





## **REACHING THE UNREACHED**

MSSRF/MG/09/29

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THE NEUBERGER BERMAN FOUNDATION

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Community based Village Knowledge Centres & Village Resource Centres



M. S. SWAMINATHAN RESEARCH FOUNDATION

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Since 1992 M. S. Swaminathan Research Foundation has been pioneering ICTenabled development activities through Village Resource Centres (VRCs) and Village Knowledge Centres (VKCs). In 2003, most of these activities came under the aegis of the Jamsetji Tata National Virtual Academy. The VRCs and VKCs are using both traditional and modern technologies to provide necessary information/knowledge to the rural communities. This programme involves strengthening four linkages namely lab-to-lab, lab-to-land, land-to-lab and land-toland

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S. Senthilkumaran

Director – Information, Education and Communication



# Foreword

The power of ICT in the field of information, communication and technology empowerment in rural areas is now widely recognized. Reaching the unreached and voicing the voiceless are now achievable objectives in development programmes. To assess whether Village Knowledge Centres (VKCs) and Village Resource Centres (VRCs) are really making a difference in the lives and livelihoods of the socially and economically handicapped sections of the rural population, it is essential that continuous monitoring and evaluation, as well as documentation are undertaken.

In this publication guidance is given on the procedure to be adopted for setting up VKCs and VRCs (Village Resource centres which have satellite connection and telecommunication facilities). It was the hope of scientists of MSSRF in the year 2000 that by 2007, all our villages will have Knowledge Centres. The Government of India included Knowledge Connectivity under its Bharat Nirman programme (i.e., New Deal for Rural India), and provided funds for establishing 100,000 common service centres to service rural India. Private sector companies like ITC started expanding its e-chaupal programme.



In order to accord social recognition to the grassroots change agents in the field of ICT for Development the Jamsetji Tata National Virtual Academy was established in August 2003. Now over 1200 grassroots academicians are serving as the torch bearers of the rural knowledge revolution.

I hope this publication will stimulate our 240,000 Panchayats to set up either a VRC or VKC. The Department of Space is committed to establishing a VRC in every block of the country. The last mile and last person connectivity can be achieved through synergy between the Internet or FM radio and the mobile phone. I hope *Gram Sabhas* and *Gram Panchyats* will discuss the contents of this publication and take steps to bring about a revolutionary progress in farm productivity and rural prosperity.

My gratitude goes to Mr. Senthilkumaran, Director, Information, Education and Communication, MSSRF and his colleagues for bringing out this publication speedily and in a reader-friendly manner.

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M. P. Rumather

M. S. Swaminathan Chairman

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# Part I

Dawn of a new idea for development



"Whatever will be will be The future's not ours to see."

We learnt she had won many prizes for public speaking and she had even taken part in a popular TV programme. She was articulate and could clearly visualize her future, in which as a district collector she would be listening to the difficulties of the poor, organizing relief camps during disasters, arranging water supply during periods of drought, controlling riots, and so on. She was confidence personified so much so when we asked her what her father was doing, she told us that he was a `coolie' in a rice shop. There was not a bit of hesitation or a tinge of inferiority complex or embarrassment. After all, is not all work work?

A little over three years before we met her, when she was in Class 6, Madhumitha had gone to the Village Resource Centre (VRC) in Thiruvaiyaru,

## The girl who wants to be a collector



hiruvaiyaru is a small town on the banks of river Cauvery, some 13 kilometres north of Thanjavur, in what was once the rice bowl of Tamil Nadu. It was here that the great music composer Saint Thyagaraja lived and composed his immortal compositions on Lord Rama and where connoisseurs of Carnatic music assemble every year in early January to listen to hundreds of performers sing his compositions in unison. We were there on a mission, viz. to see for ourselves how technology affected the lives of the poor in rural India. On a sunny and humid afternoon in September 2009 we went to the home of Ms. Amudha Baskaran, who had learnt to design and make low-cost ornaments using stones, glass beads and other such inexpensive material and had started earning a reasonable income. It was there we met Madhumitha, a bright young girl, Ms. Amudha's elder daughter.

Madhumitha, 14, was in class 9. What would she want to be when she grew up, we asked her. Would she like to be pretty & rich, would she like to paint pictures & sing songs, or would she like to be a teacher, or a doctor, or a judge? More than anything else, Madhumitha told us, she wanted to serve the people, and for that reason she would like to become a Collector (the Chief Administrator of a district in India). Could not one serve the people by being a doctor, a judge or a professor, we asked. She was focused. Madhumitha said, "You may want to be a doctor or lawyer, but I want to be a collector." She did not believe

about a kilometre from her home, and enrolled herself in a short term programme called "Intel Learn". She found the folks at the centre friendly and kind and they taught her to learn things using computers and other tools she had not seen in her school. It was fun. She and her fellow learners - all of them children her age - enjoyed going to the centre. They not only learnt new things but the programme opened up their minds to the very art of learning and thinking in new ways.

It was Madhumitha who came to know about the training programme on ornament making offered by the VRC and informed and persuaded her mother to join the programme.

Could it be that the two or three months she went to the centre made Madhumitha more alert and confident than before? Or is she inherently bright and extraordinarily gifted and that she would be what she is today even if she had not gone to the centre? Difficult to say, but considering the abject poverty and the family circumstances, we tend to believe that the centre has made a substantial contribution. Certainly it helped her identify an opportunity for her mother to learn new skills and provided her a wider exposure and platform.

This book is about this and many other knowledge centres set up by M. S. Swaminathan Research Foundation in different parts of India and the remarkable impact they are having on the lives of people like Ms. Amudha and Madhumitha.



1991.

## The origins



The Village Knowledge Centres (VKCs) set up by the M. S. Swaminathan Research Foundation (MSSRF) are well known today. They have been written about in *The* New York Times, Science, Nature, New Scientist, Scientific American and SciDev.Net, and commented upon by Presidents, Prime Ministers and heads of global organizations. In the words of Ms. Maureen O'Neil, former President of IDRC, these knowledge centres offer "real possibilities for changing poor peoples' lives through knowledge intensive, community oriented work with communication technology." The President of Chile came all the way to Chennai in March 2009 to visit MSSRF and she requested the Foundation to send a team to help set up similar knowledge centres in her country. From a small beginning the idea of village knowledge centres has now grown into an international movement. How did it all begin?

#### The dialogue on IT (Information Technology)

It all started with a man with a clear vision and an unshakable belief that technology, if applied intelligently, can make a big difference to the lives of the people, even the poor and the marginalized. Observes Prof. Bruce Alberts, Editor of Science, "His many personal experiences, in India and elsewhere, had led him to develop a unique and powerful vision for how science can best be delivered to the world's poor." Prof. M. S. Swaminathan is like Madhumitha - focused and determined to achieve his goal.

In 1989, after his return from the Philippines where he was the Director General of the International Rice Research Institute, Prof. Swaminathan set up the Foundation "dedicated to the use of science for fostering sustainable human livelihood and the conservation of nature." His ambition was to facilitate "a job-led economic growth strategy in rural areas through harnessing science and technology for environmentally sustainable and socially equitable development."

