

Baramati Initiatives

Using ICT for Social Development



 DIGITAL
PARTNERS



The Baramati Initiatives

Baramati Initiatives, started in 2001, is one such effort that brought together under, one banner, all those interested in using ICTs for the benefit of the rural poor.

Even in resource rich large corporations initiatives in using new technologies take a bit of doing. Starting them against all odds, without readily available resources and de-novo needs a leap of faith and leadership that can chart new course with the potential to make a difference.

Baramati Initiatives, started in 2001, is one such effort that brought together under, one banner, all those interested in using ICTs for the benefit of the rural poor.

However, the root of Baramati sowed was started in the fall of 2000, by a group of people who were exploring the possibilities of capturing the growing area of IT and Development into a movement. Mr. Kusakabe visited Satish Jha on a Sunday evening in 2000 and spent several hours discussing the possibilities that Tarahaat could offer and exploring ways of connecting such efforts on a larger scale. He invited Tarahaat to be presented in a World Bank conference in November 2000.

The conference on voices of the poor: local-global connectivity had participants from about 40 odd

countries. It showcased various efforts that were being taken to use ICTs in making a qualitative difference in the lives of ordinary people.

After the conference, it was felt that given its size and strength of the ICT related workforce, India had the potential to impact a larger number of people sooner than other countries and may become the next stop in taking the message forward. But funding was an issue. All that was there was a blueprint. It is here that Sharad Pawar, former Chief Minister of Maharashtra volunteered to host the next international get together in his constituency of Baramati, District Pune in Maharashtra. Kusakabe in turn asked Satish Jha of James Martin & Co to take charge of holding the next conference at Baramati as a venue.

Digital Partners has now become the prime organiser of the process and helps make opportunities for people who want to become engaged in furthering the charter of Baramati. Digital Partners in India is engaged in pursuing a Social Entrepreneurship program.

This year it has selected five organisations from South Asia that are trying to use ICTs for healthcare, micro-credit, artisans,

Digital Partners has also supported policy dialogues with government officials and bring global resources at no cost to the government to share perspectives and help find solutions to tricky issues of policy.

trade etc. Other projects include the Global Classmates program, which connects school students from India to the US and other countries including Africa. This program aims at using ICTs to get the students between 11 and 15 years to connect with their global counterparts, share projects that are facilitated by the respective schools, and use emails, net-meetings, videoconferences etc to pursue their goals through interaction.

Digital Partners has also supported policy dialogues with government officials and bring global resources at no cost to the government to share perspectives and help find solutions to tricky issues of policy.

Calling it an Initiative rather than a conference was a conscious decision. Today the Baramati Initiatives is becoming a symbol of bringing together the experiences of using ICT for development in India and now overseas as well. Its message is reaching out beyond South Asia to Africa and Latin America as well. Bringing together the social entrepreneur as well as the beneficiaries has created a hope in the community by connecting them to each other. The use of smart cards for micro credit management, or Drishtee, or Datamation, or evolution of Computer on Wheels to reach out to a new world through Baramati Initiatives cannot be forgotten.

At this time, the number of projects showcased in the second year has doubled and the success of the projects that were showcased in the first year has contributed in some ways to our achievement a year later.

The interesting aspect of Baramati Initiatives is what started out as a

voluntary effort is now in its third year attracting scores of projects and their leaders to come together to share their experiences and efforts in using ICTs to empower the poor. It is unique also in a way that the beneficiaries are as much a participant as the leaders of various projects discussed there.

In the past two years Baramati Initiatives has been able to launch various innovations, experiments, projects and has become a focal point of discussions in using ICTs for the poor. It has also become the first campus in India to experiment with Wi-Fi, and many projects showcased there have gone on to win several international awards.

The Third Baramati Initiatives Conference is being held from May 30 to June 2, 2003. The dates have become synonymous with the Baramati Conference. What is more, it has triggered a significant number of experiments across the developing world. This year 5 countries from Africa and Latin America are sending teams to Baramati supported by Infodev of The World Bank.

It needs to be said that it was Motoo Kusakabe's commitment to get something concrete out of the Voices of the Poor conference of December 2000 that led to Baramati Initiatives becoming a reality. Sharad Pawar's focus on turning Baramati as a showcase of development, and Satish Jha and Akhtar Badshah joining hands that allowed it the capability to become an inclusive and meaningful forum for all participants in ICTs for Development to come together and enrich each other.

Being Partner to Digit *all*

To begin with the credit must go to team of officials of The World Bank, Mr. Sharad Pawar whose constituency is Baramati, Digital Partners, VIIT, and those enthusiasts who are making ICT4D a national movement.

sd/-

Satish Jha

Any attempt to capture the spirit of an activity made possible by several participants can only begin by acknowledging the contribution each of them makes in making it happen. In the case of Baramati Initiatives it is far from easy to be fair to everyone given voluntary contributions of each of the participant. However, several people and institutions stand out in taking the initiative.

To begin with the credit must go to team of officials of The World Bank who have been more than generous and sincere in making it happen. Motoo Kusakabe needs to be acknowledged as the single most significant trigger to bring together the people who would finally kick off the event. His colleagues R Venkateswaran, Deepa Narayan and Robert Schware were instrumental in taking the torch and move forward.

The ground to celebrate social entrepreneurship was broken by Sharad Pawar who needs no introduction to anyone who has seen his contribution to making Maharashtra a progressive state that aspires to fuel entrepreneurship at every level, including in cooperative movement and educational system. His trusted lieutenant Amol Goje who runs the Vidyaprasthan's Institute of Institute of Technology (VIIT) carried forward to mission of the institution to fulfill the dreams of his leader.

Akhtar Badshah of Digital Partners is one of those untiring and passionate individuals who are gifted to bring people from all walks of life

together to the cause of a social goal and he has practiced it to build common grounds on urban habitat to architecture to empowering the poor. His ability to quickly accomplish what generally seem to be daunting and distant dreams is legion and he brought all his energy to ensure that no one could easily forget what we had all set out to do.

However, Baramati is a celebration of social entrepreneurship and it is the people who bring various experiments to showcase them there and learn from each other are both the cause and the contributors to make this initiative work. Every single organization along with their teams is to be credited for making this small town the new symbol of development debate in the times of information technologies. It will not be fair to single out organization or individual for what they brought to Baramati and this compendium. It is their work and we are mere story tellers of their pioneering work.

Finally, there are scores of people who supported the process that keeps Baramati Initiative together and several others contributed to make this brochure possible. From writing the brochure to managing the logistics and creating the atmosphere where every participant could virtually work round the clock for a few days and nights is something that would not have happened without support from Samir Bodas, Deepak Amin, Ninad Vengurlekar, and several others who in their own way contributed to making it succeed.



The Messenger of Knowledge

The goal of the Gyandoot project has been to establish community-owned, technologically innovative and sustainable information kiosks in the tribal dominated rural areas of Madhya Pradesh

Gyandoot was the first 'government-to-citizen' intranet project established in India.

The Dhar district in central India has a population of 1.7 million of which 60 per cent live below the poverty line.

The Gyandoot project was launched on January 1, 2000 with the installation of a low cost rural Intranet, covering 20 village information kiosks in five Blocks of the district. And now a network of 31 kiosks covers 311 Panchayats (village committees), over 600 villages and a population of around half a million (nearly 50 per cent of the entire district).

Gyandoot Service Offerings

The following services are offered at Gyandoot kiosks:

Agriculture Produce Auction Centres Rates -

Prevailing rates of prominent crops at the local and other recognized auction centres around the country are available

Copies of Land Records -

Documents relating to land records including khasra (record of rights) are provided.

On-line Registration of

Applications -Gyandoot allows villagers to send an application from a kiosk. Within 10 days, notification about the readiness of the certificate is sent via e-mail to the relevant kiosk.

On-line Public Grievance

Redress- A complaint can be filed and a reply received within 7 days.

Village auction site -It makes auction facilities available to farmers and villagers for land, agricultural machinery, equipment, and other durable commodities

Transparency in govern-

ment - Updated information regarding beneficiaries of social security pension, beneficiaries of rural development schemes, information regarding government grants given to village committees, public distributions, data on families below the poverty line, etc., are all available on the Intranet,

During the first 11 months, the 31 Gyandoot kiosks were used nearly 55,000 times.

making government functioning more transparent

Other services offered at the kiosks include on-line matrimonial advertisements, information regarding government programs, a forum for school children to ask questions, ask an expert service and e-mail services. In January 2000, the first month of operation, the kiosk network was accessed 1,200 times for a variety of services. That number reached nearly 9,000 by July 2000. During the first 11 months, the 31 Gyandoot kiosks were used nearly 55,000 times.

Implementation Challenges

In the initial phase, there were reliability problems with the dial up connection. Most of the local rural telephone exchanges (LRTE) did not operate with optical fiber cable. Now the telecommunications department has upgraded the connections of all LRTEs to which Gyandoot kiosks are connected.

Making Kiosks Economically Successful for Entrepreneurs

From the funds available with Gyandoot, two scholarships of Rs. 1,000/- each will be awarded each month for 5 years. School students of the senior class are being taken to the nearest kiosk on study tours. Special gramsabhas (meeting of all villagers) also have been initiated to discuss Gyandoot

and its services. Incentives in the form of cash awards (Rs 2,000-5,000) are being offered twice a year to three best performing kiosks.

Benefits and Costs

The entire expenditure for the Gyandoot network has been borne by Panchayats and the community. The network has been set up at a total cost of Rs. 2.5 million. The average cost incurred by the village committee and the community in establishing a single kiosk was Rs. 75,000.

Each kiosk has a computer, modem, a printer, UPS (4-hour rating), furniture and stationary. The first 20 kiosks established by the village Panchayat have been turned over to a manager/owner of the kiosk after executing an initial agreement for one year. The manager pays 10 per cent of income as commission to the District Council for maintaining the net.

Each kiosk was expected to earn a gross income of Rs. 4,000 per month. In practice, the gross income has ranged between Rs. 1,000-5,000 per month.

The Gyandoot project was awarded the Stockholm Challenge IT Award 2000 in the Public Service and Democracy category. The project also was awarded the CSI-TCS National Award for Best IT Usage for the year 2000. ■

The *Chiraag* of Internet Kiosks

Chiraag Internet Kiosk provides a variety of services ranging from e-government, health related, agricultural, veterinary, communication, classifieds, education, astrological and entertainment.

Abdul comes from a village named Keelavalavu in the Madurai District of Tamil Nadu. Out of the 12 members in his family, he is the only one to have attended University. After receiving his diploma in Mechanical Engineering and a post diploma in Automobile Engineering, Abdul started an APTECH centre in Natham, an area located approximately 50 kilometers from his village. After a few years of operating this center, Abdul heard about the Chiraag Internet Kiosk and began considering starting a center offering internet related services in his own village. In October 2001, he spoke to n-Logue representatives, and with their assistance established a kiosk center in Keelavalvu. This center has been running successfully, and Abdul has become the first entrepreneur to offer internet services to his villagers.

Services

Chiraag Internet Kiosk provides a variety of services ranging from e-government, health related, agri-

cultural, veterinary, communication, classifieds, education, astrological and entertainment.

E-government Services

These include access to the following certificates: birth and death; pensions for widows, handicapped, and old age persons; income, community, and nativity. The Kiosk also provides marriage schemes, girl child safety schemes, and loan applications to DIC schemes.

Health Services

Health related services include sending of patient complaints through voicemails and photographs to doctors in nearby Madurai hospitals. If necessary, doctors then send appointment letters allowing villagers access to both free hospitals and paying hospitals for further medical care.

