

The Information Villages of Pondicherry: a case study in capacity building for sustainable development.

Julian Swindell, Royal Agricultural College

Julian Swindell, Royal Agricultural College, Cirencester, GL7 6JS, Gloucestershire, United Kingdom. Tel. +44 (0)1285 652531 email: julian.swindell@rac.ac.uk

Keywords: India, participation, local knowledge, capacity building

Abstract The Information Village Project was established and run in Pondicherry by the M. S. Swaminathan Research Foundation (based in Chennai, India) in 1997, with support from the Canadian Government. Since then it has expanded to cover nearly 40 poor rural villages in the territory and beyond. Each village is equipped with a range of ICT equipment which is linked to a central hub in one village. The linkages can be via cable TV networks, radio links or telephone lines. Each village thus has a "Knowledge Centre" which is managed and maintained by locally recruited and trained volunteers. Villagers can use the technology directly for communication with relatives and friends in other villages, but more powerfully, the volunteers can access a range of information sources and publish the results from the Knowledge Centres. This might be done simply by a blackboard outside the centre or broadcast over a public address system used for day to day announcements in the village. The type of information published includes up to date market prices for local produce in distant market towns, off-shore wave height predictions for fishermen, health advice, employment opportunities and availability of government schemes.

The project has proved so successful that the Foundation are rolling it out on a national basis for 2007 under the new title "National Alliance for Mission 2007: every village a Knowledge Centre" and planning further international links in Africa and Asia.

Introduction

This paper will examine the development of the Village Knowledge Centres (VKC) in Pondicherry Union Territory, India, which have been established and nurtured by the M.S. Swaminathan Research Foundation (MSSRF). These centres were first trialled in 1997 after an interdisciplinary dialogue held at MSSRF in 1992 (Vedavalli, 2005) and their subsequent success has been considerable, with much of this due to the fundamental ways in which the users are educated and trained in the use of information resources and technologies. The development of the concept from information kiosks to a mass national movement can be seen in the way its title has changed over the last 9 years: *Information Villages*, to *Rural Knowledge Centres*, to *Village Knowledge Centres* and finally to *Mission 2007, Every Village a Knowledge Centre*. This latter proposal for a mass national movement aims both to extend the Village Knowledge Centres and to link them to a range of other similar projects in India. The ambitious plan is to have ICT enabled knowledge centres in every one of over 600,000 villages in India in time for the 60th anniversary of Indian Independence on August 15, 2007.

History of the Project

In 1992 an interdisciplinary dialogue was held at MSSRF on the theme "Information Technology, Reaching the Unreached" (Vedavalli, 2005). The outcome of this discussion was a belief that information and communication technologies (ICT) had great potential for supporting rural development and sustainable agriculture in developing countries. To test this, experimental information centres were set up in 1997 in villages in Pondicherry, chosen as a test site because of MSSRF's experience with its earlier Bio-village scheme there.



Plate 1: The Village Knowledge Centre Building at Veerampatinam, a fishing village

One of these first centres, and two others subsequently, had to be closed down. The prime problem was that they had been established in private houses, which meant that access to them had been restricted and some of the most needy members of the villages were excluded (Vedavalli, 2005). After this the principle was established that all Information Centres must be in publicly accessible locations, open to all regardless of income, caste or social position.

In 1998 the experiment was given major impetus by support from the Canadian International Development Research Center (IDRC) in setting up the full Information Village experiment. Initially seven Information Villages (IV) were established, expanding to twelve for this experimental system. These included inland agricultural villages, coastal fishing villages and Dalit villages (the former *Untouchable* caste at the bottom of the Indian social caste structure). Each village knowledge centre was linked to a resource centre in a hub and spokes model, which is described more fully below. The hub was in turn linked via satellite communication with MSSRF in Chennai and ultimately to the whole internet.

The experiment in Pondicherry was deemed a success both by MSSRF and IDRC, with the latter citing 28 specific examples of benefit gained by the rural communities involved (IDRC, 2005). MSSRF have now established ten further hub centres serving over 40 villages in Tamil Nadu and other Indian states.



Plate 2: The ICT equipment in the Veerampatinam Village Knowledge Centre

Parallel developments elsewhere in India

In parallel with MSSRF's work on the Village Knowledge Centre experiment, other projects have started across India which aim at bringing the benefits of ICT to a wider public (MSSRF 2004a). These were often in the form of simple information kiosks housing a computer, printer, scanner and giving access to the internet. The largest of these, *e-Choupal* was started by ITC (Indian Tobacco Company) in 2000 and now, in 2006, has 5,200 information kiosks serving a claimed 3.5 million farmers in 31,000 villages in 6 Indian States (ITC 2006). Their ambition is to extend this service to over 100,000 villages in 11 states. This is fundamentally a commercially driven scheme which aims to bring benefits both to the farmer and to the sponsoring company. This helps to ensure its financial sustainability but does limit the scope and potential of the project for increasing non-agricultural rural development capacity. Similar schemes are working in other Indian states, some offered as franchises to local entrepreneurs, others local government supported developments.