In January 1992 MSSRF had convened a three-day dialogue on information technology. It was the second in a series of annual dialogues the Foundation had organised under the theme "New Technologies: Reaching the unreached." The first was on biotechnology and it was held a year earlier, in



Prof. Swaminathan signing the Memorandum of Understanding for setting up the knowledge centre at Embalam

The dialogue on biotechnology led to the establishment of bio-villages involving the integration of the best in traditional wisdom and frontier technologies. The scientists of the Foundation started working with village communities in the Union Territory of Pondicherry (now called Puducherry), a former French colony.

The philosophy of the programme was explained by Prof. Swaminathan thus: "Taking the benefits of the new technologies to the economically and socially disadvantaged sections of the rural population is a prerequisite for promoting a new paradigm of rural development based on concurrent and integrated attention to the imperatives of ecology, economics, employment and equity."

#### Taking technologies to the poor

Prof. Swaminathan had spent much of his time and energy while he was with the Indian Council of Agricultural Research, first as a laboratory researcher and later as its Director General, dealing with the problems of the farmers and the rural poor. So taking technologies to the poor was not new to him. He had used knowledge of modern biology and genetics to usher in the Green Revolution in India in the 1960s and early 1970s when India, going through a famine and chronic shortage of food grains, was virtually written off as a country that could not be saved by mere food aid. He asked if the rich could take advantage of technology why not the poor. Indeed, says Prof. Swaminathan, technological applications developed for the poor can also help the rich but not the other way round.

The second dialogue, on information technology, led to the establishment of information villages, although it took more than five years for MSSRF to come up with the village information centres. It had to do with doing thorough groundwork and finding a donor who would be willing to invest in a development project that would use modern information and communication technologies to leverage programmes in poverty alleviation and improving rural livelihood.

Thank you for an inspiring presentation on the real possibilities for changing poor peoples' lives through knowledge intensive, community oriented work with communication technology. It is clear that your ideas will change lives!! Maureen O'Neil, President, IDRC. 19<sup>th</sup> February, 2001

Prof. Swaminathan did not want to go ahead on his own. He was not an expert in state-of-the-art information and communication technologies. He called a number of experts and stakeholders, from far and near, for a dialogue. Participants had come from Canada, Italy, Sweden and the UK. This is typical of the man. Prof. Swaminathan is a great consensus builder. He brought together the technologists and the people looking at the social dimensions of the process, as well as people who are going to be the users and grassroots level extension workers. The experts who attended the dialogue represented a variety of disciplines including agriculture, agro industry, development, economics, sociology, education, meteorology, information science, computer science, telecom, networking and remote sensing, and they came from academia, corporate sector, banks, NGOs, funding agencies and the diplomatic corps. Prof. U. R. Rao, then Chairman of the Indian Space Research Organization (ISRO), could not attend the meeting, but he sent a detailed background paper. Years later MSSRF forged a partnership with ISRO.

#### The state of play in the 1990s

What was the status of communication technology in India at that time? Here is what Prof. T. Viswanathan, then Director of the Indian National Scientific Documentation Centre, told the participants: "The Government of India, Department of Telecommunications, has a plan to introduce at least one telephone connection within every 5-kilometre radius area so that anyone should be able to reach a telephone by just travelling 5 km. This is something we can expect to happen by the end of this century." In those days people had to deposit a large sum of money and wait for years to get a landline connection even in cities.

What was the general perception about ICT-enabled development? There were sceptics who thought that it was not a good idea to install computers in rural areas, rodents might chew away the cables, frequent power outages (if there was power at all) and voltage fluctuations would harm the equipment, and in any case villagers wouldn't know what to do with computers. Prof. Swaminathan countered saying that during the Green Revolution days there were fears that rodents and birds would eat away much of the grains, but farmers took measures to save their grains. When people find something brings benefits they would find ways to overcome such problems.

What was the funding scenario around that time? As Mr Robert Valentine of IDRC had pointed out at the 1992 dialogue on information technology, the situation had just started improving and that till a few years before "none of the donors would touch `information projects', except perhaps UNESCO." The World Bank and bilateral donors did not even consider information as a valid investment in development activities.

Holistic vision

The proposal for the Information Villages Research Project was written in May

If there was problem with electricity, he said that one could connect solar power to augment the electricity from the electric grid.

That was the state of play when Prof. Swaminathan conceived the information villages that would use modern ICT to bring location-specific information to the doorstep of the rural poor. Certainly a man with foresight.

Prof. Swaminathan's vision was holistic. "Information, in the field of agriculture, to be of benefit has to be tailored to local agro-ecological and socio-economic conditions. It has to be backed by relevant input supply services and public policies," said Prof. Swaminathan in 1992. "Mechanism for converting the know-how being imparted through the information system into field-level dohow, such as training and institutional structures for producer-oriented marketing, have to be put in place." He also foresaw that both the old and the new technologies would be needed and had to be used together. It is this vision that the village knowledge centres have translated into reality today. During 1993-1996, MSSRF conducted a number of studies in about 25 villages in the Union Territory of Pondicherry (now called Puducherry) and the state of Tamil Nadu. One study revealed that the reach of electronic media, especially television, was reasonably high despite the prevalence of poverty in the villages surveyed. Another study revealed that farmers gather most of the information they need from the local shopkeeper, the market place, and the suppliers. Considerable amount of information transaction takes place among the rural poor households and this indeed acts as a primary mode of information dissemination.

1997 and presented to IDRC by Prof. Swaminathan when he visited IDRC in mid-1997. The text of the proposal indicated close links with the bio-village project, which was in operation in Puducherry for about six years, and mentioned connecting 'up to six villages' using the 'hub-and-spokes' model.

#### Early days

MSSRF received the approval from IDRC in November 1997, and almost immediately Villianur, a small town and commune headquarters, 10 km west of Puducherry, was identified for the location of the hub. A small two-storey house close to the temple was rented and two local girls were recruited as research assistants, based on their potential for training in social marketing. One was assigned to handle the computers & other technologies and the other was assigned to meet people, gather & process information. They were soon joined by two others - both men who had been working in the bio-village project - within the next few months. The project was formally inaugurated at Villianur by Dr. Ismail Serageldin, then Vice President of the World Bank, in the presence of Prof. Norman Myers, the renowned environmentalist and expert in biodiversity. The idea was to gather and process information at the Villianur centre, which was to serve as the hub, and transmit the value added information to the spoke centres in different villages within a radius of 25 km, where local volunteers or knowledge workers will make it available to the local people - farmers, fishermen, landless labour, men, women and children. Much of the information passing through these centres would not be found in the Internet. Indeed a large part of it was locale specific and collected by MSSRF staff and volunteers.