Agriculture Services

These services target solutions to agricultural problems. For example, in the village of Ulagapichanpatti, leaves of the vegetables coined 'lady's fingers'

The villages are also using Chiraag Internet Kiosk to provide solutions for their veterinary problems.

were becoming white. The villagers were able to send an email to the Agricultural College, who quickly responded with a variety of solutions. Due to advice received, the farmers sprayed boron solution to the leaves resulting in large quantities of crops to be saved.

In another example, through a live net meeting to the Agricultural College, the villagers were able to show and simultaneously explain problems they were experiencing regarding their brinjal crops. In real time, the Agricultural College provided farmers with a viable solution, again resulting in large amounts of crops to be saved.

Veterinary Services

The villages are also using Chiraag Internet Kiosk to provide solutions for their veterinary problems. For goat rearing training, they have already registered 5 members through the Internet for this training at Veterinary University in Madurai. Next month, they will seek advice through email for their veterinary problems.

Communication Services

In order to facilitate the exchange of communication, services offered encompass email (creating IDs for people abroad), voicemail, video-

mail, chat, and netMeeting.

Marketing of Kiosk

Abdul initiated marketing of his kiosk by inviting over 150 villagers for an all day exhibition. Main activities at this event included auto and cycle rickshaw advertisements, handbills, bit notice, wall posters, and door-to-door canvassing ideas. Special activities included free eye check-ups with doctors in order to advertise health services. This resulted in 207 people receiving check-ups of which 33 people were later sent to hospitals for operations. Additionally, house-to-house data collection and awareness services were offered. To instigate interest in internet education, Abdul presented one month of free internet classes to women and elders. For children, free one-month internet courses were offered along with school awareness seminars. Other marketing incentives comprised of free gifts and a lucky dip drawing.

Future Services of Chiraag Internet Kiosk

Future services include train and bus online reservation bookings, selling of spare parts for agricultural machines, email for all veterinary information, and additional online education. ■

The Vision of Drishtee

Drishtee is currently in the process of installing low cost, self-sustainable, and community owned rural Intranet projects.

The project has been envisioned to cater to the social, economic, and development needs of the villagers through an innovative G2C (Government to Citizen) model.

Drishtee is currently in the process of installing low cost, self-sustainable, and community owned rural Intranet projects. Services are provided through Drishtee in a village (or a group of villages). A local villager owns a kiosk after having it financed through a government-sponsored loan. The employment generated potentially leads to a new breed of an IT literate generation, with a goal of 45,000 kiosk owners by 2003.

Each kiosk will have computers, which are located in village centers. Kiosks will be wired through an Intranet network. Besides the computer and modem the hardware set up at the kiosk includes a printer, UPS, furniture, and stationary.

Soochanalayas, or centers, have been established to cater to the 25 to 30 surrounding villages. Soochanalayas are located in the buildings of Gram Panchayats. These are nodes working as rural

cybercafe-cum-cyberoffices. Each Soochanalaya provides an option to access services to about 15 Gram Panchayats (25 to 30 villages or 20,000 to 30,000 people). Drishtee provides an option to access various services through its network to villagers living in 311 Gram Panchayats and over 600 villages and a population of around half a million.

The person operating the Soochanalaya is a local matriculate operator, called a Sookhak. A Sookhak is an entrepreneur, and only needs maintenance and numeric data entry skills. A village committee and the local community selected the Sookhaks for the original 20 centers. He/she pays 10 per cent of their income as commission to Drishtee for maintaining the net. Each Sookhak is expected to earn a net income of at least Rs. 6,000 per month at conservative projections after the end of Quarter 3 of Year 1.

Drishtee has developed software to run the intranet and various services. It is a simple and menu-driven software, which requires minimum data entry at the client end. The software is in Hindi language and requires the LINUX

Around 40,000 users have used the intranet system since the inception of the project.

operating system. MySQL will be used for the RDBMS backend and PHP as the programming language. Java is used for communication.

Obstacles

Infrastructure and power supply have been the two major barriers to getting Drishtee off the ground. With its continued expansion, track record, and establishment of new areas the obstacles are becoming fewer and fewer.

Impact

Around 40,000 users have used the intranet system since the inception of the project. Eleven new Soochanalayas have been established within eleven months of the project inception. Soochanalayas are running as economically viable units with all the Sookhaks comfortably earning a livelihood. All the commercial banks in the district are eager to finance new Soochanalaya units. There has been a four-fold increase in the number of users per month and an increased awareness of computers and IT in rural areas. This has resulted in

the opening of new private computer training institutions and enrolment in such institutions has increased by 60 per cent.

Efficiency level in the functioning of government departments has increased resulting in improved and prompt services to the rural masses. Self Help Groups in the rural areas are getting more organized and empowered due to the transparency brought about in government services and rural economy.

Scaling up

Drishtee is customizing its software and services for nearly 500 districts in India. It has planned to reach out to all the villages of the country in a three-phase manner. The groundwork has been established in many locations and the next phase is for expansion.

The long-term objective of the project has been to use innovative e-governance, e-commerce, and e-education techniques as a tool for social change and development through wired villages within districts. ■

The Network of Honey Bee

A knowledge network that connects innovators, enterprises and investment in an institutional context appears to be the most viable approach for future sustainable development.

The most encouraging new possibilities that ICT trends offer are the scope for democratizing knowledge. The multimedia database conceptualized by SRISTI and the Honey Bee Network demystifies the technology to empower local communities and innovators in rural areas.

Project Description

A knowledge network that connects innovators, enterprises and investment in an institutional context appears to be the most viable approach for future sustainable development.

Honey Bee Network, which began ten years ago, is based on the premise that knowledge collected from people should be shared and connect one innovator with another through feedback, communication and networking in the local language.

Implementation Strategy

A voluntary organization, SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) was set up in 1993 to strengthen the Honey Bee Network in different parts of the country. The role

of SRISTI is to help pursue those goals where action at the grass-roots level becomes imperative and where advocacy positions have to be taken

The Indian Institute of Management in Ahmedabad (IIMA) has played a significant role in the evolution of the Honey Bee Network. Policy mediation, networking, conceptual development and many other activities have been developed here.

Three examples of policy breakthroughs through the collaborative programme between the IIMA, SRISTI and the Honey Bee Network are worth mentioning here:

Establishment of Gujarat Grassroots Innovation

Augmentation Network (GIAN):

As a follow up of the International Conference on Creativity and Innovations at Grassroots organized at the IIMA in January 1997, the Gujarat Government helped in setting up a fund through partnerships between civil society, state government and academic and corporate institutions.

Presentation to the Prime Minister's Taskforce on IT:

An invited presentation on multi-

We can help strengthen people to people learning only when we ensure communication in local languages and media.

media database to the Taskforce was well received and a subgroup on content for IT applications drew upon this experience for developing national strategy.

Establishment of National Innovation Foundation (NIF):

A presentation was made to policymakers in the Ministries of Finance, Science and Technology, Departments of Scientific and Industrial Research, Agricultural Research and Education on April 26, 1999. An articulation of the concept in the pre-budget meeting with the Finance Minister led to the announcement of the funding of a National Innovation Foundation.

There are already 10,000 innovations documented in the Honey Bee database. It is designed to be user friendly and is in three languages, English, French and Gujarati. The database with thousands of innovations has been upgraded to multimedia capabilities so that barriers of language, literacy and localism are overcome to connect innovators, potential entrepreneurs and investors across regions.

Obstacles

We acknowledge that our database is much weaker in terms of

women's innovations. We are trying to overcome this aspect in the next phase of our action research.

We can help strengthen people to people learning only when we ensure communication in local languages and media.

Impact

The entire community seems to take pride in the fact that one of them is profiled in the. The demand for being scouted, catalogued and recognized helps extend the goals of Honey Bee Network immediately.

Scaling Up

The next step will be when local innovators would be able to feed in their own innovations to get comments from their peers, seek intellectual property rights protection, generate demand for their services or products. They could even get inquiries from potential investors or entrepreneurs interested in joining hands

Several innovative experiments have been started to explore this model for rewarding creativity. It requires acknowledging that not all innovators may have the potential for becoming entrepreneurs or have access to capital. ■

Connectivity for the Rural Poor

Based on the fact that 95 per cent of Indians do not speak English, C-DAC has been a pioneer in developing and proliferating the use of Indian languages on computers.

Established in March 1988, as a Scientific Society of the Government of India, The Centre for Development of Advanced Computing (C-DAC), is primarily an R & D institution involved in the design, development and deployment of advanced Information Technology based solutions.

Based on the fact that 95 per cent of Indians do not speak English, C-DAC has been a pioneer in developing and proliferating the use of Indian languages on computers. This technology is now extended to include multimedia and multilingual computing solutions covering a wide range of applications such as publishing and printing, word processing, office application suites with language interfaces for popular third party softwares on various operating platforms, electronic mail, machine translation, language learning, video and television and multimedia content in Indian languages.

Despite the incredible technological advances in information and communication technologies during the past one decade, the benefits of these technological

charges have yet to reach the rural masses and make a visible difference to their lives and living. C-DAC's expertise is accelerating IT usage for the masses through innovative tools and solutions.

GIST Education Program

Developed by C-DAC, GIST has now been known for more than a decade and has become synonymous with the standards for Indian language applications in IT. The initial development started in 1983 at IIT-Kanpur for an Integrated Devnagari Terminal. This was a DoE (Department of Electronics) sponsored project. The terminal, demonstrated in 1986 during the Vishwa Hindi Sammelan at Delhi, was a breakthrough in technology. Later in 1988, C-DAC took it up as a development of socially relevant language technology. C-DAC introduced the GIST-9000 Application Specific Integrated Circuit (ASIC) for making technology more viable and transferred the technology in 1990 to 25 companies for manufacturing GIST Cards and Terminals.

Since the beginning the common approach taken for Indian languages had a very good advan-

The real benefit of GIST is, ease with which it allows the use of an Indian language in the IT enabled world.

tage of multilingual usage and bigger applications spanning the country became possible. This also led to the standardization of the coding scheme as ISCII by DoE in 1986-88 and its adoption by BIS in 1991. A committee in DoE also evolved the INSCRIPT keyboard to ease the task of inputting in Indian languages. This development on GIST Technology has driven the establishment of standards.

The real benefit of GIST is, ease with which it allows the use of an Indian language in the IT enabled world. Large-scale use of GIST Cards and Terminals in projects of national importance has made this technology very well known. GIST has kept abreast of the latest technologies due to the large-scale penetration of the internet and has also developed solutions for the video industry, which require Indian language support. The strength of GIST Group has been to develop the backbone for Indian language technology and thereby deliver some of the most renowned Indian language products. Following are areas of importance that GIST has initiated:

- Development of the first Indian ASIC Chip. This GIST 9000 chip was used for GIST Cards and GIST Terminals
- Creation of Language Independent Programme Subtitles (LIPS). This Indian language subtitling system enables Doordarshan and other media companies to telecast regional language films subtitled in various Indian languages
- Deployment of Indian language studio equipment developed by

C-DAC in many studios in India and Middle East following the boom in India's entertainment industry

- Pioneered a number of Indian language products from the DOS to the Internet age - these include GIST Card, GIST Terminal, GIST Shell, ALP, ISM 2000, LEAP Office 2000, iLEAP, iPlugin, to name a few
- Development of a number of utilities as Spell checkers, Thesaurus, OCX controls, and application development libraries which enable better use of technology to implement Indian languages

On the strength of the proven GIST Technology, C-DAC provides technical assistance to other organizations for the localization of various software and IT equipment like Pagers, Xerox Machines, LCD/LED Display devices, High speed Printers, Dot Matrix Printers.

Multimedia Portal

C-DAC created India's first client-server multimedia repository called NMCR Portal. The portal hosts and disseminates information on multimedia contents, skill products and technologies.