Building on the success of these projects, MSSRF and the Tata Social Welfare Trust established the *National Virtual Academy for Food Security and Rural Prosperity (NVA)* in 2003 (MSSRF no date b), which aims to link scientific and academic experts with grass roots academicians recruited through the Village Knowledge Centres and by recommendation. The NVA in turn proposed a national alliance to achieve *Mission 2007: every village a knowledge centre* (MSSRF 2005a), a plan to link all of these ICT projects into a coordinated network reaching into every one of over 600,000 rural villages by August 15, 2007, the 60th anniversary of Indian Independence.

One of the keys to the success of this project has been the strong tradition of local community and democracy in India. This could be drawn on as both structure and support for developing the Village Knowledge Centre paradigm. This is in contrast with the author's experiences with similar but far less successful work in Central America (Swindell 1999). One of the underlying problems there was that poor villagers in the hills of Honduras tended to live in indeterminate, frontier communities, with little in the way of land tenure, local government or democratic structures. When problems arose, they dispersed or moved further into uninhabited areas. If they did improve their conditions, they would often be dispossessed of their land by wealthier land owners, who were more able to prove ownership. There was therefore little incentive to improve their local environment and prosperity as their experience was that this usually made their marginal lifestyles even more untenable.

Establishing a Village Knowledge Centre

This paper's prime interest is with the innovative capacity building used by MSSRF in developing and supporting the skills of many poorly educated people in the use of complex networked technologies and the acquiring and dissemination of knowledge which could be accessed with that technology. It focuses on the Village Knowledge Centre (VKC) model developed by MSSRF and not the other ICT systems which are also going to be joined by the Mission 2007 movement. Establishing an VKC now follows a well tested road map which is based on human needs and skills, with technology playing an important but secondary role. The technology is chosen and adapted to suit the needs and resources of the users, and not the other way around.

Participatory Rural Appraisal

Before establishing an VKC, a full participatory rural appraisal (PRA) is carried out amongst the villagers. This is described in more detail in the stages below, but it is important to consider the value of this activity, which has come under criticism as being superficial and generally divorced from the subtle, often unspoken realities of community structure, ritual, interaction and responsibilities (Rhoades 1998). Many of the criticisms that Rhoades makes are specific to the concept of watersheds being equivalent to community units, which they are clearly not in anything other than in the most mountainous regions. He is also dismissive of the short timescale within which participation is often undertaken, stating that anthropologists take many years to establish the nature of communities and that development agencies cannot achieve the same thing in a few participatory workshops. This is a valid argument and the author has attended NGO mediated participatory farmers' workshops in Central America where no farmers actually attended. The workshops still went ahead because of time constraints on the organising NGO and were used as a basis of project development and decision making. The decisions had value and use, but could not genuinely be considered as based on participation of the project stakeholders.

Martin and Sherington (1997) also argue that little firm evidence has been provided on the success of participatory development, due in part to the inherent action research nature of such work which inhibits replication of trials and the scientific use of controls. Whilst these arguments have to be addressed by promoters of PRA, it is clearly preferable to carry out some form of participatory appraisal than not to consult the end users of the activity at all.

The case of the Pondicherry VKCs is fundamentally different because MSSRF is a local organisation which has workers based in the communities and is in constant

repeated discussions with the villagers. It is an Indian institution working with Indian communities in India. Much of the fundamental language and culture is common to all involved, rather than being a barrier as it so often is for a foreign NGO. MSSRF remains an integral stakeholder in the project. In this case a PRA is a valuable and essential information gathering and sharing stage, and a satisfactory outcome is needed before a VKC is established. The PRA is also an ongoing process within each VKC and informs the appraisal of future centres. The initial PRA usually can take several months to a year to complete.

The basic methodologies: start with the local need and follow *Antyodaya*

One phrase which recurs repeatedly at MSSRF is “scientific level know-how, field level do-how”. This expression reflects the underlying philosophy of not only the VKC projects, but all projects issuing from the Foundation. The scientists may have knowledge which has the potential for usefulness, but it is at the local level that anything is done with it. It is also believed that there is existing local knowledge within villages which is inherently useful to other villages, if they could have access to it. This means in practice there are two core information sources for the VKCs; interpreted, locally relevant scientific knowledge, and shared local or indigenous knowledge. The need for interpretation of the scientific knowledge and sharing of local knowledge leads directly to the adoption of a hub and spoke infrastructure described below.

Blaikie et. al. (1997) have looked at local knowledge (LK) as a development resource within three development paradigms, the classical (very top-down, deterministic development), neo-liberal (largely market driven development) and neo-populist (very bottom-up, action research based development). All of these paradigms tend to look at the value of LK from the external development agency’s viewpoint of its use as a resource for development. In the VKC paradigm, LK is seen as a core resource which can be used in different locations if it is found to be appropriate by the other end users, not by the enabling agency.

