Jhansi) of India.

Hardware The Tarakendras use dial-up connections. In Bundelkhand VSAT links using satellites were also used to provide connectivity. As power cuts are frequent in some of its locations Tarahaat also provides a diesel-powered generator as part of the franchise infrastructure, which adds considerably to costs and maintenance.

Type of telecentre model: This is a for profit model. The Tarakendras operate on the franchisee principle. The franchisees charge about Rs 10-Rs 35 for internet use. The higher charge is for e-mails and other value added service, which is quite high even

by urban Indian standards. The Tarakendra operator can earn about Rs 1 lakh² to Rs 3 lakh a year. The franchisee receives support in loans, training in running the centre and technical assistance. Franchisees charge users according to rates laid down by Tarahaat.

Services offered by telecentres Information is offered on a range of issues that are relevant for everybody in rural areas. Subjects covered include health, livelihood, governance, water, education and even entertainment. The information is static and on agriculture it is related to best practices.

Tarahaat also offers value added information services, for a higher fee. The information is dynamic and this includes information on market prices, weather, astrology and an e-mail facility. Of note is Tarahaat's educational service, Taragyaan. The service is geared towards the needs of the rural youth. Its English teaching programme is a great success. To avoid connectivity problems, the English courses are often offered in an off-line environment.

E-readiness: It is interesting to compare the regions where Tarahaat is operating. In 2000 it started with four tarakendras near Jhansi in Bundelkhand, a resource-starved region and a region of low e-readiness. Dial-up connections were largely unavailable at three of them at that time, and these relied on satellite Internet connectivity. Then in 2001 it expanded into Punjab's Bathinda district, a region of comparatively high e-readiness: all of the telekendras here have been using dial-up connections.

Community/involvement: May be limited. The rate for value-added information is very high, and information is also market-driven.

Relevance of information: Free information is relevant for the community. But value-added information is market-driven and may only be relevant to the purchaser.

Access, gender and equitability The portal Tarahaat.com has a very 'rural-friendly' interface. Tara assumed that low levels of literacy necessitate an interface which is more than the plain vanilla kinds of interface, so it developed an animated portal (see tarahaat.com) to attract and retain more users. However, Tarahaat's graphic-rich interface may not be easily accessible without good connectivity. Scope for participation by women is limited.

Financial viability Provision of a diesel generator and use of VSAT links to provide connectivity both increase costs substantially. Nevertheless, Tarahaat claims that a kiosk will be able to pay for itself in 8-9 months, while the franchisee will be able to recoup his investment in two years.

Success and overall review: Tarahaat.com was one of the first big-ticket IT for development projects in India. It started off with great promise and the initial projection was of 47,000 Tarakendras by 2006. However, expansion has been much slower, and there are only 38 Tarakendras till now. But what is going in Tarahaat's favour is the backing of Development Alternatives. There is an excellent team of development sector professionals behind Tarahaat, and currently they are undergoing

² 1 lakh = 100,000

a course correction. It appears that the Tarakendras will now transform themselves into ICT-enabled enterprise development services. The target group is youth and women. (i4donline March 2006).

The strategy appears to be two-pronged:

- a) Tarahaat will now be an information hub for local entrepreneur driven products and services. The information will be more localized and more local economy driven, encouraging greater access to Tarakendras.
- b) To promote local entrepreneurship, there will be ICT-enabled learning modules at the Tarakendras.

3.8 MANAGE cyber extension initiative

Project description: initiator, objective(s), hardware and location(s)

Initiator and locations The project was initiated by MANAGE (National Institute of Agriculture Extension Management) and the District Rural Development Agency (DRDA) in 11 villages of Rangareddy District, Andhra Pradesh, some 50-70 kms from Hyderabad. Nine of the systems were located in the premises of MACTCSs (Mutually Aided Co-operative Thrift and Credit Societies); and the other two in Gram Panchayat offices. The locations are easily accessible. The MACTCSs are mandal-level federations of women's SHGs, and have gradually taken over the management of the kiosks.