The Portal offers parametric searching over databases, registration, feedback and content uploading facilities. These facilities are offered under multimedia bazar and multimedia dalan. The former is a kind of marketplace where users would find information related to multimedia while the latter is a showcase for those interested in having a special and exclusive presence on the portal.



GramChitra: Taking GIS to Grassroots

The evolution of GramChitra took place with the primary need of having a GIS enabled hand-held PDA while doing mapping and surveying.

GramChitra is the outcome of a collaboration between Media Lab Asia and Centre for Spatial Database Management and Solutions (CSDMS, India) and represents the world's first open-source GIS software for handheld computers. The evolution of GramChitra took place with the primary need of having a GIS enabled hand-held PDA while doing mapping and surveying. GramChitra has been conceptualized and developed as a GIS meant primarily for information gathering from different geographical locations, especially to be used as a decision making tool in rural communities.

Typically, the cost of GIS software on PC starts at around Rs.65,000 and goes up to Rs.4-5 lakh. Media Lab Asia has decided to release GramChitra free of cost in order to promote the use of GIS software for developmental purposes. GIS software enables the creation, storage, editing, and accessing of map related databases for 'visually intuitive and effective decision making'. The software has vast potential applications in areas like census data collection, revenue maps, block and panchayat level planning for

water wells, tube wells, epidemiological data collection for rural healthcare etc.

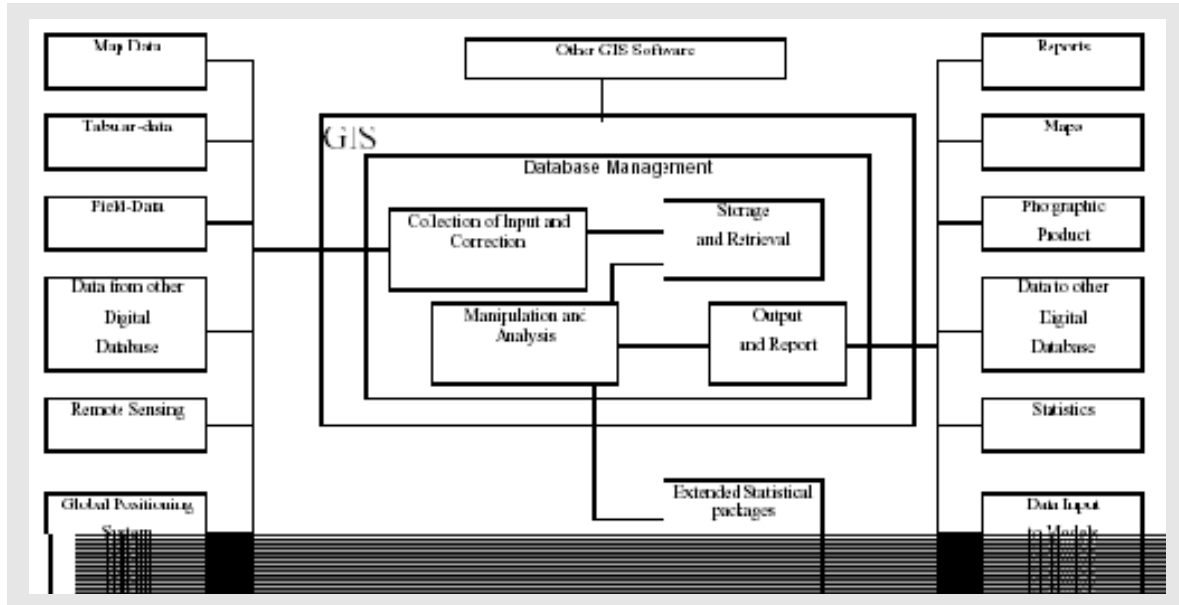
GramChitra Software

The basic design of the GIS software is schematically represented in Illustration 1. Some important features of this software are:

1. Spatial and non-spatial information display
2. Basic map viewing facilities like zoom and pan
3. Creation of user defined themes
4. Manipulation of layers
5. Creation, viewing, and modification of markups
6. Modification of spatial and non-spatial data
7. Measuring distances on the map using map ruler
8. Capability to handle multiple maps at the same time

GramChitra for handhelds has all the above features with an additional feature of navigation services using GPS devices

Illustration 1: Basic Design of the GIS System



Source: GramChitra - 'Taking GIS to Grassroots' (2002) published in Thinkcycle's Development by Design by Ravi Gupta, Maneesh Prasad, Bal Krishna, Ayon Tarafdar, Satyaprakash, R. Sivakumar, Saurabh Bagaria, P. Venkatraman, Alex Pentland.

GramChitra Pilot

The villages of Tikavali and Riwazpur in Faridabad were initially chosen for the pilot phase. The project started off with four broad objectives:

1. Generate village maps for planning and decision making.
2. Help the village community in utilization of maps for solving village related problems.
3. Develop an attitude of systematic and objective planning through innovative technology interfaces.
4. Develop a replicable and interactive model for an identified target area to help them understand /resolve their potential resources in the context of water.

It aimed to evolve a methodology of rapid and effective data gathering and village mapping that not only serves the purpose of data assimilation, but also addresses issues of raising map-awareness, infusing digital literacy, and move towards self sufficiency.

The Future

According to Media Lab Asia, in the future, GramChitra's capabilities will be extended to support data collection using low cost sensors for water and soil analysis, meteorological data, livestock management, environment and ecological conservation and planning. ■

Rural Development through Enterprise

HLL realizes that micro-credit in rural areas when carefully targeted and well administered, can alleviate poverty significantly. Importantly, success depends not only on the infusion of credit, but also on investment opportunities.

Hindustan Lever Ltd. (HLL), the Indian subsidiary of transnational Unilever Group has collaborated with various Self Help Groups (SHGs) and micro-credit organizations to create 'development through enterprise'. HLL has found that while banks are able to lend small amounts of money to large amounts of impoverished people for initial investments, they are not able to provide the actual investment opportunity. At the same time selling affordable products to rural customers in remote locations is a challenge to most companies.

HLL realizes that micro-credit in rural areas when carefully targeted and well administered, can alleviate poverty significantly. Importantly, success depends not only on the infusion of credit, but also on investment opportunities. It is impossible for banks to generate such possibilities. It is also difficult for NGOs to generate opportunities on a large scale. And there is a limit to which people can be employed in fit-quoted examples as artisans, vegetable vendors etc. In such cases linking village groups with corporations, results in a phenomenal

win-win situation for both poor communities and large corporations.

Self Help Groups (SHGs)

HLL has joined leading institutions in supporting rural SHGs to alleviate poverty and reduce disparities in purchasing power. SHGs are small economically homogeneous affinity groups of rural poor. These groups have initial outside support from banks and NGOs and they then manage and supervise micro-credit among their members. Peer pressure acts as a valuable collateral substitute, making SHGs effective intermediaries for the bank. NABARD estimates that the SHGs benefit roughly 20 lakh very poor families and has set a corporate mission to link 1 million SHGs by 2008 to cover approximately 100 million rural poor (about one-third of India's rural poor).

To survive, SHGs need to develop fiscal discipline and regular savings habit. The largest obstacle facing SHGs is lack of adequate income generation opportunities, hindering progression towards micro-enterprise.

Project Shakti

Project Shakti is HLL's marketing initiative that involves women belonging to micro-credit SHGs in Nalgonda District of Andhra Pradesh. Drawing upon the Grameen Bank concept, this project turns women into direct-to-home distributors for HLL in their area, thus helping the company expand its rural market penetration. Andhra Pradesh was chosen for the pilot project because 20% of its rural population is covered by the micro-credit model. For the Shakti project, 50 SHGs closest to the highway in Nalgonda district were identified. These are covered by three Mutually-Aided credit Thrift Societies (MACTS) which act as semi-distributors in this project. MACTs generally consist of 14-15 SHGs, are federated into a cooperative, and work in close tandem with the SHGs.

The products being sold through this unique direct marketing initiative are HLL's leading brands including Clinic Plus shampoo, Lifebuoy soap, Wheel detergent, A1 tea, and Nihar coconut oil. For the women entrepreneurs, the Shakti project means income generation without the headache of starting their own ventures such as becoming vegetable vendors, fish vendors, pan shop owners etc., which has generally been the micro-credit model to date.

Project Shakti basically encourages a move from micro-financing to micro-enterprise by providing an investment opportunity and training on how to run such micro-enterprise.

The Women of Project Shakti

Ms. Rojamma was abandoned by her husband after she had given birth to two daughters. She heard of Project Shakti at a meeting at

the District Rural Development Authority's office, and took a loan of rs.10,000 from her SHG. Today the turnover of her enterprise is about Rs.20,000 a month. Her net earning is approximately Rs.1,500 a month which is double what she earned prior to becoming a Shakti entrepreneur. Ms. Rojamma says today she has the confidence of educating her two daughters and she has self-respect. "When they see me they crowd around me and call me 'shaktiamma'. I am someone today - it is more important than money".

Ms. Sundamma is 50 years old. Marrying three daughters left the family in deep debt. The couple's only son has separated from them. Her age does not permit her to engage in hard labor. She heard about Project Shakti through a meeting at the MDO office. She became a Shakti entrepreneur and has expanded her operations to her village and neighboring villages. Her income out of the enterprise is about Rs.1,200 to Rs.1,500 per month. She says that though she is 50 years old, Project Shakti has ensured that she is not dependent on anyone. Rather it is she who is helping out her children.

The Future

Project Shakti, HLL's attempt to use rural SHGs as an alternate distribution channel is spreading fast. It will be expanding to Madhya Pradesh, Gujarat, and Uttar Pradesh. HLL had come up with this solution as distribution costs were rising faster than sales as it pushed into new villages.

Today each woman notches monthly sales of Rs.15,000-20,000. But, the project has its detractors. An ex-HLL manager says it would be hard to scale up

and the first stage results were not up to the mark. Pradeep Kashyap of rural marketing outfit MART, who is working with HLL on Shakti counters "the cost of developing the project may be high, but all that is distribution and R&D. In the long run it will be viable".

HLL now reaches out to about 1 lakh villages. That leaves other 6-lakh-odd villages for it to cover. For HLL growth through penetrations isn't over yet.

HLL is an Indian subsidiary of the Unilever Group through a 51% holding. The Unilever Group is a Fortune 500 transnational selling over 1000 food, home, and personal care products through 300 subsidiary companies in 88 countries. The Unilever Group has been selling their products in India for nearly 100 years, though HLL in an earlier form was incorporated in the early 1930s.

HLL is almost a household name in India, and is highly regarded on several fronts. The Company markets about 110 brands of products ranging from soaps & detergents, foods & beverages, animal feeds, seeds, oral care, skin care, hair care, deodorants & fragrances, industrial detergents, specialty chemicals, etc.

Distribution is a key recognized strength of the company and it is reported to have about 7500 redistribution stockists in urban and rural territories. The company has been systematically increasing its rural penetration over the past 10 to 15 years.

Tools for Empowerment

Warana illustrated that the success of this particular project was not a case of empowerment achieved through the use of ICT, but rather an example of an empowered community that is adopting ICT.

For India, the increasing spread of information technology, both in the form of e-governance and rural development, represents a major opportunity to overcome historical disabilities and disempowerment, to compress the time required to reach the various goals of comprehensive development.

ICT for Rural Development: Warana

An example of the adoption of ICT by a rural community is Warana, in the state of Maharashtra, India, where the local cooperative is using ICT to streamline the operations connected with sugar cane growing and harvesting.

From the Warana experience, four key lessons on the use of ICT for development in rural areas emerged:

- before launching any ICT initiative, the information needs of a community should be thoroughly assessed
- content and software applications should be developed with continuous involvement and feedback from the community
- special emphasis should be placed on women and poor people's access

- operators from the grassroots are probably the best agents to bring ICT to rural communities

Warana illustrated that the success of this particular project was not a case of empowerment achieved through the use of ICT, but rather an example of an empowered community that is adopting ICT.