The other driving philosophy of all MSSRF’s work is the fundamental Gandhian principle of *Antyodaya*:

“... recall the face of the poorest and the weakest man whom you may have seen, and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny?”

Mahatma Gandhi

The intention of *Antyodaya* is to promote reflection on the relevance of proposed actions to those who could be affected by those actions. If this relevance is not clear and articulate, the actions will probably be of little lasting value and should be reconsidered. In the case of the Village Knowledge Centres, many cases of benefit were collected and recorded from the initial Pondicherry Information Village experiment to establish that the Centres had proved of value to the local community before the experiment was expanded (MSSRF 2003)

Content and connectivity

Two core components of the VKC model are locally relevant content and appropriate network connectivity. A VKC has access to the whole of the internet, but the nature

and quality of most of that information is unsuitable or incomprehensible to Indian villagers. What they need is relevant information for themselves and their locality, presented in their own language. This is addressed by setting up a local intranet containing locally useful and relevant information which is used by all the villages and managed by the hub centres and the enabling agency.

Content: locally relevant knowledge

The information on this intranet may be edited and simplified versions of scientific advice, such as agronomic recommendations, medical advice or commodity market information, or it may be shared local knowledge about, for example, how one farmer may be successfully tackling a local crop disease. The information is held in the local language, Tamil, which immediately makes it more accessible than the vast majority of information on the internet.

Information and derived knowledge is also stored on CD-ROMS and distributed to the VKCs where they can be used for training and education. These may use video, audio and simple animation to make information intelligible and useful to semi-literate users. These CD-ROMS are in many cases prepared by educational software companies and donated to the VKCs for use by local school children. The local schools will often hold classes in the VKC, using the computer as an audiovisual aid.

In addition to the intranet and CD-ROMs, other means of knowledge dissemination are used, such as newsletters, public notice boards, blackboards and public address systems for relaying important, timely warnings. (In one fishing village, the VKC public address system was used to warn of the coming tsunami in Dec 2004. A son of the village, living in Singapore, heard about the Indonesian undersea earthquake on the local news and rang a relative in the village to tell them to warn people to get away from the beach. The warning was broadcast in time and although the village was badly damaged, there was no loss of life.)

Answering local need is the core of the paradigm. A poor rural farmer does not need to know the current grain prices on the international commodity markets, but he does need to know the price his produce can fetch at the nearest market town that has sent a buyer to his farm. This allows him to negotiate a fair price with more confidence. (An example of this activity can be seen at the online daily market prices for Oddanchatram in Dindigul district of Tamil Nadu, managed by MSSRF) (Oddanchatrammarket.com 2006). He will not understand scientific papers on plant pathology, but he will appreciate step by step techniques to tackle sugar cane rot, if there is a local outbreak.

Much of the content of the intranet may be local knowledge which is shared between villages by means of the VKCs and their various publishing and broadcasting media. This information would be collated and digitised by the hub centre and then made accessible to the VKCs on the spokes. The information can be further shared with other hub centres and with similar centres in other countries, such as Sri Lanka, East Africa and Afghanistan through the planned OpenWorld Network, a project being pursued with OneWorld Network (OneWorld Network 2006). In this future development, the intention is to hold internationally useful knowledge in separate databases for each language, with an English meta-database linking and indexing them. Some similar system will have to be used within India itself as different projects are linked under *Mission 2007* because of the multiplicity of languages in that one country.

Connectivity: whatever works locally

ICT connectivity in rural India would at first sight appear to be a major obstacle, but a range of solutions have been found, working on the basis that there is always a workable connectivity technology of some sort, and this may be very different in different locations. Currently the connectivity technologies include cable, broad spectrum and duplex vhf radio, WiFi and direct satellite communication. These link the VKC to their hub, which in turn can link to other hubs, research centres and the full resources of the internet via direct satellite links provided by the Indian Space Research Organisation (ISRO). The cost of establishing connectivity can be high, but these start up costs can generally be met by capital investment by government and development agencies. The maintenance then becomes the responsibility of the VKCs themselves, with support of the enabling agency. The local volunteers will be trained in basic ICT maintenance as part of the capacity building within the village.

The technical infrastructure: hub and spoke model

The VKC network is based on a simple cell phone type structure. A single centre is defined and supported as a hub, which is linked back to MSSRF in Chennai as the coordinating centre by direct satellite two way communication provided by ISRO. This hub is then further linked by telecommunication spokes to each of its local VKCs by whatever is the most appropriate technology for each village. Some use direct line of sight duplex VHF, some broad spectrum radio, some cable TV. Mobile phones and WiFi offer further opportunities which are being tested. In many case the lack of existing local telecommunications infra-structures means that leapfrogging to wireless networking is most sensible and economic.