Objectives The initiative works exclusively with women and children. It aims to provide agricultural research and extension information to rural women as quickly as possible; to empower the women; and to facilitate rapid communication via email with DRDA, and collectorate and state level functionaries. It also aimed to reduce the drudgery of account maintenance by providing banking software to the MACTCSs.

Hardware Each village information kiosk was equipped with a multimedia PC, a dot matrix printer, modem and UPS (uninterruptible power supply). The hardware is given to the groups under agreement with the President of the relevant MACTCS. MANAGE (a) created the basic information systems; (b) acted as a broker with other agricultural organisations (to obtain relevant information); and (c) in some cases, provided equipment to help these other organisations digitise content.

Type of telecentre model This is a NFP initiative, although the IT facilitator at each kiosk is expected to raise 50% of his/her salary through income generating activities (especially providing IT training).

Services offered by telecentres and uses made of them The kiosks are used by the MACTCS manager and accountant for updating balance records, reading local newspapers (on their websites) etc. In addition, each information kiosk (in theory) provides services to about 25-30 villages (20,000-30,000 people). Various e-governance and e-commerce services are provided, and also training of various kinds. E-governance services include: information about the development schemes of the district (including housing loans, crop loans); and immediate access to government examination results. E-commerce and related services include: information about

prices for agricultural products in local markets, updated daily, and in markets nationally (made available at no cost by Agriwatch.com); technical information; and weather forecasts.

Training includes: CD-based learning packages for making pickles, learning about maternity and child health, nutrition and crop production; and computer training in MS Office (Word and Excel), browsing and searching the Internet, and using email.

The IT facilitator provides the computer training to the staff who manage the kiosk and to at least 20 people (women, and also boys and girls). Users can then access some kinds of information and services themselves, but they often need to come to these facilitators with their queries and specifications; and the facilitators use the Internet, search for the information and get back to the villagers. They also translate to Telugu information from the Internet that is in English. In some villages youths have learned MS-FrontPage and other web-designing software tools.

E-readiness: Local and State-level Context

Connectivity has been a problem, including the low-quality of dial-up access by standard telephone lines. It took 2-3 minutes to connect to the ISP, and the lines disconnected after 5-10 minutes.

At the district and state levels there was a considerable degree of e-readiness in that government agencies were already receptive to providing various services electronically and also to answering enquiries and requests by email. Andhra Pradesh was seeking to position itself as one of India's most advanced states in terms of IT.

Community involvement/ownership The MACTCSs play the lead role in managing the kiosks, so there seems to be a high level of community ownership, although MANAGE and DRDA officials carefully monitor implementation. The MACTCS have an accountant (basically to maintain MACTCS finances), and a Manager and 10-12 organisers at the Mandal HQ who manage the kiosk. The high level of community ownership is probably related to the fact that there was an existing, well functioning formal CBO involved from the outset.

Relevance of information offered Some of the information and services provided seem to be popular. For example, weather forecasts and market information for farmers, and examination results. The CD on pickle preparation is "a big hit in all 11 villages".

Access, gender and equitability Access is exclusively for women and young people, and concerns have been raised about the limited access to the project by men. Information about the equitability of access seems to be lacking.

Financial viability MANAGE paid the IT facilitators' full salary during the first year. This was then reduced to 50% for six months, with some contribution from the MACTCSs. Now each MACTCS pays the facilitator's full salary. This suggests that the contribution made by the facilitators is highly valued by the members.

Success The access to information about government services at the village level has enabled people to articulate their needs and demands (e.g. for housing and crop loans) much more clearly to the relevant officers, supplying relevant documents where

necessary. It is also putting pressure on the middle and senior level state officers to deliver the programmes and schemes to the relevant beneficiaries in a timely fashion. Various women who received training are now making pickles and selling them in local markets.