ICT for E-Governance: IIMA

Introducing e-governance in India is a challenging and mammoth task. Successful implementation of e-governance requires widespread access of the Internet, web and other emerging technologies. In addition, there must be an ability and willingness to re-engineer the workings of Government departments and manage such a large-scale change.

The Centre for Electronic Governance has been set up at the Indian Institute of Management in Ahmedabad (IIMA) with twin objectives of identifying worthwhile applications and disseminating knowledge and skills for successful implementation of electronic governance applications amongst the bureaucracy and other stakeholders.

A proof of concept application using ICT in the dairy sector was developed by IIMA's Centre for Electronics Governance (CEG-IIMA).

IIMA Projects

1 Dairy Cooperative Community

A proof of concept application using ICT in the dairy sector was developed by IIMA's Centre for Electronics Governance (CEG-IIMA). At the initiative of the National Dairy Development Board, around 2,500 of the 70,000 dairy cooperative societies in the country were, and currently still are, using electronic milko-tester machines. It is this success that motivated CEG-IIMA to enhance the Automatic Milk Collection System (AMCS) by developing the Dairy Information Services Kiosk (DISK) and Dairy Portal. DISK, when used with the Dairy Portal, significantly enhances the scope of services that benefit the farmers as well as the dairy industry.

DISK and Dairy Portal applications can be accessed from personal computers with Internet connectivity located at the milk collection centers of the Dairy Cooperative Societies (DCS). These personal computers have been in use at milk collection centers in AMCS to process the data collected by the electronic milko-testers. They have worked flawlessly at several rural societies for more than five years.

2 Government Administration

In an effort to drive digitization to the public sector, the Citizen Services Portal <<http://202.41.76.161:8080/godhra>> has been created. The objective of this Portal is to offer rural citizens improved access to information on government schemes and services while facilitating the process of applying for the same from their villages. These services are offered through an Internet

portal and PC based information kiosks.

Citizen Services Portal: The voluminous data received from various departments was categorized and converted to easily understandable local language formats. The portal contains about 130 forms, 45 schemes and 700 pages, cutting across 13 departments. Simple user interfaces were built for NOAPS, grievance redressal, search engines and feedback sections.

The portal is divided into the following categories:

- **Static information** - contains names and functions of local government bodies and officials.
- **Schemes** - Offered by one or more of the government departments, these schemes are targeted at all sections of society, women, SC/ST, OBC, BPL, etc.
- **Citizen's Charter** - Aims to improve public services and make them more responsive to their users.
- **Public Distribution System** - This section attempts to make the operations of the PDS more transparent.
- **Land Records** - Includes details of land (7/12, form 6, form 8a) held by villagers.
- **Naukri (work)** - For those interested in employment opportunities, this section provides a window to the Government's Employment Exchange
- **Voices of the Citizen** - Allows grassroots organisations and NGOs to register at the website by providing some minimal information. Individuals, who may want to express their opinion, may do so by approaching the relevant registered NGOs
- **Performance**
- **Feedback**
- **Grievance Redressal**

Bridging the Agri-business Knowledge Gap

ISAP is a network of professionals in India and the SAARC countries and is a non political non governmental organization.

This study is an overview of the network being created by the Indian Society of Agribusiness Professionals (ISAP) to enhance the rural incomes in India by enabling access to appropriate agricultural technologies and market intelligence to the masses living in the hinterlands of India and the SAARC region.

ISAP is a network of professionals in India and the SAARC countries and is a non political non governmental organization. The professionals who have set up this venture have experiences in the fields of agriculture, allied agriculture, rural development, engineering and management. ISAP is probably the largest network connected with agriculture and rural development in the world, with over 7000 members (of whom more than 1000 hold PhDs) all over India and abroad. It has 42 chapters, 350 NGO partners and has answered well over 3000 queries raised by members of the farming community.. ISAP has been selected by Digital Partners, USA as one of the Most Promising Social Enterprises for their 2002 Award.

Knowledge Gap

Of the 13,000 food and agricultural graduates in India every year, only 50 percent find gainful employment with the Government, public and private sectors organizations. The post education work of all such graduates is largely in isolation. Consequently, the farming community is deprived of the expertise and excellence of these individuals because there is no organization, system or mechanism that will enable an easy and effective communication between the seekers of the knowledge and the providers of the knowledge.

ISAP uses the strengths of ICTs to satisfy the needs of the farming community by providing information and knowledge. The network offers numerous advantages to both seekers of services as well as providers of services. Seekers are able to attain an expanded supplier/service providers base with authentication. The site itself offers a forum for seekers to post requirements, in addition to referrals from other users for various services. Providers also gain a certain knowledge value with constant updates on happenings and developments in the sector. In

ISAP hopes to create a city/center wise network of functional experts.

addition, providers enjoy access to a large base of service seekers and opportunities to form consortiums with providers of complementary services.

ISAP hopes to create a city/center wise network of functional experts. These experts will be classified according to their domain specialization, eg., horticulture, vermiculture, pathology, entomology, etc. They estimate the population of experts to be of the order of 5,000 and are targeting to have at least 25% on their panel within 2 years. In addition, the organization would like to enroll at least 100,000

Agribusiness professionals as associates within 5 years. The professionals can be unemployed graduates, progressive farmers, manufacturers, service providers, buyers and customers of agricultural products and services.

In order to create real impact in rural areas, ISAP is trying to set up and manage agribusiness clinics by providing training, course content, know-how and managerial inputs to those interested. This will also include helping entrepreneurs to arrange finance and launch services. Consulting and educational services are to be provided to all participants and participants will be able to use the forum to submit their Request for Proposals (RFPs) and a panel of experts will then respond with specific proposals. This Project will act as the facilitator that will bring the service users and service providers together. To attain market information ISAP is look-

ing to enter into strategic alliances with information service providers. ISAP Services

ISAP uses the strength of ICT to satisfy the needs of the farming community by providing information and knowledge. The Indian agricultural sector accounts for 65% of the employment in the country and an increase in farm incomes, however, modest, will lead to the betterment in the lives of 650 million people. ISAP hopes to enhance rural farm incomes in India and the SAARC regions through the following means:

1. Creation of a national and international network of food and agribusiness professionals involved in all business aspects of the agricultural sector
2. Creation of a few model agribusiness clinics
3. Creation of a system to identify motivated agricultural graduates and to provide training and project services to them to enable creation and sustainable working of a large number of agribusiness clinics
4. Creation of a mechanism for sustainable delivery of information products & services to the farming community through the agribusiness clinics

Some specific services that ISAP is providing are presented in Table 1. Notable work and collaborations already completed by ISAP include:

1. Teaming agreement with Winrock International, USA.
2. Agreement for query Redressal Services with

To handle information needs of corporations interested in specific agricultural markets. Supported by its grass root network, ISAP can do impact assessment and other studies on the ground for corporates, funding institutions, and government departments.

- Drishtee, n-Logue, and Chambal Fertilizers.
3. Analysis and structuring of business plan with Digital Partners and students at Kellogg Business School and Cornell Business School.

Table 1: ISAP Services

Service Name	Description
Monthly News Bulletin	Comes with every Rs 50 registration with ISAP. This will contain a monthly update of ISAP Activity as well as details of the interesting queries addressed during the particular month

Query Redressal Services

Queries from farmers are passed onto the concerned experts and the answers are emailed/posted to the farmers. ISAP has agreements in place with Drishtee and N-Logue to funnel in queries from farmers. They have also partnered with a sizeable number of NGOs to support the farmers in their areas of operation. Once a member of the ISAP network, a farmer is entitled to post his queries directly to ISAP.

Consulting Services

To handle information needs of corporations interested in specific agricultural markets. Supported by its grass root network, ISAP can do impact assessment and other studies on the ground for corporates, funding institutions, and government departments. Today these studies are done by consultants who are based in large cities and in many cases the cost of monitoring and evaluation equals the amount spent on proj-

ects.

Corporate Customer Relationship Management ISAP acts as a back end for customer relationship management which is normally a department within every Agri-corporate. ISAP will offer to take up the task of customer query redressal on behalf of the corpo-

Agri-clinic Start-up and Sustainability ISAP helps set up and manage agribusiness clinics by providing training, course content, know-how and managerial inputs. Agri-Clinic s are run by private individuals/NGOs/Co-operatives. The role of ISAP is only advisory in nature and ISAP will not be involved in day to day running of clinics. These clinics fall under the relevant schemes of the GOI and therefore will be eligible for the subsidy, training & other incentives provided by GOI.

Content Aggregation and Dissemination ISAP would like to link various service providers to the farming community through its networks. ISAP also helps establish market linkages by helping the local volunteers organize Self Help Groups of farmers and facilitating movement of farm produce. As part of the market information service ISAP has empanelled experts in 50 districts across the country. ISAP gets a monthly update from each of these experts in a predetermined format. Consolidation and analysis of this work is done in ISAP, Delhi and the monthly report will be made widely available through out the ISAP network ■

The Nth Logging

Existing technologies for telephony and Internet access will not suffice if costs are to remain in line with market conditions.

Despite its comprising the second largest population on earth, with more than a billion people calling it home, India has barely 25 million telephones and fewer than 2 million Internet connections, and most of these are confined to a hundred of the largest cities. This leaves the vast majority of India's expansive countryside with negligible connectivity.

The Cost of Connectivity

With the basic cost of providing conventional telephone and Internet connections at about Rs. 35,000 (USD 746.27) per line, an operator would require monthly revenue of about Rs. 1000 (USD 21.30) to break even (assuming 35 per cent return covering interest on investment, depreciation and maintenance). As a monthly payment, this figure is affordable to barely 2-3 per cent of Indian homes, and they are concentrated in large cities.

Market Implications

nLogue Communications Pvt. Ltd. is a company recently formed under the auspices of the TeNeT Group, which is comprised of faculty and researchers at Indian Institute of Technology (ITT) in Madras, India. TeNeT Group and

nLogue Communications recognize the implications of these various market indicators.

Existing technologies for telephony and Internet access will not suffice if costs are to remain in line with market conditions. New technologies must therefore be developed-or existing technologies adapted-that will enable these services at a fraction of current costs.

Description of the Project

TeNeT created nLogue to address the strict demands of the current market by adapting technologies developed jointly by TeNeT, Midas Communication (P) Ltd., and Analog Devices, Inc. Specifically, the company has adapted Wireless Local Loop (WLL) technologies to specifications that address the economic realities of rural India.

The Technology: corDECT

corDECT, as this WLL technology is called, provides a telecommunications infrastructure at a fraction of the cost of standard systems, providing enough bandwidth (70 kbps, total) to allow for simultaneous voice and Internet connectivity.

Per-line access costs for corDECT providers in sparsely populated areas are between Rs 13,000 (USD 277.19) and Rs 17,000 (USD 362.47). Additional technologies developed under the aegis of TeNeT, such as the Minnow ISP-in-a-box, further enable low cost Internet infrastructure and connectivity for system users.

Implementation through a Network of Partners

Rather than directly promoting and maintaining countless WLL networks, nLogue seeks to develop a network of local entrepreneurs to provide front-line implementation and services to local subscribers. These Local Service Partners (LSPs) will be in the business of setting up Access Centers in small towns and rural areas, which will provide simultaneous Internet and Telephony access to subscribers within a 30 km (19 mile) radius.

As part of their obligation to n-Logue, Local Service Partners are required to:

Actively market n-Logue services; provide after sales service to subscribers, satisfying their queries and offering product support; manage equipment at the Access Center; actively educate subscribers where needed and create awareness of available technologies; facilitate the building of Internet Communities within their subscriber base; and identify opportunities for Commerce over local networks.