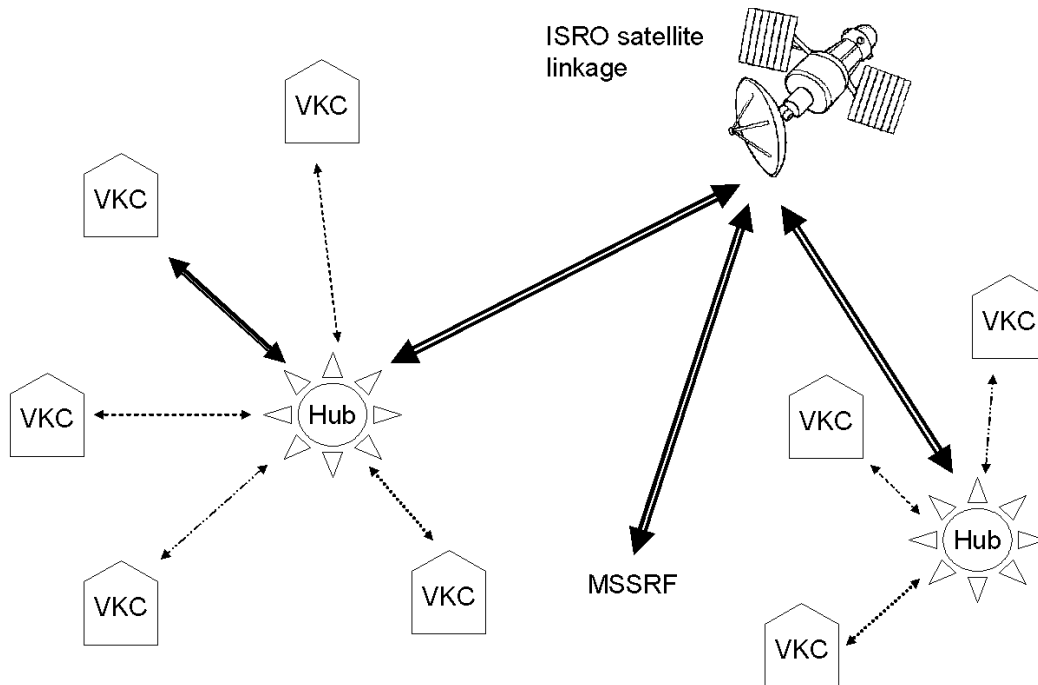


Figure 1 The basic spoke and hub infrastructure. Linking between hubs will make expansion of the network much simpler than trying to link all villages directly to each other.

This structure means that any local group of VKCs, such as the MSSRF Information Villages in Pondicherry, can develop as they see best, and complexities of linkage to other groups are handled by the hubs. This capacity for expansion and linkage to other networks via the hub centres drives the optimism that the targets for *Mission 2007: Every Village a Knowledge Centre*" (MSSRF 2004a) might realistically be achievable. It does however impose a significant staffing overhead on the hubs, which will have to be financed into the indefinite future. The networks will need long term government and commercial financial support, in addition to any start up funds provided by development bodies. Some of the services provided by the VKCs are also income generating, which will contribute to their sustainability.

This very free approach to the use of any available connectivity technology contrasts interestingly with the drive for common standards and interoperability which underlies so much digital communication development in Europe and America. The Open Geospatial Consortium (OGC 2006) is a good example of this Western approach. Here, data and data management standards are designed to be open, common and interoperable between different GIS technologies, allowing sharing and use of data to be possible without intermediate conversion or modification. The concept is laudable, but the reality is that vested interests in both the software and end user organisations mean that achieving such interoperability is difficult in practice. *De facto* standards are often imposed by the largest players, even if they are not the best.

The reasons for these different technical approaches to interoperability probably rests on the different nature of the work forces available. In India there are large numbers of skilled and experienced technicians working at significantly low salary levels, by international standards. In Europe and America the skilled workforce is smaller, very expensive, and so consequently complex, automated, standards driven systems are more economic. It will be interesting to see if India's continuing economic growth forces it to adopt a similar low workforce approach in the future. Such a change could have significant impact in the long run on the hub and spoke model currently adopted for the VKC model.

The functions of the hub

The hub centre is at the core of the VKC infrastructure and in connectivity terms works something like the central aerial of a mobile phone system cell. All VKCs link to one hub which in turn links to external information sources, the internet and cooperating experts and institutions. Staff at the hub are provided by the enabling institution, which therefore must have a long term commitment to the project. The original Pondicherry Information Village experiment had one hub at Villianur serving 12 village knowledge centres. Staff at the hub manage the databases of the local intranet. Villagers may make requests for specific information, such as times for local health clinics, or details of national examination results. The hub staff will find the appropriate information and if necessary, translate it and reformat it to make it accessible to the villagers. This information would then be added to the growing database for other users to access.

If the required information is complex or difficult to source, the main expert centre at MSSRF will search for it through its connections with academic and research institutions and prepare suitable responses for transmission back to the hub. This may be in the form of web pages, CD-ROMs or paper publications. (A core of MSSRF staff are dedicated to this work and I am sitting in amongst them as I write this paper.)