3.9 TeleSupport project

Project description: initiator, objective(s), hardware and location(s)

Initiator TeleSupport is a one-year pilot project, funded by the European Commission, and managed by the Natural Resources Institute (UK) *Objective* It is aiming to facilitate farmer access to agricultural information and knowledge via the internet and via Indian and European knowledge centres and networks. *Locations and partners* The project works in Kerala and West Bengal, where the project partners (both NGOs) are Rural Agency for Social and Technological Advancement (RASTA) and Change Initiatives, respectively. Nedworc Foundation (Netherlands) is managing the project's website and agricultural database and providing associated training in web-based information sharing. Other Indian partners are Centre for Advancement of Sustainable Agriculture (New Delhi) and Deccan Development Society (Hyderabad). The project has established three telecentres - two in Wayanad District, Kerala, and the other in Nadia District, West Bengal. In West Bengal a 'mobile telecentre' (i.e. operator with laptop visiting villages) has also been used.

Hardware Each telecentre has at least one PC, printer and telephone: the West Bengal one also has a digital camera and webcam. In West Bengal, a dial up connection is being used initially, but broadband is expected to be available in January 2007. In Kerala, broadband is not yet available and there is a dedicated dial-up line for the PC.

Type of telecentre model This is a not-for-profit initiative. Farmers will not be charged for use of the services, partly because it is a pilot project.

Services offered by telecentres and uses made of them Trained telecentre operators provide farmers with access to the internet to obtain agricultural information that will enable them to address constraints and take advantage of opportunities. The project has been building up a database of good agricultural practices: this and other sources are accessed by the telecentre operators. The project has been focusing primarily on four technical themes – soil fertility, livestock, post-harvest and IPM – but is also aiming to cover other priority topics identified by farmers. If the necessary information is not available from the internet the operators contact Indian and, if necessary, European experts to see if they can address the farmer's query. The information about agricultural practices is made available in a variety of forms, including video clips and Powerpoint presentations as well as written materials. Most enquiries in West Bengal have been about crop protection/IPM and animal husbandry.

E-readiness: Local and State-level Context

Local One of the main criteria in selecting the telecentre site in Nadia district was that there should be good connectivity. The site is at Gayeshpur Check Post, a small market town situated about 60 kms from Kolkata. It is close to a national highway and is expected to get broadband in the near future. Many farmers of the area are

commercially oriented and heavily involved in the production and marketing of fruits and vegetables. Thus, this locality could be classified as one of **medium e-readiness**. The telecentre site in Wayanad district, Kerala, is more remote. Connectivity is not so good and broadband is not yet available. Potential telecentre clients include poor tribal people, who are marginal farmers or landless; and better off non-tribals, whose main crop is paddy. Overall, this locality is one of **low e-readiness**.

State-level The governments of both Kerala and West Bengal have taken steps towards e-governance, but the project has not yet linked up with any e-governance services.

Community involvement/ownership Members of local communities were consulted about their priority information needs (see below), and also about when it would be convenient for them to visit the telecentres. In Kerala one of the telecentres is located in the offices of the partner NGO, RASTA, which is frequently visited by local people for meetings, training courses etc. The other is in the small office of a SHG federation that pays for the operational costs; and it is operated by a few specially trained local men and women, with regular support from RASTA staff. The project is planning to establish a user group for each centre that will represent local communities' views on matters relating to the use and management of the centres, but this has not yet been done.

Relevance of information offered The project carried out a survey of farmers' information needs in villages near to each of the telecentres. The findings of this survey and the enquires subsequently received have been influencing the topics and issues prioritised by the project regarding entering good practices into the project database. This should help to ensure that the information offered is relevant to local needs. Farmers in Wayanad have taken up some good practices (fodder crop, vermi-composting) after seeing video clips about them.

Access, gender and equitability The project aims to make information available in media (e.g. posters, video clips) that are intelligible to illiterate people. Until now, the project website and database have only used English, but documents (including video clips) can be uploaded in the local language. The project aims to ensure that women have as much access to the services as men. This is a challenge, particularly for the Nadia telecentre where a lot of the women in nearby villages are Muslim and seldom visit the local town where the telecentre is located. The project has been piloting various ways of facilitating women's access to information, including: enabling women to telephone the centre with an information request; working through women's self-help groups; and operating a mobile telecentre and organising meetings with women in their village.