In rural areas, subscribers will

usually take the form of conveniently located kiosks in surrounding villages. In addition to local and long-distance telephone service, these village kiosks will offer residents information on commodity prices, land records, certificates, weddings, etc., all of which will be collected and stored at the Access Center.

Revenue

n-Logue will earn its revenues through Agency Fees, initial setup fees, paid by LSPs upon entering agreement with the company. Additionally, n-Logue will collect annual franchise fees from these local entrepreneurs. Additionally, the company will share subscription and other revenues collected by LSPs.

Initially, n-Logue Access Centers will generate the majority of their revenue through basic telecom service. Subscribers will have telephone service access for a nominal cost, and inter- and off-network communication will be available at rates charged by the Department of Telecommunications or private Basic Service Operators. As the market becomes more aware of the benefits of Internet connectivity and commerce, Access Centers will generate additional revenues.

Obstacles and Risks

Despite optimistic initial predictions about the spread of WLL technologies to fulfill the telecom needs of developing countries, factors ranging from overall cost, unanticipated line-of-sight issues, and sluggish bureaucracies have

disappointed analysts.

Impact and Benefits

Information from beyond the traditional reach of local markets and de facto monopolies will empower farmers and merchants, and the advent of new products and services will have a marked, positive impact on quality of life for local residents. Local governments and other institutions will be able to improve their efficiency and, therefore, their service level to local residents.

Future Growth

With such vast numbers of Indians currently without basic telephone or Internet connectivity, the market potential for the products and services offered by nLogue is significant.

Given the arrangement of villages and coverage areas, up to 200 villages can be serviced by each Access Center. nLogue intends to expand steadily, connecting at least 1 million subscribers in three years. In the longer term, the company aims to establish a presence in every district across the subcontinent.

For more Information Contact:

Prof. Ashok Jhunjunwala
Head

Department of Electrical Engineering

IIT Madras

Email:

ashok@nimbus.ee.iitm.ernet.in

ashok@tenet.res.in



The PlaNet of Financial Services

PlaNet Finance supports organizations offering financial services to the very poor or working towards the development and promotion of microfinance in developing countries through the activities of its specialized departments.

PlaNet Finance is an international non-governmental organization whose goal is to use the potential of the Internet for the development of microfinance.

PlaNet Finance supports organizations offering financial services to the very poor or working towards the development and promotion of microfinance in developing countries through the activities of its specialized departments. These include PlaNet Rating, PlaNet Library, PlaNet University, PlaNet Systems, PlaNet Ring, PlaNet Research, PlaNet Institution Building, PlaNet Fund, and the international network.

Services

PlaNet Finance offers its services to NGOs, MFIs, financial backers, and public authorities with the following objectives:

1. To evaluate and rate MFIs in order to improve their management and to facilitate their access to financial markets
2. To expose MFIs and advising agencies to sector information such as best practices, case studies, and management tools
3. To train practitioners in micro-

credit

3. To connect MFIs to the rest of the world by leveraging technologies such as the Internet
4. To evaluate the impact of microfinance on poverty. International experts specializing in microfinance and microenterprise provide the services.

Specialized Departments

PlaNet Rating

PlaNet Finance offers evaluation and rating services by experts from the PlaNet Rating department for financial institutions, microfinance institutions, and financial backers.

PlaNet Library

PlaNet Library is the forum for the exchange of knowledge and experience of microfinance within

PlaNet Finance

It is based on the sharing of expertise of different actors of microfinance, as well as of all available information in the field.

PlaNet University

PlaNet University is PlaNet Finance's center for training in microfinance and in the New

PlaNNet Institution-Building is a new entity of PlaNNet Finance that proposes assistance to governments to develop the microfinance sector where it does not meet local needs.

Technologies of Information and Communication (NTIC). Its goal is large-scale training of those involved in microfinance, such as local training centers, political decision makers, financial backers, and private users. It aims to achieve this goal through the provision of three services:

1. PlaNNet University on-line, which is an internet-based training center, which offers ten different training programs and is available in both French and English
2. PlaNNet University off-line, which has the objective of facilitating access to databases and other information support systems for microfinance by creating a CD-Rom of information and training materials
3. PlaNNet University in the field, which offers training seminars on location

PlaNNet Institution-Building

PlaNNet Institution-Building is a new entity of PlaNNet Finance that proposes assistance to governments to develop the microfinance sector where it does not meet local needs.

PlaNNet Research

PlaNNet Research is the research department of PlaNNet Finance.

PlaNNet Systems

Through PlaNNet Systems, PlaNNet Finance offers support in the installation and use of information technologies to institutions that are members of its network. It offers assistance via computer equipment, Internet access, e-mail, domain name, web pages and publicity.

PlaNNet Ring

PlaNNet Ring is the virtual ring that makes possible the creation a set

of virtual microfinance networks and informs financial backers by connecting MFIs via the web.

PlaNNet Fund

PlaNNet fund is an international project for refinancing MFIs that aims at assisting these institutions in their development. PlaNNet Fund will serve as an intermediary between capital markets in developed countries and MFIs in developing countries.

The Need

India currently boasts a total of more than 500 microfinance institutions. In rural areas, 36 per cent (210 million people) do not have access to banks, and only One million households have received access to microcredit from MFIs. Thus, there is a vast unmet demand for credit in both the urban and rural areas. Thus, microfinance in India desperately needs to be organized.

The Project: A National Database on Microfinance in India

The national database on microfinance in India would centralize all information and resources on microfinance and would create a cost effective means of communicating and sharing knowledge. Thus, it would create an efficient market by serving three specific functions: acting as a microfinance portal, a microfinance research center, and a business development tool.

Microfinance Portal

As a portal, the project would serve as an institution database and would contain statistics, events, research work, government policy, and information manuals. It would also provide links to other microfinance websites, such as MFIs, rural banks, NGOs, gov-

As a portal, the project would serve as an institution database and would contain statistics, events, research work, government policy, and information manuals.

ernment, donors, and experts. Finally, it would also provide links to local business development services, such as microfinance training centers.

Microfinance Research Center

This center would provide research for NGOs, MFIs, rural banks, and self-help groups such areas as policies and practices, present and past sources of financing, and rating; for donors, financial statements, an overview of present and past projects financed, and criteria used for evaluation; for government agencies, regulatory policy, taxes and restrictions, incentives offered, and registration procedure; and for experts, areas of interest, past and present projects, and location they would be willing to work in.

Business Development Tool

The improved channels of communication will create:

1. A more efficient means of creating business linkages between banks, MFIs, SHGs, NGOs, and government agencies
2. A cost-effective method for institutions to share and discuss best practices
3. A more efficient means of organizing joint training courses
4. A consensus on regulatory issues via opinion polls and forums
5. Comprehensive and up-to-date information for international and local investors
6. An efficient means of communication between microfinance

practitioners and researchers.

Project Objectives

The project in the short-term aims to facilitate the practice of microfinance on the entire microfinance sector; develop an efficient method of creating business linkages among banks, MFIs, SHGs, NGOs, donors, and government agencies; create a fast and cost-effective channel of communication; and track the progress of the microfinance sector, and bring all microfinance stakeholders together under one umbrella. It also plans on commencing efforts to create a road map for financial self-sustenance of the project's initiative and management.

In the long-term, it aims to develop the microfinance industry as a whole by facilitating the entry of new MFIs into the market, allowing existing MFIs to become sustainable faster, increasing the number of micro-entrepreneurs, playing a catalytic role to encourage a proactive donor and government policy, and building a linkage between microfinance and other poverty-fighting initiatives. It also aims to consolidate the road map for financial self-sustenance of the project's initiative and management.

Obstacles

The two largest existing obstacles are the lack of a revenue stream and finding the management necessary to guide such a project to successful completion. ■

Telco Kiosks across India

The Rural Telecommunications Project has spawned a number of small entrepreneurs, who have built and are operating DMR (Digital Microwave Radio) networks in a small number of locations.

The RADTEK-I (Rapid Deployment of Telecommunications Kiosks in India) model calls for a basic self-supporting telecommunications kiosk collocated either at a public facility or a small business operation.

In some cases, it may be a stand-alone facility, with access to power or the ability to generate its own power. The RADTEK-I (the Telecom/ Internet kiosk) may contain two or three telephone sets and a limited number of desktop computers. The connection lines can be several 8 Kbps lines along with analog or digital voice lines. The 8 Kbps data lines can also be used for voice.

Replication

The Rural Telecommunications Project has spawned a number of small entrepreneurs, who have built and are operating DMR (Digital Microwave Radio) networks in a small number of locations. This technology is still used in some parts of the rural United States. Target villages are connected to the central switch site, which can be 50 to 60 miles away, via multi-hop digital microwave repeaters.

The INMARSAT (International Maritime Satellite Communications) Organization is set primarily to provide maritime satellite communications. However, in recent years, it has been offering its "NAVCOM" suitcase-size satellite phone terminals. India has an INMARSAT Central Control facility in Bombay, and the user traffic is terminated at the PSTN in Bombay. As India is a signatory of INMARSAT, the INMARSAT terminals can carry voice and data traffic. NAVCOM terminals cost about \$4000 and offer up to 3 Kbps channels. INMARSAT time charges can run in excess of \$2 per minute.

Factors Affecting Rural Telecommunications in India

- cost per call
- dependability of the switch
- dependability/transparency of trunk medium
- system size (# of telephones that can be accessed on minimum unite fee basis)
- registration charges
- access charges
- special offers with respect to registration charges
- clearance of waitlist

All pay phone kiosks are wireless and operate using cellular technology.

- the fact that having a telephone means one must pay income tax
- proximity to switch (tele-density is inversely proportional to proximity to switch)

Available Options

Terrestrial Wireless Options

DMR Option: This involves obtaining a license from the Rural Telecommunications Board and reaching a service agreement with the PTT Regional Headquarters. This will permit deployment of DMR facilities in selected locations and interconnected with the PSTN switch in Ahmedabad, Baroda, or any nearby PSTN switch facility. A three hop system covering a range of 60 miles and offering three 8 Kbps channels will cost around \$10,000.

The price normally includes equipment and installation, including a set of subscriber terminals. This will be a permanent facility. The kiosk and computer cost will be separate. Access charges must be negotiated with the PTT. Channels can carry both voice and data communications.

Arrangement with Alternate Basic Services Carrier: This may not be a viable option. The Alternate Basic Services Carriers carry only voice and have yet to begin implementation beyond major cities. Access costs are expected to be very high.

Cellular Carrier: India has licensed cellular carriers in over a dozen cities. They offer GSM-based voice and data service. Access charges are kept around 30 cents/minute, per the Government mandate. It is possible, as demonstrated by Qualcomm, Alcatel, Ericsson, Siemens, HNS, and others, to offer fixed wireless service using

cellular frequencies. Budapest, Hungary is a very good example of this.

All pay phone kiosks are wireless and operate using cellular technology. The subscriber terminals are fixed (or cordless) telephone handsets. Recently Internet access has also been added. Ahmedabad and Baroda have cellular service. If the desired village location is within the cellular coverage area, it will be possible to make arrangements with the cellular operators to deploy fixed wireless kiosks at selected locations. Installation and service can be accomplished within 2-3 months, once agreement is reached with the cellular carrier.

Satellite-based Wireless Options

VSAT Terminals: It may be possible to obtain approval from the DOT (Department of Telecommunications) to integrate a limited number of VSAT terminals in earthquake-damaged areas. As there is no central VSAT call-structure pricing policy, it may become necessary to pay a fixed amount per month to the PTT for interconnecting voice/data traffic from each VSAT terminal with the PSTN network. This arrangement will provide both voice and data services. It may also be possible to reach an agreement with NIC of the Government of India, to deploy a limited number of VSAT terminals and interconnect them to the PSTN switch, via the VSAT Central Facility in New Delhi, India.