Where connectivity is suitable, video-conferencing links have been set up so that villagers can ask questions directly and verbally of the experts back in MSSRF. Many of them find this direct, conversational communication far easier than formalised requests for information that may be used in more technologically developed economies. It also demonstrates the value of using local experts who can talk directly to the villagers. I have taken part in one such conference with a villager asking about water conservation problems. Although the language used for my benefit was English, I had great difficulty in understanding or being understood, whereas the villager and MSSRF staff speaking in Tamil were able to discuss long and hard until they understood the problem and could develop a useful response.

The functions of the spoke, the Village Knowledge Centre

Each VKC is housed in a permanent building, or part of a building, provided and financed by the local villagers. This may be in a school, in a temple or a village TV room. This is to ensure that they have both commitment and ownership of the local portion of the network. In most cases they will also fund the cost of electricity, although this will be augmented by backup systems, usually solar powered battery systems, which are funded by the donor agencies or sponsoring bodies. The same sponsoring bodies will normally source and supply the hardware, software and connectivity technology.

Each VKC has one or more computers with CD-ROM drives, printers and scanners. These will be networked back to the hub centre by the most suitable means possible. In one village, the villagers had already obtained a cable TV connection by joining together to cover the subscription and cable cost, and digging the trench for the final connection route themselves. This cable was then be used for VKC connectivity and the communal TV room used to house the computers.

Each VKC is manned by trained local village volunteers, the Knowledge Workers (KW). They are chosen for their aptitude, commitment and any previous ICT experience. MSSRF make positive steps to encourage women to volunteer as this helps both with their empowerment in rural society, and ensures that other women are more likely to make use of the VKC. Training takes from five to fifteen days. In many cases the first stage is to simply introduce the KW to a physical fact of the computer, which many will never have encountered before. Then they are encouraged to play simple games with it, to learn how to use the mouse and the keyboard. This progresses to using the free programs such as *Microsoft Paint* to create simple pictures and diagrams. Eventually the KW can prepare and store basic information files in quite a sophisticated manner, and can access all the information sources available via the Hub centre. The volunteers are also trained in basic maintenance of the hardware.

The number of Knowledge Workers and sizes of the villages varies considerably. Details of numbers for the first 10 Information Villages in Pondicherry is given in table I. This shows great variation, particularly in the village population per volunteer, ranging from 182 to 4,500.

In use, a villager seeking information would talk to the KW, who would search the existing information sources for an answer. This might be for school and college exam results (very important in India and difficult for isolated villagers to find), weather reports, health advice, employment opportunities and application forms, commodity prices, etc. If the answers are of general interest, they will be further

disseminated, either by writing them on the village notice board, broadcasting them over a public address system or circulating them by the community newsletter produced by the project. The KW can also help job applicants, for example, to fill in online application forms, which would formerly have been impossible for them.

Village (some abbreviated)	Opened	Population			Volunteers			Villagers/volunteer
		M	F	Total	M	F	Total	
Kizhur	08-09-98	497	470	967	-	1	1	967
Embalam	05-01-99	2400	1600	4000	-	10	10	400
Veeramp.	04-04-99	3190	3100	6290	5	1	6	1048
Poornang.	06-08-00	2516	2563	5079	1	2	3	1693
Pillyarkupam	06-08-00	2400	2100	4500	-	1	1	4500
Thirucanchipet	05-12-00	270	277	547	3	-	3	182
Kalitheer.	20-02-01	3570	2490	6060	1	2	3	2020
Nallavadu	05-12-01	1850	1780	3630	2	-	2	1815
Koonichampet	22-01-03	2650	2350	5000	2	1	3	1666
Periyakalapet	04-07-03	N/A	N/A	2500	2	1	3	833

Table I: Details of the first 10 Pondicherry Information Villages (after Vedavalli 2005:12)

The Knowledge Workers can also generate some personal income by using DTP systems to prepare wedding invitations cards and helping to market local produce and handicrafts via simple e-commerce networks. This is important, as one problem for the whole project is retaining the support of the Knowledge Workers, who are very poor and have other heavy commitments on their time. Women in particular have still to manage their households and have little spare time to devote to other activities unless it generates resources for them. Even a small income can be enormously valuable in retaining their commitment.

Setting up a new Village Knowledge Centre: the ten steps

MSSRF have developed a structured methodology for setting up a new VKC, based on their experience with the Information Village experiment. This is set out in a handbook the *Toolkit for setting up Village Knowledge Centres (VKC)* (MSSRF, no date a) which is published in support of the *National Alliance for Mission 2007* (MSSRF 2004a). (The following ten step description is drawn largely from this handbook). It sets out ten practical stages, which will only be put in motion if a genuine local need and interest in acquiring and supporting a local knowledge centre is shown by the target village. This is determined in part by the full PRA exercise described earlier. Any target village also needs to be within the catchment (within a maximum of 60km) of an existing or planned hub centre.