Financial viability This is only a pilot project, there are no user charges and it is not aiming to be financially viable in the near future. There are major costs involved in building up the database of good practices, and in the longer term the number of users will need to be greatly expanded to ensure that the benefits exceed the costs.

Success The project has only been operational for a year, so it is too early to assess how successful it has been.

4. Comparative Summary, Discussion and Conclusions

Table 1, at the end of this section, provides an overview of some of the key parameters of the initiatives reviewed in Section 3.

4.1 Types of initiative

The initiatives can be grouped into three broad categories – profit-making, not-for-profit and hybrid. Profit-making initiatives, such as ITC’s eChoupals, naturally tend to locate in areas where there is a fairly high level of e-readiness, as such areas represent lower operational costs and bigger opportunities for making a profit. Gyandoot and COW, both of which are primarily NFP in ethos, are located in districts with low levels of e-readiness. Literacy rates, which are one of the parameters of e-readiness are summarised in Table 3. Tarahaat can be called a hybrid in that, although it follows a profit-making model, it was initiated by a NFP NGO, Development Alternatives. Its dual nature is reflected in the fact that one of its operational locations (Bundelkhand) has a low level of e-readiness and the other (Bathinda, Punjab) a medium to high level.

4.2 E-readiness issues

Some of the projects reviewed above (e.g. Gyandoot), particularly those with a pro-poor focus, are located in areas of low e-readiness. Heeks suggests that “there are very serious questions about the value and sustainability of telecentres in locations of *low* telecentre e-readiness”, which have tended to be characterised by “failure, impossible economics and massive underuse”. He cites an example from Mongolia, where only one of nine telecentres set up in the late 1990s is still in use.

Table 2 Illustrative Scoring System for Classifying E-Readiness, with Example

Indicators	Low (1)	Medium (2)	High (3)	Score
<i>Local socio-economic indicators</i>				
Education Literacy rates- Male/female mean (%)	0-55	55-70	<i>70-100</i>	3
Income population above poverty line (%)	<i>0-40</i>	40-60	60-100	1
<i>Local infrastructure indicators</i>				
ICT infrastructure		<i>Dial-up available</i>	- e.g. broadband or wireless available	2
Power supply – daily availability (hours)	<i>0-3</i>	3-9	9-24	1
<i>E-governance indicators</i>				
Public on-line facilities	None	<i>Some</i>	All	2
Electronic responses	<i>None</i>	Some	All	1
Total score				10

Heeks argues that the private sector can and will cater for locations of *high* telecentre e-readiness; and hence that more traditional development interventions should focus on locations of *medium* telecentre e-readiness. Table 2 contains an illustrative set of indicators for quantifying e-readiness that would enable an overall score to be given to any particular initiative. There are six indicators, so the lowest possible score would be six and the maximum possible would be 18. In the example given (highlighted in red font and italics in the table), the total score is 10, which is towards the lower end of the range.

Increasing the level of infrastructure e-readiness Most of the initiatives have increased the level of *infrastructure* e-readiness at their telecentres themselves, by one or more of the following measures:

- providing back-up power supply (diesel generator, solar power)
- providing VSAT links to provide/improve connectivity
- investing in broadband
- negotiating improved telephone connections.

COW has taken a unique approach to overcoming infrastructure weaknesses in Mahbubnagar by making the infrastructure mobile and transporting it to the villages. The laptop, cell phone internet link and solar power back up are all taken to the village on the Information Provider's motorbike. However, internet access is constrained by the fact that signal coverage is limited and the connection is expensive. The TeleSupport Project has also used 'mobile telecentres', taking laptops to the villages.

E-governance Some initiatives (Gyandoot, Drishtee) have also sought to increase the level of *e-governance* at the state level by negotiating with state governments to provide various services on the internet. However, in Gyandoot the backend processing for all government services continued to be manual, and consequently response times were slow: this highlights the need for improving the whole system and the information flow in both directions. ITC also seeks to change government laws where these could act as a barrier to *e-commerce services*: it will not operate its e-Choupal programme in a state until the government has amended its legislation on agricultural marketing.