Inmarsat Satellite Phone: In disaster relief efforts, and for temporary services, the Inmarsat satellite phone is a quick way to deploy field equipment. However, it is not a long-term solution. Data

The Rapid Deployment of Telecommunications Kiosks in India (RADEK-I) focuses on implementing a limited number of telecom facilities in the earthquake-devastated areas, to probably a dozen villages.

rates are low and performance quality is poor. Service cost is high (as high as \$3/minute). In any event, this option must always be kept in mind a stopgap measure, as longer-term solutions are investigated and implemented.

Globalstar Service: If Globalstar India still has the license to provide service in India, and there is an operational gateway terminal, this option may be very useful. It is similar to the cellular wireless option, described earlier under terrestrial wireless options, and is not dependent on a base station to exist in the vicinity of customer kiosk location. In addition, cost of equipment and service pricing is similar to the cellular wireless option. Qualcomm and its licensees provide equipment and installation

Scalability

The Rapid Deployment of Telecommunications Kiosks in India (RADEK-I) focuses on implementing a limited number of telecom facilities in the earthquake-devastated areas, to probably a dozen villages. If initial efforts succeed, it is possible to expand the model to cover additional villages. It may also be possible to entertain business initiatives that will benefit from and support this public interest activity.

Obstacles

There are a number of obstacles RADEK-I will have to overcome. First, there are several access techniques to achieve the capability necessary. In each, it will be necessary to terminate the traffic at a PSTN digital switch. This architecture issue can be resolved once the viability and availability of a desired access scheme is determined. Second, although the rule regarding VSAT networks

has been waived temporarily, the government may be unwilling to waive it on a permanent basis. Third, modem-based Internet access is available only in major cities, and has yet to be obtained from the PTT. Application costs are high and the wait can be several months. Fourth, the licensee companies are mired in financial trouble and have yet to deploy any significant network. And finally, bureaucratic delays are inevitable unless ministerial involvement is achieved.

Assumptions Upon Which Implementation is Based

1. It is possible to obtain the support and approval of the Central and State Governments if the project is crafted as a nonprofit, humanitarian initiative aimed at alleviating the damage and pain caused by the recent earthquake.
2. If the objective is for a longer-term telecommunications solution in targeted areas, several government regulations and laws will have to be followed; provision of telecommunications service, particularly for voice and voice-based data services, can only be achieved through involvement of a licensed telecom service provider.
3. Equipment procurement, installation, and maintenance can be implemented with the availability of sufficient funds.
4. Even if influential NRI organizations are involved, it will be necessary to have qualified and well-connected local representation at the program management level. ■

SEWA: In the Service of the Women

SEWA organizes these women for full employment, including work security, income security, food security, and social security.

The Self-Employed Women's Organization (SEWA) is a trade union registered in 1972 made up of poor, self-employed women workers who earn a living through their own labor or small businesses. As such, they do not have salaried employment and thus do not enjoy the welfare benefits that those in the salaried sector do. This sector represents 94% of working women in India.

SEWA's two stated goals are full employment and self-reliance for its members. In pursuit of these goals, SEWA organizes these women for full employment, including work security, income security, food security, and social security.

The women are organized into cooperatives and federations to help and work as artisans, milk vendors, vegetable vendors, gum collectors, quarry workers, paper pickers, salt producers, small, marginal, and landless agrarian workers, and health workers.

SEWA's membership includes:

1. hawkers, vendors, and small businesswomen
2. home-based workers;
3. manual laborers and service providers

SEWA currently boasts a total of 84 cooperatives and federations and a membership of over 215,000 under the SEWA umbrella, including the following entities: SEWA Administration, SEWA Bank (including both housing and insurance services), the SEWA Health Care Programme, SEWA Child Care, SEWA legal services, and SEWA Academy.

The Informal Economy
The informal sector was defined in 1993 to include small-unregistered enterprises, paid and unpaid workers in them and casual workers without fixed employers. Obtaining accurate statistics on this sector has been extremely difficult, and as a result there has been a historical underestimation of this sector's contribution to economic growth. Where statistics do exist, estimates are the informal sector represents between 45% and 60% of non-agricultural GDP. In India, about 64% of GDP is accounted for by the self-employed. There is also significant overlap between those working in the informal sector and those who are poor, and is greater for women than men. A study commissioned by the World Bank and written by S.V. Sethuraman and Jacques

Charmes concluded:

- incomes of women and men are lower in the informal than in the formal sector
- the gender gap is higher in the informal than in the formal sector
- gender segregation means that women and men are involved in different activities or have different statuses within the same activity
- gender discrimination has led to gender gaps in education, access to credit, quality and location of business premises, scale of business, time constraints, and other constraints
- gender discrimination accounts for why
 - a) more women relative to men are in informal employment,
 - b) more men run micro enterprises in the informal sector, and
 - c) income differences exist between women and men in the informal sector.

The Information Economy
SEWA plans to establish computer centers in eleven districts of Gujarat and eventually link all 977 villages through Information Technology. To this end, SEWA applied to the World Computer Exchange (WCE), a Boston-based nonprofit that brokers the donation of used computers.

The application was accepted and SEWA was shipped half of the 400 donated computers (the rest will be employed in ten selected government schools). SEWA will use these for vocational training of SEWA members, improved communication within SEWA, administrative and design tasks for SEWA collectives, and computer-based education for the children of SEWA members.

Use of Information Technology

SEWA hopes to leverage the benefits of technology to strengthen the work efficiency of its members, grassroots managers, and their organizations. SEWA would utilize several different technologies to address different needs within the organization. Several SEWA units could use the new technologies, including the employment cell, the social security programme, Data Warehousing and Management, and SEWA Academy.

The project proposed by SEWA has two primary goals:

- To strengthen SEWA's institutional capacity to efficiently, effectively, and sustainably provide its services; and
- To strengthen the capacity of its individual members to utilize Internet technology in their respective businesses, gaining access to information and thereby increasing their profits.

Among the first goals, SEWA's employment cell would implement B2B e-commerce solutions, supply chain management by directly linking buyers and sellers, to utilize the technology for record-keeping, business plan data and monitoring, marketing and e-commerce, and obtaining stock details. In addition, utilization of new hardware and software to create a databases, data warehousing and Management, and creation of organisation-wide MIS, which will help themselves manage better and economical.

The SEWA Academy, which provides training and literacy programs while simultaneously researching policy change, will use the technology to provide ongoing leadership training for its members.

Finally, SEWA will be able to leverage the Internet to communicate with other organizations around the globe in order to form a virtual alliance of organizations and groups of people in similar situations. Alternative trade organizations (ATOs) can act as an important link to new markets and provide valuable knowledge of innovations and product demands. It will also help SEWA link up with similar grassroots organizations worldwide, such as the International network of Home based workers (HOMENET), the International network of Street Vendors (STREETNET), and Women in Informal Employment, Globalising, and Organizing (WIEGO).

Scalability

SEWA would initially train about 2000 organizers and grassroots leaders and 1000 children over the course of three years. It is also a replicable model that could be copied by other micro finance organizations.

Obstacles

SEWA lacks a revenue stream. Currently, SEWA receives grants from the Indian government and several international development organizations, including UNICEF, the Ford Foundation, International Labor Organization, and the Unitarian Universalist Church's India Fund. However, the generation of a fixed revenue stream will be imperative to maintain the sustainability necessary for venture funding. ■

Simply Computer

A joint effort of the Indian Institute of Science and a Bangalore-based software company took up the challenge and developed the Simputer - named as a short form for Simple, Inexpensive and Multilingual.

The Simputer project was conceived during the organization of the *Global Village*, an International Seminar on Information Technology for Developing Countries in 1998. The Seminar highlighted the point that the key to bridging the digital divide is to have shared devices that permit truly simple and natural user interfaces based on sight, touch and sound. A challenge was made to develop a low-cost, easily available device that would deliver local-language and icon-based IT access to the masses.

Project Description

A joint effort of the Indian Institute of Science and a Bangalore-based software company took up the challenge and developed the Simputer - named as a short form for Simple, Inexpensive and Multilingual. The device has an iconic interface, touch-sensitive screen and text-to-speech features in different Indian languages. The device is expected to cost approximately \$200.

While resembling a PDA, the device is much more powerful with an Intel strong-arm chip, a GNU/Linux operating system and 32MB RAM. The inclusion of a smart card reader and the extensive use of audio in the form of text-to-speech and audio snippets also distinguish the device from a PDA.

The Information Markup Language (IML) was created to suit the unique needs and purpose of the Simputer. Referred to by some as the 'Illiterate' Markup Language it was designed to provide the following features:

- Uniformity across diverse applications
- Ease of use
- Support for multilingual text and speech output
- Support for smart card usage
- Transparent access to remote/local resources
- Ease of application development
- Use of Internet standards
- Platform independence

Application development for the Simputer can be done on any platform: linux, windows, solaris, MacOS. Given the unreliable sources of electricity for the rural poor, the Simputer was designed to run on AAA rechargeable batteries or the mains.

Simputer Trust: The Simputer developers established Simputer Trust, a non-profit organization, in order to fulfill the catalytic vision of taking IT benefits to the rural masses. The vision is to promote the Simputer, not as an end product but as an evolving platform for social change.

The Simputer Trust will license the device's design and software

‘The Simputer is essentially an empowering device,’ and T-shirts declared ‘Radical simplicity for universal access’.

to manufacturers for mass production but keep a tight control on specifications to maintain standards. The device makers can modify the design but must pool back the changes to the trust after having a one-year head start in commercially using the modifications. A one-time license fee will cost US\$25,000 for firms in developing countries and US\$250,000 for those in developed countries. Funds from licensing will be ploughed back into research and development.

As with any IT hardware, useful applications rather cost alone will drive the demand and determine the success of the Simputer. The work of the Trustees is to encourage software developers, entrepreneurs, development agencies, nonprofit organizations and others to activate the potential of the tool they have provided.

The Trustees are Vijay Chandru (IISc), Vinay Deshpande (Managing Trustee, Encore), Shashank Garg (Encore), Ramesh Hariharan (IISc), Swami Manohar (IISc), Mark Mathias (Encore), and V Vinay (IISc). Rahul Matthan (Trilegal)

Obstacles

Getting the Simputer

Manufactured: Simputer Trust will not undertake the manufacture and distribution of the Simputer. The trustees have decided to make Simputer’s hardware specifications available on the web and to provide very generous licensing provisions as partially described above.

Getting Applications

Developed: Low hardware costs should lower one of the barriers to application development.

Governments, development agencies, entrepreneurs, non-profit organizations and others are well positioned to become the new ‘market developers’. Getting sufficient content or data developed in local languages may initially require some education and effort by those most familiar with the needs of the rural poor.

Making it truly affordable: \$200 may still be too high for poor communities. The hope is that government and large multilateral organizations will use the Simputer as a platform, indirectly making it affordable for poor communities.

Reparability: No provision has been made for the reparability of the devices yet. As Simputers proliferate, it can also be expected that entrepreneurs will fill the demand for spare parts, repair, and maintenance.

Impact

The Simputer was formally ‘launched’ on April 26th 2001. At the event, Vijay Chandru, a professor at the Indian Institute of Science and one of the trustees, stated, ‘the Simputer is essentially an empowering device,’ and T-shirts declared ‘Radical simplicity for universal access.’ Obviously it is too early to measure the impact of the Simputer, but with such sentiments, the potential implications for the rural poor could be profound. ■

Get Smart Money through Smart Card

Micro-finance, the provision of small savings and loans to the poor, has emerged in the last two decades as an effective strategy for poverty alleviation.