Step 1: Social mobilization and Need/Demand Assessment

This stage is crucial, as a VKC will only be progressed by the supporting agency if there is clear support and welcome from the local community. The agency must first establish good personal relations with the villagers, who must also show a willingness to work with them. Then the agency can start to collect information about the village: its various communities and their structures, traditional information flows, existing resources and needs of different groups within the community. This is a long process of consultation and discussion between the agency and the village. It commonly takes two to three months and has taken nearly a year for one village.

Step 2: Community participation

Community participation is found to be essential, and although listed in the Toolkit as step 2, it in fact runs through the project continuously. The agency needs to build a partnership with a cross-community group of stakeholders, taking care to ensure that these are not dominated by self interest groups or individuals. The community is strongly encouraged to support the proposed centre both in cash or kind to develop full ownership, and to provide volunteers to run and support the VKC. This will not be done by the agency, who will manage the local hub only. The agency will however visit the VKCs on a regular basis. In one village there is a significant Dalit community. The VKC was deliberately established in their area, to ensure the Dalits had access. Higher caste villagers would make use of the VKC in this location, either directly or indirectly, if they felt it useful. They would however not allow Dalits to access a VKC in their part of the village at all, hence the choice of location to ensure equitable access to all.

Step 3: Connectivity

Technical solutions to connectivity problems can always be found. Conventional telephony systems are important, but often the participating community must provide the resources for the "last mile" connection to the commercial network. This can be through funds for cables or labour for digging trenches for that last mile. Modern wireless connections can prove both more efficient and cheaper than many conventional cable systems and many companies and institutions are working on advanced technologies which are surprisingly well suited to poor rural locations.

The problem of reliable electricity can be overcome in south India using solar photovoltaic panels linked to heavy duty batteries. These provide continuity and back up during power interruptions, which can be quite frequent.

Step 4: Content

Content is the core of the VKC and potentially the most labour intensive component. The techniques used for creating it are effective but they do require constant expert input, which is not a problem in the current and historic Indian economic climate, but may not be so applicable in other countries or in the future if India's economic growth continues at its current rate.

Content is defined in three categories:

- generic content such as government employment schemes, health and health service information, local news, etc.

- dynamic content such as real time market prices, examination results, weather forecasts
- timely content such as offshore wave height predictions and potential fishing zones for coastal communities

The latter two categories are really both examples of dynamic content, the difference being that timely content is used to make serious, immediate economic decisions, i.e. is it safe to go to sea *now* or where is it worthwhile to go fishing *today*?

Provision, maintenance and dissemination of content is at the core of the VKC model as these require a two way dynamic between the villagers at each VKC and the enabling agency managing the hubs. This means that the villagers must be trained and educated in both using the system and understanding what can be done.

Delivery of content uses many media, with the computer screen being only one output, and not necessarily the most used. Many of the end users are at best semi-literate and any printed or written output will be of limited use to them. Local languages vary widely throughout India, so final delivery must be in the appropriate language for that village.

Step 5: Hub and spokes model

This simple infrastructure model gives great flexibility and expansion potential. At most 25 to 30 VKCs (the spokes) are linked to a single central facility (the hub). The hub in turn is linked via satellite linkage to the State level hub at the enabling organisation. At present (2006) there are 8 hub centres serving about 40 villages in Tamil Nadu, Pondicherry and other Indian states, linked back to MSSRF. Plans are that there will be further State level hubs to support the local hubs, with MSSRF serving Tamil Nadu and Pondicherry. This model gives flexibility to the existing VKC development, but it may also contain a weakness in its requirement for a sizeable permanent staff at each hub. It may also be pertinent that although the ideal number of spokes planned per hub is 25 to 30, the reality to date is that the average number is about five. This means there is still little experience of managing a large, busy hub centre and appreciating how big a job this will become.

Step 6: Management, monitoring and evaluation

This stage sets out ground rules for general management and monitoring of the function and success of a VKC. From a long term sustainability view, this is one of the most difficult areas to establish successfully. The *Toolkit* (MSSRF nd b) sets out specifically that the implementing agency will form a management committee of experts, NGOs and village volunteers who will review the project. This will become an increasingly complex endeavour as the network grows. The author's experience in Central America is that institutional partners are reluctant to make long term commitment to supporting local activities unless they are guaranteed an income stream to fund this workload (Swindell 2002).

Step 7: Services (multi purpose centre)

Step 7 sets out to ensure that the VKC provides a genuine, relevant range of services to the community. Emphasis is placed on local discussion between the implementing agency and as wide a range of villagers as possible. As the *Toolkit* advises, these discussions should take place "at farm fields, near the shore, market, tea shops,

temples bus stands, panchayat [community council] meetings..." (MSSRF no date b :11). The intention is that the content provided by the VKC is based on local need. Question banks are collected for the hub centre, where appropriate answers are sought and disseminated. This dissemination also needs to be appropriate, and not left on a computer. The most widely accessed output is in fact a local newsletter published by the hub centres and distributed from the VKCs (Vedavalli & Ramani 2005). This newsletter was first published in 2002 and is distributed from the VKCs twice monthly. It has been free, but is likely to have a nominal cost in the near future to support its sustainability and measure its genuine value in the community. Its current circulation is about 5,000 copies. Literacy levels in rural India are estimated at about 48% (Vedavalli & Ramani 2005) so there are sufficient readers in the villages to benefit from the publication. Vedavalli & Ramani (2005) have also shown through collected case studies that many illiterate people get their literate children and friends to read the newsletter to them.