Improved e-governance is not necessarily permanent - a positive state government commitment to e-governance can fade away with a change of government. For example, in Madhya Pradesh, Gyandoot had the active support of the government head, Digvijay Singh, who belonged to Congress Party. In 2003 the Bharatiya Janata Party (BJP) took over political control, and seems to have shown less interest in the initiative (Suryatirtha Ray, pers. comm.).

4.3 Literacy rates

One aspect of e-readiness that cannot be improved quickly is literacy rates. Table 2 shows the literacy rates in various districts where the telecentre projects operate. It can be seen that the lowest overall rates are in Mahbubnagar, where COW operates, and Dhar, home of Gyandoot. Dhar's low literacy rate no doubt contributed to the

problems that Gyandoot has experienced. The locations with the highest literacy rates are: the state of Pondicherry, where MSSRF operates; the TeleSupport site in Kerala; and Kheda, where the two DISK telecentres are located.

Table 3 Literacy rates in Various Telecentre Districts (2001)

Project	District	State	Literacy rates		
			Overall	Male	Female
Gyandoot	Dhar	Madhya P.	52.7	66.2	38.6
C.O.W	Mahbubnagar	Andhra P.	45.5	57.9	32.8
MSSRF RKC's		Pondicherry	81.5	88.9	74.1
eChoupals ¹	NA	NA			
Drishtee ¹	NA	NA			
DISK	Kheda	Gujarat	72.7	86.6	57.8
Tarahaat 1	Bundelkhand	Uttar P.			
Tarahaat 2	Bathinda	Punjab	61.5	68.3	53.8
MANAGE	Rangareddy	A. Pradesh	66.3	75.0	57.0
TeleSupport 1	Nadia	W. Bengal	66.6	72.7	60.1
TeleSupport 2	Wayanad	Kerala	85.5	90.3	80.8

¹ These two projects operate in several districts.

Source: <http://educationforallindia.com/page157.html>

Tarahaat deliberately chose two contrasting locations, Bundelkhand and the relatively prosperous Bathinda district in Punjab. TeleSupport has also chosen two contrasting locations, but paradoxically the literacy rate is higher in Wayanad, the less developed location. This is presumably a reflection of the exceptionally high literacy rate for Kerala as a whole.

Some initiatives have sought to provide information to illiterate people by using a range of media that do not rely on the printed word. For example, MSSRF broadcasts radio programmes at its rural knowledge centres, and organises video conferences involving community members and experts. The TeleSupport project has made and used a range of short videos describing good agricultural practices.

4.4 Breadth and depth of services

Many different services are provided by the initiatives, which can be grouped into the following four categories:

1. e-commerce (e.g. technical information about enterprises, purchase of agricultural inputs, market prices)
2. e-governance (e.g. copies of land records, on-line registration of applications, information about government programmes)
3. educational (e.g. computer skills, English)
4. personal (including email, health, entertainment, digital photography, matrimonial services).

Telecentres must generate and satisfy a certain level of demand for their services in order to be viable. There seem to be two different strategies for achieving this level of demand – going for breadth and going for depth. Some initiatives provide a wide range of services, spanning e-commerce, e-governance, education and personal (see Table 1). The range of services tends to be wider with NGO (MSSRF, ViDAL) and public sector (Gyandoot, Dhar district) telecentre projects than with private sector profit-making ones (ITC, DISK). These two profit-making initiatives primarily focus, in depth, on specific agricultural commodities, and seek to enhance production and/or marketing of them. Drishtee is the only PM initiative reviewed that aims to make a profit from providing a wide range of services. More general experience suggests that it is better to begin with a limited but relevant and high quality information service, and then to broaden the coverage to include other high priority needs (IICD, 2006).

4.5 Assessing the performance and impact of telecentre initiatives

Direct benefits There do not seem to have been any systematic, independent assessments of the impact of any of the initiatives reviewed. Nevertheless, various kinds of direct benefits have been identified in more than one of them, notably:

- higher prices for crop, livestock and fish products, as a result of being better informed about market prices;
- higher crop yields and/or reduced post-harvest losses as a result of improved agricultural practices and weather reports (influencing harvesting times);
- access to grants or loans of various kinds (e.g. grants for infrastructure, crop loans, housing loans).