Swayam Krishi Sangam (SKS) is a Grameen Bank of Bangladesh replication MFI that serves very poor women in highly drought-prone Deccan region in India, where inhabitants dot a sparsely populated rural landscape.

Micro-finance, the provision of small savings and loans to the poor, has emerged in the last two decades as an effective strategy for poverty alleviation. Building on the pioneering work of institutions like the Grameen Bank of Bangladesh, micro-finance institutions worldwide have shown that poor people are creditworthy. These institutions have reached out to approximately 12.5 m. poor clients. While the achievement is significant, more than 500 m. poor people still fall behind due to:

Lack of access to borrowings from commercial banks - as they do not have anything to offer as collateral security. The funds from various schemes, welfare or otherwise, do not reach to the needy because of limitations/ drawbacks inherent in the system - corruption, fraud, misallocation etc.

To meet this enormous demand, micro-finance institutions must do three things:

- First, MFIs must become financially sustainable to secure funds beyond the limited pool

available from donors - drawing instead on more abundant commercial sources.

- Second, they must develop and adhere to sound financial practices to gain credibility from both commercial investors and clients.
- Third, they must develop flexible financial services that meet the needs of poor clients. SKS Smart card will help MFIs meet these challenges.

A ray of hope

Swayam Krishi Sangam (SKS) is a Grameen Bank of Bangladesh replication MFI that serves very poor women in highly drought-prone Deccan region in India, where inhabitants dot a sparsely populated rural landscape. As of February 2001, SKS served 1,790 customers, for whom agricultural work, including horticulture and livestock rearing, is the main economic activity. SKS operates four branches in 102 villages. Since its inception in 1998, the total disbursement had been \$116,000 and the repayment rate has been 100 percent on income generating loans (a fifty week term and twenty percent flat interest), seasonal loans (a twenty-five week term with twenty percent flat interest), and emergency loans (interest-free, with a four to twenty week term).

From the onset, SKS intended to

base lending operations on a highly specialized Grameen (“village”) banking model adapted to customer needs. Before offering services they organized participatory rural appraisals with villagers to conduct market analysis. The analysis showed villagers wanted flexible products with small repayments that would be commensurate with their low incomes of under a dollar a day. Also, since they spent their entire day working in the fields, they could only spend a minimal amount of time to obtain those products. The challenge then was to deliver very small loans and accept very small deposits, in a sustainable manner, to villagers who lived quite a distance from one another.

SKS implemented common efficiency-building methods such as streamlining products and introducing a computerized MIS, to make their operations most cost-effective. But, as with many other MFIs, eventually these methods hit the “efficiency wall”. Since SKS delivers very small loans to poorest of the poor, and since loan officers face high travel costs to reach remote villagers, SKS needed to operate at higher levels of efficiency than other MFIs in order to reach sustainability.

Management explored other options for increasing efficiency, and found that the biggest gains could be realized by streamlining the 7 a.m. to 9:30 a.m. field meetings between loan officers and customers. Customers can only meet during these morning hours as they spend rest of the day working in the fields. Since loan officers only have about two and a half hours to meet with groups residing at great distances from the branch office, the officers could only visit two centers each morning, 80 customers per day. Loan officers spend greatest por-

tion of their meeting time simply recording transactions in collection sheets and customer passbooks. In response, management devised the Smart card method to increase loan officer productivity - increasing number of group meetings loan officers could hold each morning, thereby increasing customer load and improving the bottom line.

How It Works

Smart cards offer a way for loan officers to dramatically reduce the time they spend with each client, reducing the center meeting from 60 to 30 minutes. It would further allow loan officers to see one or two extra centers on a given day (depending on the population of the village). With a small handheld computer allocated to each loan officer, and a Smart card in the possession of each customer, loan officers reduce meeting times and increase productivity significantly.

Comparative Results

Table 1 compares the time required to service groups with the manual system versus the Smart card system.

Activity	Manual System	Smart card System
Pledge and Attendance	2 minutes	2 minutes
Cash Collection and Counting	8 minutes	8 minutes
Recording Collection Sheet	10 minutes	0 minutes
Recording Member Accounts	30 minutes	10 minutes
Loan Proposals/Discussion	10 minutes	10 minutes
Total	60 minutes	30 minutes

With the increased efficiency provided by this solution, loan officer, depending on population size of the village, can now service three to four centers per morning, 120 to 160 customers. Before Smart cards, loan officers could only service two centers per morning

or 80 customers. The use of Smart card solution enhances loan officer's capacity by 200%. To allow the Smart card product to operate efficiently, SKS had to limit its savings and loan products to five with two loan repayment period options, instead of three. Such a restriction on operational flexibility is a common experience for micro finance institutions that introduce/adopt new technologies. SKS had to customize its MIS system (which took nearly 4 months) to ensure its functioning with maximum accuracy and to accommodate Smart card technology.

At present

SKS is currently financing development and pilot phases of the project through a CGAP Pro-Poor Innovation Award of \$50,000 and long term loans from the Grameen Foundation: (\$50,000) and Digital Partners (\$25,000.)

To realize the vision of creating a self-sustaining MIS division, and scale up its own operations to 25,000 clients in 100 districts, it is estimated that SKS would need \$1 million to be invested over the next three years.

Vision of SKS

SKS envisions creating a self-sustaining MIS Division that will not only provide Smart card solutions to its branches but also to other Grameen replicators. In this regard SKS intends to provide customized turnkey solutions to clients (other MFIs), including training personnel, maintenance, updating software for additional financial services etc. In this way, SKS can not only justify huge investment of more than \$150,000 in developing Smart card solution but also collectively achieve economies of scale with other MFIs, large enough to significantly lower hardware costs. ■

The Aspiring Digital HAAT

The look and feel of TARAhaat is carefully designed to attract and retain users of all kinds: farmers, traders, housewives, senior citizens, and children.

Stockholme awarded, internationally acclaimed, one of the most hyped ICT for Development project, named "TARAhaat", after the all-purpose haat (meaning a village bazaar) comprises a commercially viable model for bringing relevant information, products and services via the Internet to the unserved rural market of India from which an estimated 50% of the national income is derived.

Promoted by the Development

Alternatives Group, TARAhaat enjoyed its early alliance partners as Hughes Escorts Communication, KLG Systel, jaldi.com, James Martin, Hewlett Packard, Oracle, and the Global Development Gateway (sponsored by the World Bank and the Gates Foundation). Excelsior Ventures Management LLC and James Martin & Co provided initial equity capital together with management and operational resources.

Project Description & Services

TARAhaat combines a mother portal, TARAhaat.com, supported by franchised networks of village cybercafes and delivery systems to provide a full range of services to its clients. The subsidiary units include:

TARAdhaba - to provide the villager connectivity and access
TARAbazaar - to provide access

to products and services needed by rural households, farmers, and industries

TARAvan - to deliver goods ordered

TARAdak - to connect the rural families to the daughter married far off and to the son posted on the front

TARAguru - a decentralized university to provide mentoring and consultancy to village-based mini-enterprises

TARAscouts / TARAreporter - to collect relevant information for the portal

TARAvendor - to run the store that will cater to products available at Tarabazaar

TARAcad - to enable the villager to order goods and services on credit

The look and feel of TARAhaat is carefully designed to attract and retain users of all kinds: farmers, traders, housewives, senior citizens, and children. The primary interface is both graphic (using specially-designed pictures and icons that are attractive, colorful and animated) and voice-based to ensure that everyone, regardless of their level of literacy, can quickly learn to take advantage of the system.

Keeping in mind the users, the website of TARAhaat is available in three languages - Hindi, Gurmukhi, and English.

The cherry-picking strategy of Indian ISP's has so far left the large rural market almost entirely without Internet connectivity. Where local connectivity is not available, TARAhaat will provide access via C-band satellite. Very Small Aperture Satellite Dishes (VSAT) will be installed at strategic locations in the test area and will function as POPs - especially in those areas where a local telephone service exists. In due course, when GOI allows Ku-band service and as other satellite technologies are deployed, TARAhaat will migrate to the optimal low cost access solution. As part of the beta pilot, Hughes Escorts has committed to provide 5 dishes to be set up at selected locations in the test area.

Payment for the different types of transaction made possible by TARAhaat will be largely by cash (which research over the past 20 years shows to be more easily-though somewhat seasonally - available in rural and peri-urban areas than is commonly supposed). However, the TARAcad, which provides a highly prized photo ID to each villager, will in time become a local credit card, particularly in dealings with the TARAdhaba and TARAvan. As the TARAhaat network expands, the TARAcad can become a more widely used method of payment for goods, services and financial transactions, potentially evolving into a SmartCard with medical and other records resident on it.

TARAhaat.com can primarily be characterized as a horizontal portal, but in several domains it will feature strong vertical elements, such as in medical services, com-

modity trade and distance education. Its central core is built around B2C links, but it is expected quickly to generate growing 38 B2B and C2C traffic. For example, the subsidiary portal TARAbazaar.com will provide urban and overseas consumers with direct (C2C) access to village craftspeople, opening opportunities for direct marketing by millions of individual workers in the rural areas without their having to migrate to the city. Thus, large food processing companies such as Lever, PepsiCo and Dabur will be able to negotiate and monitor direct agreements with individual farmers for the purchase of tomatoes, peanuts or sugar cane. Value addition from timely delivery and savings from disintermediation can generate large revenues for seller, buyer and TARAhaat (which in effect becomes a new, more efficient intermediary).

To ensure that TARAhaat is successful and its services reach the large majority of villages throughout India over the next four to five years, the initial implementation has been carried out in three carefully designed phases. After preliminary design work, mainly of the portal and the selected content fields, the alpha test took place (from May 2000) almost entirely in the field, in Jhansi District in the State of Uttar Pradesh (UP) and Tikamgarh District in Madhya Pradesh (MP). A fully functional pilot was then carried out in selected villages with a view to test the technology and to understand the requirements of the local people.

The subsequent beta test permitted a wider and more rigorous experiment involving several rep-

resentative locations in different parts of India to refine the TARAhaat approach. The beta phase also provided data for longer-term processes to fine-tune the access, content and fulfillment components of the model.

The growth of the TARAhaat network in terms of range of coverage and speed of implementation will benefit from the experience of the ubiquitous "public call offices" (PCOs) which have made the telephone a near-universally available service throughout India. Over the next five years, TARAhaat expects to have covered the bulk of the country, and expanded into neighboring countries in the sub-continent. An agreement has already been reached with the Bangladesh Centre for Advanced Studies of Dhaka to franchise TARAhaat services to local entities in Bangladesh. Similar agreements are at an advanced stage of negotiations with the Sustainable Development Policy Institute in Islamabad, the equivalent Pakistani NGO.

Impact

The impact of TARAhaat is expected to be felt on several different levels: family, agriculture, and youth.

For the family this venture provides a window to the world, enabling them to connect locally to international information, health, matrimonial, and mailing services. The farmer benefits are through weather forecasting, procurement services, and sales negotiations. The younger generation benefits through career counseling, entertainment, and educational and career opportunities. ■

Education in Rural India, at a Distance

A computer in a village school can function as an effective teaching aid and a powerful supplement to the knowledge of the teacher.

The Community Aid and Sponsorship Program (CASP) is an active NGO functioning for over twenty years now. The CASP and CASP Plan Organizations are active in both rural and urban areas. Considering the worsening student/teacher ratio and the lack of training opportunities for teachers, CASP decided to implement a distance learning program by providing computers in to schools. A plan to provide computers to eight villages around Talegaon and establish a central facility in Pune was conceived in 2000. The Maval Taluk a rural area around the town of Talegaon, about 30 Km. North of Pune, was selected for this project. This is an economically backward area with far flung villages in a rugged terrain.