Step 8: Partnership

The Toolkit emphasises the building of partnerships between the VKCs, local experts and remote institutional consultants. The realistic future of such partnerships would have to be considered. In order to involve external experts such as academics, research institutions and professional consultants, a long term funding stream will be needed to cover their costs, as has been discussed above. Whether this can be generated from small contributions from a large number of VKCs, can be provided by charitable organisations or becomes an area to be funded from Government revenues will have to be decided. A project of the scale of the planned *National Alliance for Mission 2007* (MSSRF 2004a) will require very significant management funding if it is to be more than an aspiration.

Step 9: Capacity building

Capacity building for the local communities is one of the drivers for the establishment of the VKCs. That this has been achieved in some areas is clear from the various success stories for individuals in the villages. (MSSRF 2003) The *Toolkit* envisages that future VKCs will be established by local community groups, although the current experience is that the work has to be instigated and supported largely by an external implementing agency. The *Toolkit* also envisages that capacity building must be supported for local groups, such as youth clubs, fishermen's societies, panchayats, ICT and women's self help groups, in advance of moves to set up a VKC, so that the local community has a greater strength to drive these developments themselves. Although capacity building is given as step 9, again it is really one of the first and continuing activities of the whole programme.

Step 10: Sustainability

This is the key question. Will the VKC model develop into a sustainable system both at its current local level and at its planned national level, or will it become yet another well intentioned development programme which weakens and dies once external interest leaves and moves on? The VKC project recognises this and addresses it in two ways.

Firstly, it must be of local value, driven by local needs so that the villagers themselves gain a clear benefit from its services and will want them to continue. This will encourage the village to continue to provide support such as free housing for the

VKC, possibly free electricity and some salary payment to VKC volunteers. In other words, the villagers will become self-interested investors in the VKC, not the just the "stakeholders" so hopefully promoted by participatory development projects (Rhoades 1998).

Secondly, the VKCs must have a clear and developing business plan which includes fee paying and income generating services. These already include such basics as VoIP telephony both between villages and to distant relatives, training courses in computer skills, giving access to micro-credit and rural enterprise schemes and developing small scale but important rural e-commerce enterprises. These can be small scale craft manufacture, some tourism information, distance education and IT based services, where the VKC can provide work such as simple DTP at very low cost. A project with an income stream can be sustained where externally funded ones often wither once the funds are discontinued.

Discussion and conclusion

A common way for ICT to make its first impact on small communities in India and other developing countries is through the establishment of small, privately run internet browsing centres or more formally constituted information kiosks. These give access to the internet and usually have some additional technological capabilities such as printers and possibly scanners. The problem for inexperienced users with these centres is that there is no support or guidance for new users, it is simply a resource. The impact of these kiosks on the local economy and community is likely to be very limited. Those who have never used ICT before are unlikely to simply walk in and start surfing. (There are reports in the local newspapers of a 106 year old grandmother doing just that in Kerala. She walked in and said that her grandchildren all "used this place" and she wanted to know how to do it too. But this is unusual.) The long term survival of such kiosks will largely be a matter of economics. If enough people pay to use them, they survive. If not, they close when cost of running, maintenance and support takes its toll.



Plate 3: A privately run information kiosk in Kerala, providing internet browsing, email, telephone services, DTP, printing, FAX and scanning, all powered by a stand alone generator.

The ITC supported *e-Choupal* system (ITC 2006) is quite different as its information kiosks are supported by a very large agricultural commodity company which has established these centres specifically to support farmers in their business and supply chain management, which in turn benefits ITC. The system has expanded rapidly and will endure for as long as it has commercial support, which is likely to continue indefinitely. It is limited to agricultural use. This is clearly very beneficial to the local farming economies in India, but it does not support general community capacity building as it does not address education, training, employment, e-commerce, gender or social exclusion.

The MSSRF Village Knowledge Centres work quite differently. No technology is introduced until a village has been thoroughly appraised of its social needs and aspirations. If a VKC is established, it is accompanied by intense training of chosen volunteers, called Knowledge Workers, plus any other villagers who want to learn. This initial training can take up to 15 days and will continue in the future with regular visits from MSSRF staff. The VKC is linked to a support hub, where expert staff can receive requests from the villagers and help source and, if necessary, interpret and translate the answers before disseminating them to all VKCs. At all stages, the concept of capacity building for the villagers is the driving force. They choose what they want, they pose the questions and they provide the physical space and volunteers to run the VKC. The information provided covers all aspects of community life and is available to all members of the village.