The activities were rather slow to pick up and the progress faltering, largely because there was no prior experience and the consequent delays in deciding the right technologies. Besides, the project team might have been awed by the sheer novelty and the magnitude of expectations from such an ambitious project After more than two months, the team decided to go ahead with the one-way handsets supplied by Motorola through VLink Systems, a firm represented in Chennai by Mr Senthil Nathan and Mr Ram Kumar, both of whom played a role far in excess of mere vendors. That was in February 1998. The equipment arrived in May 1998. In the meanwhile, the team at Chennai had created a small LAN (local area network) which was set up and managed from Villianur

#### The first knowledge centres

In the meantime MSSRF staff at Villianur centre were on the lookout for suitable locations and local partners to establish village information centres. Their first success came in Kizhur, 21 km west of Puducherry, where they met Mr. Krishnamurthy, a progressive farmer and the leader of the Village Vikas Voluntary Vahini (Village Development Council), who had attended meetings organised by the bio-village project. When they explained the concept of the information village to Mr. Krishnamurthy, he consulted his father Mr. Govindaswamy, and agreed to allow the village information centre to operate from the front room of their house. His younger brother Jayakrishnan and sister Ezhilarasi came forward to become volunteers and to look after the information centre. A few years later, Mr. Jayakrishnan became a Fellow of the National Virtual Academy for Rural Prosperity (NVA). The MSSRF team had also set up an information centre in Mangalam, 4 km north-east of Villianur, in the house of a retired police constable. These two centres came up in September 1998, nine months after the project proposal was approved by IDRC.

#### Embalam demands and gets a knowledge centre

A couple of months later, when Prof. Swaminathan and some of the project staff were returning from Kizhur after the formal inauguration of the knowledge



The twin entrances to the temple and knowledge centre at Embalam

centre, their car was stopped on the road by a large group of people from Embalam, a neighbouring village. They spoke respectfully to Prof. Swaminathan and requested that the next centre should be set up in their village. That was a good sign; people had already realised the value of the information centre and were asking for one. The villagers had come to know of the centres in Mangalam and Kizhur through Ms. Usharani, a resident of Embalam, who was a member of the Mangalam Society and who had seen both the Mangalam and the Kizhur centres. The knowledge centre at Embalam came up in December 1998 and Prof. Swaminathan came to the village and signed a memorandum of understanding with the representatives of the village. The village community had decided to give a room in the front portion of the main temple for this purpose and they agreed to allow anyone to come in without any discrimination. Indeed the signing of the memorandum took place in the temple. Ms. Usharani was selected a Fellow of NVA in its inaugural year.

#### International recognition

Wrote Celia W Dugger in The New York Times in her report datelined Embalam, 28 May 2000: "In this village, the century-old temple has two doors. Through one lies tradition. People from the lowest castes and menstruating women cannot pass its threshold. ... ... Through the second door lies the Information Age, and anyone may enter. In a rare social experiment, the village elders have allowed one side of the temple to house two solar-powered computers that give this poor village a wealth of data, from the price of rice to the day's most auspicious hours."

You are doing remarkable work. Congratulations. Glen Farrell, Commonwealth of Learning, Vancouver, Canada. 24<sup>th</sup> February, 2001

The Embalam information centre was inaugurated by Prof. Bruce Alberts, then President of the National Academy of Sciences, USA, some time in January 1999, in what was to be the first of several visits by him to the knowledge centres in Puducherry. He was often accompanied by Mrs. Betty Alberts.

In one of his subsequent visits he donated a computer to the Embalam knowledge centre which was entirely operated by women volunteers. After a



Policy Makers Workshop, 8-9 October 2003 (Birth of Mission 2007 concept)

More knowledge centres

Today there are 13 knowledge centres in Puducherry alone. The hub or what is now called the Village Resource Centre was shifted from the rented house in Villianur to a new building in Pillayarkuppam especially built for housing the Village Resource Centre in 2005.

while the September 11 tragedy occurred and one of the volunteers at the Embalam centre read in the local newspaper that the terrorists who destroyed the twin towers in New York had also attacked key buildings in Washington D.C. including the Pentagon. She remembered that Prof. Bruce Alberts was the President of the National Academy of Sciences, with its office in Washington D.C. She was greatly concerned about his welfare and she sent an e-mail message to him asking if he and Betty Alberts were safe. Needless to say Prof. Alberts and Ms. Betty were both deeply touched by this gesture. Only a few years ago this lady was virtually home-bound and had not seen a computer or even used a telephone. And now she was not only aware of events half way around the globe but reaching out to a renowned scientist on a person-to-person level and expressing her concerns in a direct communication. Indeed it was the world that was turning into a global village.



Then came the knowledge centre at Veerampattinam, a fishing village 6 km south of Puducherry. Here the community offered half of the room where the Panchayat (the village administration) holds its meetings.

#### Development does not happen in a vacuum

As newer centres started coming up, the Mangalam centre was withdrawn for two reasons: the dalit population (lower cast) in the village numbering close to a thousand felt unwelcome to use the centre and the partner, a former police constable with some knowledge of electronics, in whose house the centre was located, started experimenting with the equipment which affected the smooth functioning of the systems. Social inclusion, reaching the unreached and voicing the voiceless are articles of faith in MSSRF and embedded in the foundation. The centre had to move.

That ICT-enabled development does not take place in a vacuum but within complex social systems of power and inequality became even more clear in mid-2000 when a crisis brew in Embalam. An election to the provincial government took place and the ruling party was defeated. A prominent member of the Embalam VKC community support group was also a key figure in the local milk cooperative society. Some members of the victorious party wanted him to be removed from the cooperative society and they targeted the VKC as well. They wanted to gain control of the VKC. Clearly the knowledge centre was seen as a useful entity. There was some tension and the VKC was virtually closed for about a month. While the turf war between the two rival groups was on, a section of the village community, particularly a group of women, was keen to have the centre function normally and they were ready to take over the management. The MSSRF scientists negotiated a settlement according to which both the rival groups should forego their claims on the management of the centre and the centre would be managed henceforth by a group of women elected by the different self-help groups operating in Embalam. Ever since, the centre is managed by women of the village.

Looking back, Embalam had seen the adverse impact of politics on development initiatives on the day of the centre's inauguration by Prof. Bruce Alberts. The Lieutenant Governor was invited, but a local politician wanted the function cancelled claiming that he was not invited. As the issue was sensitive the Lieutenant Governor avoided the official function but came and met Prof. Bruce Alberts. These instances show that there will be many challenges and one needs to overcome them. Mr Shaibu Shaifu, Social Enterprise Development Foundation of West Africa, Ghana, who attended the Fourth South-South Exchange

Travelling Workshop organized by MSSRF, put it succinctly: "Success in this field is not absence of failure but rather the presence of the ability to managechallenges."

Both the MSSRF staff and the volunteers from the local communities learnt from the experience and helped expand the network.

MSSRF has set up Village Resource Centres and Village Knowledge Centres in other parts of India, viz. Tamil Nadu, Kerala, Orissa, and the Vidarbha region of Maharashtra. As of November 2009, there are 15 Village Resource Centres and 101 Village Knowledge Centres in five states. The 13 Village Resource Centres run by MSSRF are located in Pillayarkuppam (in Puducherry), Chidambaram, Nagapattinam, Annavasal, Sempatti, Thangachimadam and Nagercoil in Tamil Nadu, Jeypore in Orissa, and Waifad, Yavatmal, Jasapur and Karda in Maharashtra. Each centre has its own information needs. Coastal villages need mostly fishing related information, while interior villages are interested in farming, horticulture and animal husbandry related information. There are also gender differences in information needs. The women need more information on health related issues from women doctors. That is why it is important to provide timely locale-specific information and in the local language. The information provided should be authentic and useful in the immediate context. That is why knowledge centre staff work closely with partner organisations such as agricultural universities, Krishi Vigyan Kendras (KVK), human and animal health institutions, research laboratories and field stations and marketing organisations.