Distance Education

Teachers in the village schools can be provided help through modern ICT systems. A computer in a village school can function as an effective teaching aid and a powerful supplement to the knowledge of the teacher. The computer empowers the teacher by giving them control of the content and the timing of its use. At the central facility experienced counselors will be available to answer the questions raised both by the children and their teachers

Lessons and lectures will be prepared with the help of experienced teachers on subjects such as science, mathematics, geometry, trigonometry, history, and geography. Voice or speech will be recorded along with pictures in PowerPoint presentations. Presentations can be sent to schools on telephone lines or floppy diskettes. The basic requirements to implement this program are listed in Table 1.

A computer with a communication line provides two-way interaction capability allowing children from one school to get in touch with children from other schools through email and establish interactive contacts that can promote 'child-to-child' communication.

Availability of a computer with an internet connection in the village school can also help the adult population in the community. The computer in the village schools serves as a window to the world as well as a portal for education. In addition the school authority can use the computer and telephone for their administrative work, such as maintaining academic, sports, health related database for the students and monitoring their development.

District Primary Education Programme (DPEP), a national program intending to achieve universal elementary education has used CASP Plan cassettes and videos in various training situations in its programs in the State of Maharashtra.

The Organization

Community Aid & Sponsorship Program (CASP), an Indian voluntary organization founded in 1975, is a registered body under the Societies Registration Act, 1860 and Bombay Public Trust Act, 1950. Under CASP sponsorship program, children between the age group of 3 - 20 years from the slums of Mumbai and other parts of India are provided assistance for education, health, and vocational rehabilitation. CASP sponsors 23,000 children all over the country implementing programs through various partners and units. CASP works in Mumbai, Raigad, Pune, Delhi, Cochin, Gujarat, Nagpur, Indore, and Gwalior. It promotes development through a two pronged strategy

- 1 It sponsors children by strengthening their environment
- 2 It undertakes community development programs through which it reaches out to the urban / rural poor.

District Primary Education Programme (DPEP), a national program intending to achieve universal elementary education has

used CASP Plan cassettes and videos in various training situations in its programs in the State of Maharashtra.

Table 1

Distance Education Infrastructure

- ☞ Village High School
- ☞ Central Location
- ☞ Multimedia personal computer
- ☞ Four PCs with accessories
- ☞ Color video display 15/17" monitor
- ☞ Local area Network
- ☞ Printer
- ☞ Software and Manuals
- ☞ Microphone, Loudspeakers
- ☞ UPS and Electrical System
- ☞ Public Address system (10 Watt)
- ☞ Air conditioners
- ☞ Adaptive Line Modem
- ☞ Furniture
- ☞ UPS pf 4 hour capacity
- ☞ AMC
- ☞ 220 volts of electronic connection
- ☞ Access to Internet
- ☞ Telephone and Internet connection
- ☞ Indian Language software
- ☞ Table, chair, and storage facility
- ☞ Scanner
- ☞ Instruction Manuals

Girls' Education!!!

In the first stage, The Project worked with villagers to increase the demand for girls' education.

Since 1997, the Girls' Primary Education Project of CARE India has worked in 300 villages in Uttar Pradesh and Rajasthan to improve the demand for and the delivery of girls' education. Literacy rates demonstrate the need: in Uttar Pradesh, the female literacy rate is 19 per cent, in Rajasthan, 12 per cent.

In the first stage, The Project worked with villagers to increase the demand for girls' education. Approximately 250 mothers' groups were formed, emerging as strong social forces to significantly increase the demand for girls' education. In UP, formal school enrollment of girls in 150 villages increased from 46 per cent to 68 per cent during the three years of the project, and girls' attendance increased by 14 per cent.

Because the formal education system does not adequately serve these remote villages, The Project devised an innovative curriculum and established 'Formal Equivalent Education Centers' in 90 villages, providing access to quality education for 4500 children. The Project also established the Udaan girls' education camp on the campus of one of CARE's partners, the Sarvodaya Ashram in Hardoi. At the end of the camp's first year, 91 of the 96 ten- to fourteen-year-old girls who

attended the camp passed their 5th level examinations.

Project Description

CARE India is exploring a pilot project that would house a computer resource center at the Sarvodaya Ashram. Teachers and teacher-trainers will use the computer center to develop interactive educational materials for their lessons and training sessions.

Internet connectivity will provide the teachers of the ashram with greater access to information and opportunities to engage in meaningful exchanges with other teachers.

Through this pilot project, CARE will help create the Sarvodaya Ashram Resource Center (SARC), a place where the grass-roots application of computer technologies for development purposes can be tested.

The project will focus on demonstrating how appropriate computer equipment, software and guidance can enhance:

- The educational development of children;
- The training and teaching capacities of NGO staff and village level workers;
- The institutional capacities of partner NGOs.

In years two and three of the project, the pilot will also explore other knowledge-based activities, possibly including the following: The training of health and nutrition workers;

- Sharing knowledge about sustainable agricultural practices;
- Providing agricultural, handicraft, and other market information; and
- Facilitating access to government-entitled programs and information.

Implementation strategy

Component One: Establish necessary physical infrastructure

- Establish a computer facility at the Sarvodaya Ashram (One computer, five networked computers, UPS unit, two printers, VSAT terminal and necessary software (MS Office, GIF animator, Paintshop Pro, Flash multimedia).
- Hire a resource center director with adequate computer training experience
- Install IP VSAT

Component Two: Using Information Technology for Education

- Assemble a team of educators to provide project oversight
- Identify appropriate educational software
- Digitize the curriculum and post it on the Sarvodaya Ashram intranet
- Train training coordinators to create learning materials with computer technology
- Enhance the teacher training sessions (Using digitized cur-

riculum to demonstrate the relationship between curricular items, and to highlight the 'must-do's' that teachers must incorporate into the classroom; gathering data to support the trainings)

- Test the method on groups of 10-15 Udaan students and perform follow up surveys to improve modules as necessary.
- Explore appropriate scalability (Use the computerized teaching materials as a blueprint for the Girls' Primary Education Project, as standardized reference material for other Udaan camps and FEC training centers, and as a marketing tool in advocacy efforts to expand the GPEP model)

Component Three: Enhancing the ashram's organizational capabilities

- Train Sarvodaya Ashram staff on use of the computer
- Pursue other development and income generation activities
- Merge with CARE India's knowledge management initiative

Obstacles

The lack of a defined revenue stream at the proposal stage raises questions about sustainability of the project. Some recommendations have been made, including the creation of information kiosks. Sale of materials developed at the center, offering fee-based computer training courses, or offering fee-based teacher training courses. The SARC project should attempt to secure buy-in from the state government for its educational model.

Other obstacles include the creation of benchmarks against which the program will be measured. The SARC proposal outlines an assessment model that measures the success of the program based on attainment of the certain process goals as well as qualitative goals, including:

- Students and teachers demonstrating improved understanding of the curriculum material, and increased excitement for learning,
- Ashram staff developing better presentation packages and skills for resource mobilization;
- Other agencies and donor institutions seeing the Ashram as a partner of choice for their development programs.

Impact

The SARC program will have a significant impact on India's rural population. Possible benefits of the project include:

- Increased access to primary education for rural Indian girls
- Career opportunities to girls who might otherwise spend their lives engaged in menial labor,
- Higher literacy rates may lower infant mortality rates and increase economic development,
- Increased access to technology to bridge of the digital divide,
- Effectuated change in educational policy statewide or nationwide,
- Development of corps of technology-savvy instructors that can be used to educate other instructors. ■

About Digital Partners



Digital Partners is working to cultivate a world in which all men, women, and youths are able to reap the benefits of the Digital Revolution to improve the quality of their lives.

Digital Partners, a Seattle-based nonprofit institute, taps the power of the digital economy to develop market-based solutions that benefit the world's poor. Digital Partners currently has chapters in the US and India.

Since its launch in November 1999, Digital Partners has succeeded in bringing together some of the world's leading intellectuals, development specialists, IT entrepreneurs and their colleagues in a virtual organization that spans the globe. This network has grown from a modest 100 individuals at its inception to over 500 by the start of 2002, and continues to grow.

Digital Partners provides professional services and financial support to visionary social entrepre-

neurs interested in effectively utilizing IT to benefit the poor through a portfolio of influential collaborating institutions and individuals. It has also created a new venture capital fund model, a 'social venture fund', to invest in and incubate new initiatives designed by IT and social entrepreneurs to trigger solutions to previously intractable problems of poverty. With support from the Kellogg Foundation, Open Society Institute, and individual contributors, Digital Partners is working to cultivate a world in which all men, women, and youths are able to reap the benefits of the Digital Revolution to improve the quality of their lives.

<http://www.digitalpartners.org>



Vidya Pratishthan's Institute of Information Technology



VIIT offers courses of Engineering in IT, Computers, E&TC and Mechanical; affiliated to University of Pune.

Vidya Pratishthan's Institute of Information Technology was established in February 2000 at Baramati, Pune (India) with an aim to provide quality education in the field of Information Technology and Computer Science. Funding for this Institute is provided by the Vidya Pratishthan trust, committed to spreading the light of education among students in rural areas of Baramati. More than 10,000 students have passed out from VIIT and its virtual centers.

VIIT offers courses of Engineering in IT, Computers, E&TC and Mechanical; affiliated to University of Pune. VIIT offers other courses like MCA and MCM affiliated to University of Pune, BCA course affiliated to Tilak Maharashtra Vidyapeeth and autonomous

courses of C-DAC like D.I.T., A.D.I.T., Co-DAC & DAC by ACTS Pune.

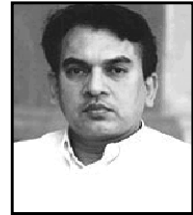
Spreading on a campus of 30 acres, this institute provides best available infrastructure and amenities for its students. VIIT has a network of more than 250 computers powered with Gigabit Fiber Optic Cable.

Two boys hostels and one girls hostel enjoy the connectivity to main servers of VIIT. These hostels have a capacity to accommodate around 1000 students. Computerized library, huge auditorium, workshop, various labs for engineering activities are the unique rudiments of VIIT.

<http://www.viitindia.org/>



About the Author



Satish Jha is into the world of Information Technology, first as the global head of IT for the Vitamins division of Hoffman-La-Roche and later as partner of James Martin & Co.

Satish Jha is a management consultant and chairs the South Asian Initiatives of Digital Partners. Satish Jha is a cofounder of Tarahaat that has been acknowledged as one of the pioneering models in using ICTs for development.

In his capacity as the chairman of James Martin & Co. India, Satish Jha started the Baramati Initiatives in 2001 with the support of Motoo Kusakabe (World Bank), Sharad Pawar (former Chief Minister of Maharashtra), and Akhtar Badshah (Executive Director of Digital Partners). During the course of his life Satish Jha has played many roles. He started his career as a journalist and became the editor of the newsweekly Dinamaan a highly respected political newsweekly published by The Times of India Group. He moved on to acquire an MBA from the

charter class of Institute Theseus that was founded to create the next generation managers that would provide the missing link between emerging technologies and business processes. This launched Satish Jha into the world of Information Technology, first as the global head of IT for the Vitamins division of Hoffman-La-Roche and later as partner of James Martin & Co.

Satish Jha has attended some of the finest educational institutions in India and abroad. He has studied at Jawaharlal Nehru University, in Delhi; Fletcher School of Law & Diplomacy, Tufts University; and Kennedy school of Government, Harvard University. This eclectic education and experience bestows Satish Jha with a unique understanding of ICT and social development issues. Satish Jha can be reached at sjha@digitalpartners.org ■

Baramati Initiatives



Using ICT for Social Development