The hub and spoke model gives the strength to the system, as it introduces accessible expert support, but may also contain inherent weakness as it is scaled up to regional

and national levels. The hub centre processes information requests and outputs and is dependent on a permanent staff of four or five to do this. They are employed on an annual basis and will be required for the indefinite future of the project. Using the figures from the Pondicherry experiment, the hub centre there supports 10 VKCs with a total population of about 40,000. If this hub and spoke unit was expanded to the 25 villages that a full unit is seen as servicing, this population could rise to about 100,000. If VKC use becomes significant amongst the whole population, the hub staff could rapidly be overwhelmed. (At present, March 2006, each VKC is used about 25 times per day and this is increasing.) This problem will be further exacerbated as the hub and spoke concept is expanded to link other clusters. This will increase the work load on hub staff, particularly in translating between multiple local languages and maintaining English metadata on the content of those translations.

The ultimate goal of Mission 2007 (MSSRF 2004a) is to link all currently isolated Indian villages, about 100,000. Using the hub and spoke model, this could require approximately 4,000 hub centres (at 25 VKC per hub) and these could be serving a potential population of 40 million or more villagers. Just the current usage of 25 visits a day could lead to 100,000 daily requests circulating in the system. The numbers involved are enormous and possibly unmanageable, although the real numbers would be significantly less as many other networks, such as *e-Choupal* would be included and these do not use the hub and spoke paradigm. However, a very significant increase in use and demand is inevitable. The challenge to the whole project will be how successfully it can be scaled up, and how the potentially large staff overhead can be managed and financed in the long term. This will be the test of the long term sustainability of the original Information Village experiment.

References

- Blaikie P., Brown K., Stocking M., Tang L., Dixon P. and Sillitoe P. (1997) *Knowledge in Action: Local Knowledge as a Development Resource and Barriers to its Incorporation in Natural Resource Research and Development Agricultural Systems* 55:2 pp 217-238
- IDRC (2005) *Impact of ICTs in Rural Areas (India) Phase II*
http://www.idrc.ca/en/ev-67531-201_100580-1-IDRC_ADM_INFO.html (accessed March 2006) IDRC, Canada
- ITC (2006) *e-Choupal* <http://www.itcibd.com/e-choupal1.asp> (accessed March 2006) ITC, India
- Martin A. and Sherington J. (1997) *Participatory Research Methods-Implementation, Effectiveness and institutional context* *Agricultural Systems* 55:2 pp 195-216
- MSSRF (no date a) *Toolkit for setting up Rural Knowledge Centres (RKC)* MSSRF, Chennai
- MSSRF (no date b) *Jamsetji TATA National Virtual Academy for Rural Prosperity (NVA)* MSSRF, Chennai
- MSSRF (2003) *Special write up on the experiences of those who benefited from the Knowledge centre* (Unpublished report listing 43 individual cases of benefit, including, discovering educational and employment initiatives for rural villagers, warnings on dangerous sea conditions for fishermen, storm warnings for farmers, produce prices at local markets and health advice.) MSSRF, Chennai

- MSSRF (2004a) *National Alliance for Mission 2007: Every village a Knowledge Centre: a road map* MSSRF, Chennai
- MSSRF (2004b) *National Alliance for Mission 2007: Every village a Knowledge Centre: mobilising the power of partnership* MSSRF, Chennai
- Oddanchatrammarket.com (2006) *Online daily market prices for fresh produce at Oddanchatram, Dindigul District, Tamil Nadu* <http://www.oddanchatrammarket.com> (accessed Feb 26, 2006)
- OGC (2006) *Open Geospatial Consortium, Inc.* <http://www.opengeospatial.org> (accessed Feb 20, 2006)
- OneWorld Network (2006) An international network of organisations seeking ethical and sustainable economic development <http://OneWorld.net> (accessed Mar 13, 2006)
- Rhoades R. (1998) *Participatory Watershed Research and Management: where the shadow falls* Gatekeeper series 81, International Institute for Environment and Development, London
- Swindell J. (1999) *Scenario based decision support systems; their use in sustainable development of rural land in Central American hillside regions* proceedings ROOTS 99, RICS London
- Swindell J. (2001) *Design of an on-line tutorial for decision makers in Honduran hillside agroecosystems* in proceedings of *EFITA 2001*, agro Montpellier pp 639-644
- Swindell J. (2002) *Participatory approaches to hill land development in Honduras* in Tropical Agriculture Association Newsletter, June 2002, pp 12-14
- Vedavalli L. (2005) *Village Knowledge Centres in Pondicherry, an anthropological perspective* MSSRF, Chennai
- Vedavalli L. & Ramani A. (2005) *Reaching the Unreached and Voicing the Voiceless: a study on the impact of Namma Oaru Seidhi, a community newsletter in Pondicherry* MSSRF, Chennai