Dr Ajay Parida, Executive Director, MSSRF

#### Technologies deployed

On the technology front, after the one-way handset, the next to be tested was the two-way radio handsets. That needed poles to be erected to mount aerials (for long distance coverage). That was a bit of a non-starter but the MSSRF team persisted with it as there was no other choice at that time. After the aerials were tested, MSSRF commissioned two-way radio devices in Kizhur, Embalam and Mangalam. In the second half of 1998, VLink Systems installed an interface that enabled the use of MS-FAX then available in MS Windows, and the centres were able to send text messages (as images) from one PC to another using the two-way radio sets. The set up literally was an intercom network over the VHF radio.

With the VHF radio technology, information can be transferred to only one centre at a time and within a radius of 25 km. As more villages were added in Puducherry, there arose a need for simultaneous transmission of information to several village knowledge centres at once. In other words, a broadcast service. The MSSRF team opted for spread spectrum technology and it was installed in 2001. As access to telephones and Internet became widespread, MSSRF adopted Internet over dial up and broadband for communication between different centres and later satellite communication as well.

#### Delivering demand-driven information

Although several technologies were used and much emphasis was given to understanding the impact of technology, there was no doubt that the focus was on people and their needs.

About a third of the population in most of these villages has a total family income of less than \$25 per month. The project was designed to provide knowledge on demand to meet local needs, through a bottom-up process. The process starts with volunteer teams that help poll the villagers to find out what knowledge they want.

Technology was seen merely as a tool. The aim was to provide villagers with information and skills, and thus equip them to help themselves — by learning to read & write, by claiming the grants & allowances they are entitled to, by obtaining the medical help they need, and perhaps by setting up their own micro business.

Nor was it simply a matter of providing access to the Web, most of which is in a foreign language to them, and irrelevant to the needs of Indian villagers. The need was also to create locale-specific information. Much of the energy of VKC staff, therefore, went into "value addition" - creating the local databases, translating information into the local language, developing multimedia resources for villagers without literacy skills, etc.

in the local language.

Particularly popular in the early years were women's health information, advice on growing local crops and protecting them from diseases, the daily market prices for these crops announced by Pondicherry Agro Service and Industries Corporation Limited (PASIC), local weather forecasts, local bus timings (and in particular information on cancellation of bus trips), and clear information about the bewildering array of programmes of the central and state governments to aid poor families. Particularly useful was the announcement of the results of public examinations. Students of Class 12 all over Tamil Nadu and Puducherry take a common public examination conducted by the State Board of Tamil Nadu some time in April every year. The results (as well as the marks obtained in each subject by each student) are announced by the State Board in early June on its website. The Village Resource Centre downloads the results for students appearing from the region and makes them available through the Village Knowledge Centres. This was a great help to students and parents living in villages with no Internet access. It saved a trip to Puducherry and saved time & money as well. Also found useful was the information on the dates when the sugar factory at Sivaranthakam would pick up sugarcane from farmers' fields. This helped farmers harvest sugarcane at the right time and saved a trip to the factory. As Prof. Swaminathan says, the knowledge provided should be demand driven, dynamic (immediately relevant), and gender sensitive and be



H E Rajani Rai, Lt Governor of Puducherry and Ms. Mureen O'Neil, President of IDRC at Kalitheerthalkuppam VKC

#### Partners in progress

Fostering a sense of local ownership has been an important feature of this programme. For MSSRF to move into a village and help set up a knowledge centre, the village community has to provide a room in a building which has easy access and provide volunteers as well as pay for electricity and upkeep of the centre. MSSRF provides the villages the needed hardware and maintenance for the communication system, and specially designed Web sites in the local language (called Valam in Tamil meaning Prosperity) that convey the requested information. The village volunteers are trained in the operation of computers and maintenance of the communication equipment as well as to gather and input information (market prices, weather information, health care, water conservation and management, etc.). The staff at the VRCs and volunteers at the VKCs are trained to create Tamil texts using the regular QWERTY keyboard. At no time are the local people considered beneficiaries. They are partners in a common endeavour. Patronage does not work as well as partnership in development initiatives.

An eye opener for me. I thank MSSRF for giving me this opportunity to learn from this experience and have a model to share with other countries as well in the area of ICT, empowerment of poor communities through information dissemination, etc. Caroline U. Matammu-Lampauog, Regional Co-ordinator, UNESCO (APGEST), Jakarta, Indonesia. 10th March, 2001

#### Two-way communication

As the former President of the National Academy of Sciences, USA, observed after visiting some of these knowledge centres, "Drawing on this concept, I envision a global electronic network that connects scientists to people at all levels - farmers' organizations and village women, for example. The network will allow them to easily access the scientific and technical knowledge that they need to solve local problems and enhance the quality of their lives, as well as to communicate their own insights and needs back to scientists". The emphasis on two-way communication is noteworthy. Although the project continues to experiment with a range of technologies, it is essentially a peoplecentred project, firmly focusing on people and their contexts. From the very inception, connectivity and content were given concurrent attention. The work in each village commences with MSSRF scientists and social scientists getting to know the people and making a thorough study of their needs and current level of familiarity with sources of information and the technological means to gather the needed information. Rural families need both dynamic and generic information. The project is bottom up and recognises the local people's right to know from the very beginning.

#### Going beyond information

While access to relevant information may be key to development, mere provision of information is not enough. Information is a necessary but not a sufficient condition for empowerment. Information has to be linked to the means of using the information to one's advantage.

We cannot ignore new technologies. Indeed, developing and least developed countries have paid a heavy price for failing to adopt the technologies of the Industrial Revolution in good time. They were hence colonized by technologyrich countries. If we fail to take advantage of the new ICTs, the consequences could be even worse.

But left to itself ICT will only exacerbate the existing differences such as the rural-urban divide. We should learn to use ICTs for bridging gender, social, economic and technological divides. The project should be built on the foundation of gender and social equity.

The challenge is in adopting a holistic information access-enabled development strategy and using appropriate ICTs as a cross-cutting instrument in different aspects of the strategy. This is precisely the goal of MSSRF. While the Knowledge Centre is at the core of the ICT for Rural Development movement, MSSRF builds around it several other initiatives and programmes, such as selfhelp groups, skill building, micro-credit, micro-enterprises, markets, literacy and education, agriculture, health, governance, and entitlements, in each one of which information plays an important role. This is somewhat similar to the village temple (or the well) where people gather primarily to pray (or fetch water) but also to socialize, chat, exchange notes and relax as a community - a form of social-networking which helps in dissemination of information.

Poverty will persist so long as a large proportion of the rural population is engaged only in unskilled work. ICT should be used to bring about a paradigm shift from unskilled to skilled work and from routine on-farm to also include value-added non-farm activities.