Indirect benefits There is evidence that projects that have provided e-governance services (such as Gyandoot and the Manage project) have empowered villagers, created greater transparency and improved the performance of government functionaries and services in terms of coverage and speed of response.

Telecentres can also provide a physical and social space that may be valued by certain groups. For example, young men in Bangalore use telecentres as a location for direct interaction with peers (Nisbett, 2005), and Muslim women in New Delhi value their telecentre for the social space it creates, in which they are free from the gaze and control of family (UNESCO, 2005). The MSSRF knowledge centres also seem to provide a social space for villagers.

In telecentre planning, monitoring and evaluation the emphasis has been on *consumption*, i.e. the ways in which telecentres support the use of information and communication by telecentre clients (Heeks, October 2005). However, there are other schools of thought as to what projects and their M&E and impact assessment should focus on. *One* is that there needs to be a greater emphasis on telecentres as *productive* entities, in which the telecentre is perceived as an IT sector business that generates jobs, incomes and skills (a) for those who run it and (b) for those who use its technology as an input into a micro-enterprise (e.g. word processing, IT training) (ibid). Several of the projects reviewed above provided training in IT skills to

community members, including young people, and may have generated some benefits of this kind.

Projects, particularly those with an empowerment focus, and associated M&E should also take account of the development of the users' capacity to articulate their information needs and to access and act upon information (Beardon, 2005). It has been suggested that a 'capabilities approach' be taken in evaluation and impact assessment, based on the following four criteria:

1. local communities' access to information from various sources;
2. local communities' ability to process and evaluate information;
3. capacity of local communities to assimilate information in their own lives and produce information for others; and
4. local communities' ability to advocate for local knowledge in public spheres (Garai and Shadrach, 2006).

4.6 Equitability and poverty focus

Initiatives operating under the PM model target people who have the money and literacy skills needed to utilise the services offered, and this tends to be better off male farmers or villagers: equitability of access could reduce the financial viability of the telecentre. In contrast, NFP initiatives have sought to service poorer villagers, particularly women. With this in mind, MSSRF requires participating villages to agree to a set of conditions, which include guaranteeing access to Dalits, and ensuring that at least half of the trained volunteers are women. This kind of practice should be commended and replicated.

Nevertheless, as noted earlier, Professor Ashwani Saith concluded that the poor are under-represented in accessing the MSSRF knowledge centres. Professor Saith argues that information about crop production and market prices, for example, is of interest mainly to landowners - not to the poor, who are predominantly landless. Similarly, Gyandoot was largely unsuccessful in reaching the poor, its primary target group. This kind of targeting failure is common to most forms of rural development intervention in India, and is partly a product of societal structures and power relations. These experiences highlight the need for a committed and sustained pro-poor approach by implementers of NFP initiatives if access is to be equitable.

The language of the information materials available at telecentres and associated websites is often English, and this may also restrict accessibility. This was identified as a major hindrance in the MANAGE project.

4.7 Sustainability

Sustainability is determined by a wide range of factors: the chances of it being achieved will be maximised if there are high levels of e-readiness and information relevance. In the PM model the telecentre operator (franchisee) and the parent company sustain the service by making a profit; whereas in the NFP model a high level of community involvement may be a pre-requisite for sustainability. Training of

community members in accessing services is also important for sustainability in the NFP model, and may not be provided in the PM model.

Profit-making initiatives tend to have low levels of community involvement, because they are individualistic in nature, with the telecentre operator seeking to make a profit by providing a service to individual users. It is not in his/her interest to train community members to undertake tasks that (s)he performs. DISK may be a partial exception to this, in that the computers and software are housed in the premises of the dairy cooperative societies. Only MSSRF and MANAGE seem to have aimed to achieve a high level of community involvement and 'ownership'.