The Stockholm Challenge Award (above) and the Motorola Dispatch Solutions Award (right)



clients."



Independent evaluation has shown that the ICT-enabled knowledge centre can indeed make a difference in the day to day life and well-being of rural children, women and men. The project received several international awards including the Motorola Dispatch Solution Gold Award in 1999 and the Stockholm Challenge Award in 2001.

Congratulating the MSSRF team on the VKC initiative, Prof. Mark Warschauer, University of California, Irvine, said, "I have traveled around the world and I find your project to be one of the finest examples of IT for community development. The world has much to learn from your work and I will be honored to have the privilege to help pass on what I've seen here." Commenting on the VKC initiative in Current Science, in 2005, Prof. Bruce Alberts said, "Unlike the projects of far too many NGOs and government aid agencies, this was clearly an effort that had been carefully designed with deep respect for the intelligence and values of its

I am delighted that the Jamsetji Tata National Virtual Academy under the leadership of Professor M S Swaminathan has taken up the challenge of building capacity among over one million torch-bearers of tomorrow's India which relies on in its human potential. The millions trained by the Academy will be known as the celebration of India's core competence as the Hon'ble President Dr. A. P. J. Abdul Kalam would put it. IDRC and the telecentre.org initiative join the efforts of the Academy to see the rural India rejuvenated as the backbone of India's economy.

Basheerhamad Shadrach, Senior Program Officer - Asia, International Development Research Centre, New Delhi



Ms. Mekala Muthu's farm at Onangudi village (VKC)



From a small beginning to a mass movement By 2003, MSSRF had set up a dozen VKCs in Puducherry. The question was how to scale it up to cover the entire country and beyond. Wiring up all of India's more than 637,000 villages (or 240,000 panchayats) would be daunting and a mammoth task.

activities.

In 2003, Prof. Swaminathan decided to use his considerable reputation and formidable persuasion skills, to spearhead a national initiative aimed at combining the work of MSSRF with the various "telecentre" initiatives that had begun to mushroom around the country, and increase the pace of knowledge centre development.

# From an acorn to oak - The story of India's Mission 2007: Every village a knowledge centre

M. S. Swaminathan Research Foundation (MSSRF) was founded to facilitate "a job-led economic growth strategy in rural areas through harnessing science and technology for environmentally sustainable and socially equitable development".

MSSRF provides a platform for what Prof. Swaminathan calls the "Evergreen Revolution" - a revolution that recognises the need to continue increasing food productivity, but insists that this should be done in a way that is "environmentally safe, economically viable and socially sustainable".

The Foundation set about launching a number of new initiatives, including the bio-village initiative — designed to encourage the development of market driven onfarm and non-farm enterprises and enable a paradigm shift from unskilled to skilled work, but through the sustainable use of natural resources — and the Village Knowledge Centres (VKCs) initiative.

Through the VKCs MSSRF provides Indian villages with knowledge that the local community needs and it uses information and communication technologies (ICTs) to deliver the knowledge when it is needed. The aim is to bridge the digital divide and thus address the social exclusion and poverty associated with it.

Prof. Swaminathan came up with a two-pronged strategy of setting up an Academy that would recognize and train committed and talented rural people and forming a national alliance of institutions engaged in development



Prof. M. S. Swaminathan lighting the lamp at the inauguration of the VRC at Pillayarkuppam



Dr. V. Balaji making a presentation to Mr. R. A. Mashelkar, Dir. Gen. CSIR, Prof. Bruce Alberts, H. E. Rajani Rai, Lt. Governor, Pondicherry, and Prof. M. S. Swaminathan, Villiamur VRC

Not all of them followed the same model. Some were government supported, and others adopted a business model (users pay) right from the beginning. At least two of them were established by large industrial houses, essentially to reach out to clients and supply them with products useful to them (ITC's echaupal and Hindustan Lever's iShakthi) and to enable users to buy their produce. Two others followed the franchise model: n-Logue, an IT company largely promoting the technologies developed by the Indian Institute of Technology, Chennai, had a franchise model, wherein they provided an information kiosk (PC with Internet and videoconferencing facility, scanner, photocopier, etc.) at a low cost and trained the kiosk owner, and the owner provided different services. And Drishtee, which had developed its own franchise model. Then there were NGO-led programmes such as TARAhaat of Development Alternatives and publicly-funded government initiatives like the one mounted by the National Informatics Centre in the North-eastern states of India

#### An academy for the grassroots

First MSSRF established in August 2003 the Jamsetji Tata National Virtual Academy for Food Security and Rural Prosperity (NVA) with financial support from the Sir Dorabji Tata Social Welfare Trust. The purpose of this Academy is to recognize rural men and women who have made outstanding contribution to public good in areas of human endeavour relevant to rural life such as farming, animal husbandry, health, energy, natural resource conservation and education and to provide them additional skills so they could contribute even more. These grassroots knowledge workers would be the torchbearers of the knowledge revolution and could be developed into managers of knowledge centres.

"There is one thing that we can not separate from any ICTs project in Third World countries: the development of local databases and local web pages that are relevant to the people and that take into account their daily needs, their culture and their language. If this is not embedded into a project, I doubt it will have any positive results for the community. This is why the Village Knowledge Centers in Pondicherry (M. S. Swaminathan Research Foundation) are such an important and coherent experience." Alfonso Gumucio Dagron, Bolivia

Prof. M. Anandakrishnan, a distinguished educationist, helped select the first set of six Fellows of NVA and they were inducted to NVA at a simple ceremony held at MSSRF, Chennai when they received their certificates of Fellowship from Mr. Ranil Wickramasinghe, then Prime Minister of Sri Lanka. Subsequently, more than 1,200 Fellows have been inducted from all parts of India. In addition, 25 overseas Fellows (from Afghanistan, Kenya, Nepal, Nigeria, Philippines and Sri Lanka) were selected in 2008. In the words of Dr. A. P. J. Abdul Kalam, former President of India, NVA "is a celebration of rural India's core competence. "The entire activities of VRCs and VKCs of MSSRF were brought under the umbrella of NVA. The NVA took on the role of creating village profiles, collecting details of major livestock populations, crops, monthly fish catches, prevailing diseases, etc. After all, without accurate data it would be difficult to plan and deliver.



23 August 2003

Prime Minister of Sri Lanka, Mr Ranil Wickramasinghe launching the National Virtual Academy,

Importantly, the data would allow the NVA to undertake regular need assessments, and then develop locale-specific demand-driven content for villages that are part of the scheme.

### Kinds of information flow

NVA recognises the four kinds of information flow in a knowledge society.

1. Lab to Lab: This refers to communication between scientists and it takes place mainly through refereed journals, conferences, invited talks and personal communication.

2. Lab to Land: This refers to knowledge generated by scientists reaching the farmers, fishermen and citizens engaged in other occupations. This requires some mediation, as the technical language, equations and symbols used by scientists when they communicate among themselves will go over the head of most ordinary people. The mediation is provided by extension workers, popular magazines, newspapers, etc.

3. Land to Lab: This is what Prof. Bruce Alberts refers to as communicating one's insights back to scientists. This is a crucial step, as unless the researchers know what the farmer (or any other end user of knowledge generated through research) wants, it would be difficult for them to orient their research to solve the problems faced by the people.

4. Land to Land: This refers to exchange of knowledge that takes place among farmers. This is sometimes referred to as horizontal transfer of knowledge.

Through the VRCs and VKCs NVA is facilitating the last three of the four kinds of information flow. The MSSRF-IDRC project was designed as a test bed for research into how information and communication technologies could be used in rural development. Enlarging the number of VKCs was to come later.

"The Jamsetji Tata National Virtual Academy for Rural Prosperity was established in 2003 on the occasion of the death centenary of Jamsetji Tata, who was India's greatest industrial leader and scientific strategist. The aim of the Academy is to stimulate the growth of digital power in rural areas, directed to fulfilling the day-today needs of rural families. The Fellows of the Academy represent grassroots leaders in digital technology. According to the President of India, they mark the celebration of India's rural core competence. The Academy aims to fulfill Gandhiji's vision of Purna Swaraj through Gram Swaraj. When fully developed the NVA will be the largest professional academy in the world with nearly one million Fellows drawn from over 500,000 villages. The NVA represents the most serious attempt so far undertaken to bridge the urban-rural digital divide as well as gender divide. It also represents the power of partnership in the technological and skill empowerment of the rural poor. It provides a powerful tool for achieving the UN Millennium Development Goals in the areas of hunger and poverty elimination and gender justice and equity.

Prof. M. S. Swaminathan, Chairman, M. S. Swaminathan Research Foundation

#### National consultations

In October 2003, MSSRF organised a Policy Makers Workshop to discuss MSSRF's experience gained during the six years of taking ICT-enabled information to resource-poor families. The workshop participants came up with recommendations for policy makers in general (for India and the world) which focused on locally relevant content, community media, gender inclusion, financial sustainability, job-led economic growth and political commitment. It was at this workshop that Prof. M. S. Swaminathan articulated the need for a National Alliance.

The first Steering Committee meeting of the MSSRF-Tata National Virtual Academy for Food Security and Rural Prosperity was held on February 21, 2004. In this meeting, it was decided that the NVA should help to launch an "Every Village a Knowledge Centre Movement" in collaboration with IGNOU, the eleven State Open Universities and other appropriate Government and non-Government organisations. It was hoped that with some focused action and hard work it should be possible to cover all the villages in the country by Independence Day of 2007.

On May 19-20, 2004, MSSRF–Tata National Virtual Academy for Food Security and Rural Prosperity held a National Consultation on forming a National Alliance for Agenda 2007: "Every Village a Knowledge Centre". This was followed by a larger National Consultation with key persons in government, corporate sector, academia and civil society organisations. The consultation was held on 9<sup>th</sup> and 10<sup>th</sup> July 2004 in New Delhi, and it led to the birth of Mission 2007 with the ambitious aim of taking the benefits of ICTs to every village in India by 15 August 2007. It was decided to form an informal National Alliance for Mission 2007 representing a coalition of the concerned to facilitate and accelerate the spread of the rural knowledge centre movement. It would function, like the Consultative Group on International Agricultural Research (CGIAR), without a formal legal structure. This broad based coalition would bring together government, nongovernment, academic and business sectors for the common cause of taking ICT to all the 600,000 villages of India as soon as possible.

Working Groups were set up to take care of content creation, connectivity, management & co-ordination, etc. and experts were appointed to these groups. The partners included NASSCOM, (the large association of software companies), TCS (Tata Consultancy Services), and Azim Premii Foundation among others.

A few months later, a national level meeting was organised in New Delhi, which was addressed, by half a dozen central ministers and then President of India, Dr. A. P. J. Abdul Kalam as well as many others. Breaking protocol and security restrictions, the President came down from the dais and mingled with more than 150 Fellows of the National Virtual Academy – mostly from villages. It was after this meeting that Dr. Montek Singh Ahluwalia, the Deputy Chairman of the Planning Commission, announced that the national plan would recognize the need for leveraging knowledge-based development through village knowledge centres.

Around the same time, Telecentre.org was set up jointly by IDRC, Swiss Agency for Development and Cooperation (SDC) and Microsoft, and it took an active interest in the capacity building aspect of Mission 2007 and held a few workshops. Thanks to an initiative taken by Ambassador Walter Fust, Head of the Swiss Agency for Development and Cooperation, an International Advisory Group was formed with UNDP, New Delhi, as the Chair, and several other organizations such as SDC, IDRC etc. Indeed, Prof. Eric Brewer of the University of California, Berkeley, who attended the May 2004 consultation at MSSRF, had observed "India's problems can be solved through partnerships across nations, people and technologies."

Scaling issues aside, there was considerable benefit to combining forces in this way. Mission 2007 was perceived to be the only available forum to bring all the players together to discuss commonalities, and to avoid or even deter dubious investments.

In June 2005, when I visited Nagapattinam, I have seen the Village Resource Centre established by TATA Tsunami Relief Committee in association with MSSRF at Akkaraipettai. When I discussed with the young members who are operating the system, I found they are helping the locals by imparting education through computers, helping the Self Help Group Members to maintain their accounts, providing weather and sea state forecast data, etc. While it is very good, the important issue of providing a live database on various services to the fishermen and farmers needs to be upgraded. This has to be a coordinated effort of various institutions. I appreciate their contribution to the tsunami relief and rehabilitation operations.

Dr. A. P. J. Abdul Kalam, Hon'ble President of India, 2005

#### Impact of the National Alliance for Mission 2007

As a result of the policy advocacy undertaken by the National Alliance there have been many significant developments.

Mr. P. Chidambaram, then Minister of Finance, announced in his budget speech on February 28, 2005, "The National Commission on Farmers has recommended the establishment of Rural Knowledge Centres all over the country using modern information and communication technology (ICT). Mission 2007 is a national initiative launched by an alliance comprising nearly 80 organizations including civil society organizations. Their goal is to set up a Knowledge Centre in every village by the 60th anniversary of Independence Day. Government supports the goal, and I am glad to announce that Government has decided to join the alliance and route its support through NABARD. I propose to allow NABARD to provide Rs. 100 crore out of RIDF." The Government of India included knowledge connectivity as an important component of Bharat Nirman (New Deal) for Rural India. National Policy for Farmers, formulated in 2007, recommended establishing Gyan Chaupals (Hindi for knowledge centres) in villages for facilitating extension, training and knowledge connectivity. The Indian Space Research Organisation (ISRO) launched a Village Resource Centre programme at Block level involving satellite

connectivity and teleconferencing facilities. So far ISRO has set up more than 450 VRCs in different parts of the country. The Ministry of Communication and Information Technology came up with its own programme of setting up 100,000 Common Service Centres (CSC). The minister consulted a few Mission 2007 partners before he took the decision. The Ministry floated a tender, which essentially disallowed most civil society players from bidding, and it was won by a large infrastructure leasing and services company. Already 60,000 CSCs have been rolled out in different parts of the country. The Ministry of Panchayati Raj, Government of India, decided to provide each Panchayat the necessary ICT infrastructure to enable them to participate in the e-Governance programme. ITC Ltd. decided to expand its e-Chaupal programme to cover 50,000 villages. Many State Governments, academic Institutions and NGOs have organized VKCs in different parts of the country. Azim Premji Foundation and Tata Consultancy Servicers have developed educational materials in major Indian languages, and C-DAC has developed software in Indian languages.