Some initiatives have been designed to work with existing community-based organisations (CBOs), which should increase the likelihood of achieving institutional sustainability provided the CBO is functioning well. MANAGE linked up with SHG federations (MACTCSs), COW with SHGs and DISK with dairy cooperatives.

It appears that a high level of telecentre use can either be achieved by offering a narrow range of services that will enhance the user's profits in a particular enterprise or set of enterprises; or by offering a wide range of services, thereby enabling each user to choose those that are most important to her/him. Obviously, it is important to ensure that the information and services offered are perceived by prospective users as being relevant and important. The Gyandoot experience suggests that this needs to be done very carefully if a reliable assessment is to be made.

As far as *financial sustainability* is concerned, it is doubtful whether any telecentres operating on the NFP model have yet broken even. It is not clear whether PM ones have either. Earlier parts of this paper have given more attention to revenue than costs. One important cost element is the cost of providing locally relevant content; and local content is essential for many kinds of service, including agricultural technologies and market prices, and weather. If this needed to be done separately for each telecentre the cost would be prohibitive; but where there is a cluster of several telecentres the cost per centre is reduced. One issue requiring clarification is how many centres need to be in a cluster before an initiative can break even.

4.8 Conclusions

The sub-title of this paper posed a question – are rural telecentres in India “a failed fad or the way forward”? Information *is* important to rural people, including the marginalised; but this paper suggests that a narrowly focused telecentres approach is not the best way to address information needs, as it tends to be technology-centred and supply-led. Instead, what is needed is a people-centred, demand-led approach, that focuses on developing the capacity of disadvantaged groups to identify and articulate their information needs and preferred media, access the required information, through whatever media and sources are most appropriate, and then manage and use it effectively to improve their livelihoods. It would be more appropriate to describe such an approach as being based on community information or knowledge centres.

Experience has highlighted the need for a wide range of media in managing and supplying information, and the importance of traditional media as well as 'modern'

ones. Radio is a popular and widely accessed medium in rural India and Africa (Beardon, 2005) that has not been prioritised by Indian development agencies to the extent that the internet has, and recent legislative changes in India may facilitate more extensive use of radio in development initiatives. Mobile phones have considerable potential too yet have also been relatively neglected by development agencies.

There is still a role for the internet, however, particularly as several of the constraints experienced until now by many computer and internet-focused initiatives in India are being eased. Connectivity problems are being reduced, partly through increased broadband coverage; and the development of useful content and applications relating to social and productive sectors is rapidly increasing, including products in many local languages. Major national initiatives, such as Mission 2007, as well as local ones, are helping to drive forward this process.

Table 1 Comparative Summary of Nine Indian Telecentre Initiatives

No.	Project	Initiator	Where	Start year	No. of kiosks	Model ¹	Services	Sectors ²	e-readiness		Community Involvement	Info relevance	Access		Financial Viability
									Local	State			Women	Equity	
1	Gyandoot	Dhar district	Dhar district, MP	2000?	31	PM or NFP	e-gov e-comm personal	Ag ??	L	M	L	L/M	L	L	L
2	C.O.W	ViDAL	Mahbubnagar, AP	2003	NA	hybrid	e-gov e-comm? education personal	H,Ag, Ed	L	M	?	?	H??	?	M?
3	RKCs	MSSRF	Pondicherry/ Tamil Nadu	1998	12	NFP	e-gov & e-comm education personal	H,Ag, Ed, We, F	H (was L)	?	H?	?	H?	N?	L?
4	eChoupals	ITC	5 states	2000	5100	PM	e-comm	Ag,F	H*	Varies	L	H	L	L	H
5	Drishtee	Drishtee	6 districts in 6 states	?	309	PM	e-gov e-comm educational personal	Ag,H,Ed	Varies	Varies	L	H	L?	L?	H
6	DISK	NDDDB	Kheda district, Gujarat	1999?	2	PM	Mainly e-comm	dairy	H?	?	L	M/H	M	?	L in S-T, H in L-T?
7	Tarahaat	Devel't Altern.	Bundelkhand, Bathinda,Punjab	1999	38	hybrid	e-gov e-comm education personal	H,Ag, Ed, We	Bathinda=H Bundel.=L		L	M/H	L	L	M?
8	Cyber extension	MANAGE	Rangareddy, AP	2000	11	NFP	e-gov e-comm education personal	Ag, H, Ed	L	M	H	M?	H	?	M
9a	Tele-support	Change Initiat.	Nadia,West Bengal	2006	1	NFP	e-comm	Ag	M	M	M	H?	?	?	L?
9b	Tele-support	RASTA	Wayanad, Kerala	2006	2	NFP	e-comm	Ag	L	H	H	H?	H	?	L?