ISRO-MSSRF Village Resource Centres being inaugurated by the Prime Minister Dr. Manmohan Singh

#### Grameen Gyan Abhiyan (GGA)

After August 2007, Mission 2007 was rechristened Grameen Gyan Abhiyan (GGA) [Village Knowledge Movement], in tune with the setting up of several movements by the Government of India such as the Sarva Siksha Abhiyan for literacy, the Yuva and Mahila Sakthi Abhiyans of the Ministry of Panchayati Raj, the National Rural Health Mission, and the National Horticulture Mission

GGA is a multi-stake holder partnership, with its secretariat located in NVA. It facilitates national and regional events related to ICT-enabled rural development activities and encourages its member organizations to test different technologies and develop applications for VRCs and VKCs. Academicians, the corporate sector and policy makers could use this platform for knowledge and technological empowerment.

GGA encourages different models of knowledge centres, such as the community-based public good model of MSSRF, government-initiated models like Akshaya, e-Seva, Bhoomi and Common Service Centres, entrepreneur-led models like Drishtee, n-Logue, Rural BPOs and TARAhaat, and corporate sector models such as ITC's echaupal.

A major role of the Grameen Gyan Abhiyan movement is to establish a linkage between scientific know-how and field level do-how. For this purpose, VRCs and VKCs are intimately linked with appropriate programmes such as Sarva Siksha Abhiyan for literacy, Yuva and Mahila Sakthi Abhiyans of the Ministry of Panchayati Raj, National Rural Health Mission, National Horticulture Mission, National Rural Employment Guarantee Programme, etc.

To strengthen the national alliance and address issues related to connectivity, content, capacity building and coordination, GGA secretariat conducts national consultations on content creation and capacity building for village resource centres and workshops on strengthening the linkages of different ICT4D models. GGA (Mission 2007) secretariat provides support services to partners and organizes exposure visits. One of the major activities of GGA (Mission 2007) secretariat involves advocacy and policy recommendations.

#### Generating local content

The importance of generating useful content has been emphasised right from the beginning in the MSSRF's project in Puducherry. As Dr. Venkataraman Balaji, Global Leader for Knowledge Management and Sharing at ICRISAT, put it succinctly: "The content is a key issue that has never been addressed as seriously as it should have been. The techies and NGOs who drove the ICT4D processes assumed that there is a lot of development content in the digital form or that it can be created locally, until they found that digital content aggregation is simply not there and the cost of creating it can outstrip most revenues or grants. Moreover, as the international intellectual property rules have become increasingly draconian — and more and more information becomes available only to those who can pay for it — the need for locallyproduced information that can be shared and used collaboratively has become increasingly pressing."



Dissemination of locale specific demand driven information through Public Address System at Embalam VKC

Factors that led to the success of VKCs in Puducherry

First and foremost, the visionary leader and his small team of half a dozen dedicated staff understood the people and their context and got accepted by them. The local communities have trust in the MSSRF team. People readily offered space to set up the knowledge centres.

Second, the relationship with the local community is not of the "donor-recipient" type but one of "partnership in progress". Right from the beginning the people of the villages were involved at every stage. Every month village volunteers and the Foundation's staff meet and review what has been accomplished and discuss new initiatives.

MSSRF scientists understood the need to develop 'content' - the information needed to satisfy the communities' needs - and developed much of the content in collaboration with the local people. They have created more than a hundred databases, including rural yellow pages, which are updated as often as needed. Incidentally, the entitlements database, which serves as a single-window for the entire gamut of government programmes, has created so much awareness among the rural poor that there is greater transparency in government now. Farmers get the right price for their farm produce and wage labourers get the right wages from their employers, thanks to the knowledge centres.

The MSSRF team is not averse to borrowing 'content' from elsewhere if it is found useful to the local community. In fact, they are actively seeking partnerships. For example, much useful information has been collected from Government departments, the Tamil Nadu Agricultural University, Aravind Eye Hospital, and a host of other institutions. VKCs have held a few health camps in the villages in cooperation with well-known hospitals as part of gathering information about local health care needs. Most of the transactions are in Tamil, the local language. The knowledge centres are operated by local volunteers, mostly women, selected by the community. The village volunteers are trained to input material in Tamil using the standard QWERTY English keyboard. [One is indeed surprised at the speed with which the village volunteers learnt to use the computers and more so learnt to type Tamil, with its 247 characters, using the standard English language keyboard without using the template.] Some of them have learnt to code in HTML and design web pages. As Prof. Swaminathan says, these villagers take to technology as fish to water. It is a question of getting the opportunity. VKCs use multimedia and loud speakers to reach out to even those who can't read/write. The fortnightly Tamil newspaper, called Namma Ooru Seithi ('Our Village News') has become so popular that Government departments such as District Rural Development Agency, Social Welfare Board, and the Small Scale Industries Centre use this newspaper to publicize their schemes.

It has been a great opportunity for me personally to have associated in the rural empowerment endeavours of MSSRF. With the thrust ISRO has been giving for societal development related applications of space technology in recent times the movement initiated by MSSRF is certain to make great strides and would achieve its goals. Dr. V. S. Hegde, Deputy Director (Applications), EOS, Programme Coordinator, VRC, Indian Space Research Organisation (ISRO), Bengaluru (Bangalore).

Congratulations for taking an idea to an excellent development and implementation point. This transition and the results you have managed to achieve are remarkable. Roger Finan, Regional Director,

IDRC 19<sup>th</sup> February 2001

#### Reaching out to the world

Mission 2007 activities have also had an impact in neighbouring countries. The mission has triggered similar initiatives in other countries such as ICTA in Sri Lanka, Telecentre Network in Bangladesh, PhilCeCNet in Philippines, Mission Swaabhimaan in Nepal, and the PAN Africa Network.

"The inspiration for Mission 2011 came from the Mission 2007," said Ananya Raihan, Executive Director of D.Net (www.dnet-bangladesh.org) and Secretary General of the Bangladesh Telecentre Network, on the occasion of the launch of Mission 2011 in Dhaka. "We want to take all those [outcomes] which worked in implementation of Mission 2007 and avoid those which did not work." And, although there is no formal linkage between the two initiatives, Dr. Raihan emphasized that there was "a spiritual linkage and a working relationship has been established already at bi-lateral levels."

GGA (Mission 2007) Secretariat organises exchange visits for many overseas organizations to study the multi-stakeholder partnership. A study team from Rwanda visited India in 2007 to develop its own strategy for ICT4D.

Mr Sesonga Eric, Provincial ICT Coordinator, Rwanda Information Technology Authority, commented, "The knowledge society is very different from the information society. While the information society concentrates on consolidating and analysing information, the knowledge society focuses on synthesising and making it appropriate for local use.... Developing a proper back-end repository of location/region specific content and information is an important prerequisite for making the telecentres viable. If the content/information is useful, the user community is most willing to pay for it."