In the columns to the right of the table three categories are used, namely: low (L), medium (M) and High (H).

* ITC invests in ICT and power supply infrastructure when starting in a new location.

¹ The categories of models are profit-making (PM) and not-for-profit (NFP)

² The sectors are: agriculture (Ag), education (Ed), health (H), weather (We) and fishing/aquaculture (F).

References

- Beardon, H. (2005) *ICT for Development: Empowerment or Exploitation?* Action Aid: UK.
- Bunch, R. (2002) *Two Ears of Corn: A Guide to People-Centered Agricultural Improvement*. World Neighbors: Oklahoma, USA.
- Compton, E. (2006) Mobilising Computers for Rural Empowerment. *Id*, January 2006.
- Garai, A. and Shadrach, B. (2006) *Taking ICT to Every Indian Village – Opportunities and Challenges*. One World South Asia; New Delhi, India.
- Gurumurthy, A (2004) *Gender and ICTs – Overview Report*. Bridge, Institute of Development Studies, UK.
- Heeks, R. (1999) The Tyranny of Participation in Information Systems: Learning from Development Projects. *Development Informatics Working Paper No. 4*. IDPM: Manchester, UK.
- Heeks, R (2005a) Reframing the Role of Telecentres in Development. *eDevelopment Briefing No. 2*. Development Informatics Group, University of Manchester.
- Heeks, R (2005b) Foundations of ICTs in Development: Pushing and Pulling. *eDevelopment Briefing No. 5*. Development Informatics Group, University of Manchester.
- International Institute for Communication and Development (2006) *ICTs for Agricultural Livelihoods: Impact and lessons learned from IICD supported activities*. IICD: The Hague, Netherlands.
- IIMA (2003) *An Evaluation of Gyandoot*. Centre for Electronic Governance, Indian Institute of Management, Ahmedabad.
- MSSRF (undated) *Toolkit for Setting Up Rural Knowledge Centres (RKC)*. MSSRF: Chennai.
- MSSRF (2005) *Annual Report*. MSSRF: Chennai.
- Nisbett, N. (2005) ‘Growing up Connected’, UK Development Studies Association Conference, connecting People and Places, Open University, 7-9 September.
- Peterson, C., Sandell, V. and Lawlor, A. (2001) *What Works? Tarahaat’s Portal for Rural India*. World Resources Institute, Washington DC.
- Rama Rao, T.P. (2001) *Dairy Information Services Kiosk and Dairy Portal*. Paper presented at the workshop on “DISK and Dairy Portal”, Centre for Electronic Governance, Indian Institute of Governance, Ahmedabad, May 2001.

Roman, R. and Colle, R. (2002) Themes and Issues in Telecentre Sustainability. *Development Informatics Working Paper No. 10*. IDPM: Manchester, UK.

Sarkar, R. (2004) *Taking Stock of Tele-Centres*. Mimeo. IT for Change, Bangalore.

Shore, K. J. (2005) *Work in Progress – Rural Pondicherry’s Wireless Internet*. IDRC website.

Sivakumar, S. (2004) ‘ITC eChoupal Experience Sharing’. Powerpoint Presentation at Workshop on ICT for Poverty Alleviation in India – Financing Models and Scaling up Opportunities, Ahmedabad, February 26-27, 2004.

UNESCO (2005) *Women and ICTs: Mediating Social Change*. Film, roop Media for UNESCO, Paris.