After a visit to some knowledge centres in India, it became clear to Mr Barera Paul, Chairman, Rwanda Telecentre Network (RTN) that "Multi-stakeholder partnerships are essential to enhance the relevance of the telecentre to the user community. No sector of the society, not even the government, which is the most resource rich sector in the developing countries, can achieve ICT-enabled development on its own."

After visiting the MSSRF VKCs, Mr Harsha Wijayawardhana, Assistant Secretary, President's Secretariat, Government of Sri Lanka, said, "Till date, we have established 502 nenasalas. We wanted to have a knowledge sharing tour with Indian telecentre operators. It provided us an opportunity to understand the difference between Indian and Sri Lankan telecentres. Our telecentres are selfsustainable and neglects the social development aspect. Here it is the .other way round, these are people centric and community oriented. It provides services beyond computer education. For example, it offers market related information, vocational training, health, fishery and agriculture related information. We have launched www.gov.lk website to provide all government related information. ICTA is also providing 1919 calling service."

After his first visit to the knowledge centres in Puducherry, Prof. Bruce Alberts observed, "I envision a global electronic network that connects scientists to people at all levels - farmers' organizations and village women, for example. The network will allow them to easily access the scientific and technical knowledge that they need to solve local problems and enhance the quality of their lives, as well as to communicate their own insights and needs back to scientists." His vision of "a global electronic network that connects scientists to people at all levels" appears to be eminently possible. Converting it from the realm of possibility to reality is the challenge before Prof. Swaminathan and GGA.

Organization Indian Farmers Limited (IFFCO)

Krishi Vigyan Ke

District Superinte Office (SDAO)

Directorate of Se Wardha Social Forestry

Mahabeej Seed

Daftari Seeds, V

I was very impressed to see the organization and functioning of this Value Addition Center. I think there is tremendous scope for ushering in a social and economic revolution in our rural areas with the use of modern scientific technology. I hope that the vision of our great agricultural scientist which created this network will spread to all parts of the country bringing immense benefit to our Nation. Lieutenant General S. K. Sinha, Governor of Assam

#### Strategic Partners of Waifad VRC

All Village Resource Centres place a premium on partnering with people and institutions whose help they seek for useful information and expert knowledge, for conducting training programmes, etc. Here is a list of few strategic partners of the VRC in Waifad, Maharashtra.

	Contact Person	Purpose	Organization	Contact Person	Purpose
Fertilizers Cooperative	Mr. Deepak Pal Field officer	Soil Testing, [250 farmers got soil tested through soil testing mobile van in the first year].	Vaibhav Lakshmi Bio control Lab	Mr. Dhananjay Pahade Director	Provides quality tested bio pesticides and bio fertilizers to the needy farmers.
ndra (KVK)	Dr. R S Tekade Coordinator	Training in integrated pest management and sericulture & silk worm rearing.			Provides information on the right way to use bio fertilizers and pesticides.
		Contents and news for the community news paper.	Acharya Vinoba Bhave Gramin Rugnalaya, Sawangi Meghe	Mr. Abhyuday Meghe Executive Director	Provides training programme for adolescent boys and girls
endent of Agriculture	Mr. Tandale SDAO	Information on government schemes in agriculture and subsidies through Waifad VRC.	MAFSU (Maharashtra Animal and Fishery Science University)	The Director, Extension	Help in organizing programmes on Animal husbandry and dairy science in VRC and VKCs and in
ericulture office,	District Sericulture Officer	Providing kit for silkworm rearing			content creation.
		to farmers.	Agriculture college, Nagpur	Dean of College	Help in organizing big events
Office, Wardha	Ranger	Providing teak plants to the needy farmers.	Agriculture college of Pipri, Wardha	Mr. Atul Sharma Programme coordinator	Advice on critical cases in crop pests and diseases management.
Corporation, Wardha	Mr. Raut Agriculture officer	Provides foundation seeds of soybean to the farmers for the production of certified seeds	Tata Consultancy Service	Dr. Arun Pande Head, TCS	Set up an automatic weather station in Waifad. Also provided three m Krishi mobiles to
/ardha	Mr. Arate Field officer	Provides foundation seeds of pigeon pea to the farmers for the			disseminate weather forecast among the community.
		production of certified seeds	State Bank of India & Bank of India	Lead Bank Manager	Provides information on crop loan schemes.
			Taluka Agriculture office	Mr. Vilas Meghe	Visiting at VRC/ VKCs for
				Agriculture Supervisor	answering farmers' queries related to subsidy

## Rural Innovation Fund (RIF)

As envisaged by Mission 2007, one of the major obstacles in the emergence of "Rural Knowledge Societies" across India is the lack of cost-effective and adaptive technologies that can address area-specific needs and demands and can function effectively in varied rural environments. It necessitates "innovation" of new technologies and "adaptation" of existing ones in such a way that they operate efficiently under prevalent rural constraints and conditions. To address this problem Microsoft and Telecenter.org (a collaborative initiative of Microsoft, International Development Research Centre, Canada and the Swiss Agency for Development and Cooperation) have constituted a fund called "Rural Innovation Fund (RIF)". The Fund is administered by GGA (Mission 2007).

The main aim of the fund is as follows:

- Helping communities with limited access to technology to realize their potential
- Promoting local IT based social entrepreneurial ventures
- Fostering ICT based entrepreneurship in rural areas among the youth
- Encouraging organizational, individual and local software entrepreneurial endeavours towards developing cost-effective, practical and innovative applications and solutions benefiting society
- Collaborating and supporting organizations specializing in service development and offering services that lack distribution channels to reach poor communities.

In July 2007, the Secretariat of Mission 2007 invited applications through email (8,000 organizations), and advertisements through national dailies from those working towards developing innovative applications / solutions / content / services in any of the following areas:

- Enhancing livelihood and agriculture practice
- Education & literacy
- Rural Health & telemedicine
- F-Commerce
- Local content management applications & village level administration tools
- Disaster preparedness & management

The Fund supports only project costs, and not recruitment, core organizational costs and recurrent needs. The official representatives of the sponsors Telecentre.org, Microsoft, Swiss Agency for Development and Cooperation, International Development Research Centre and IIT, Mumbai and GGA coordinator served as selection committee members. More than 1,400 applications were received and the committee shortlisted the applications. Telecentre.org and Microsoft alloted the resources and provided necessary guidance to select RIF's award winners. GGA secretariat monitors the entire programme and the award winners should develop / submit their software applications to GGA secretariat. GGA secretariat also periodically monitors their progress. In the initial step, secretariat selected nine innovators (Primary Eye Care Through Rural Vision Centre, School Management Software, Preparation Of Knowledge Kit For Goat Keepers, Patient Logistics Management for Hospitals, etc.) based on their project proposal.

Nine rural applications have been developed under the Rural Innovation Fund. These are: Village Centric Management System, Patient Logistics Management for Hospitals, Knowledge Kit for Goat Keepers, Application Tool for Bone Mineral Density Scan Analysis, Participatory FisherFolk e-Commerce Project, School Management Software, e-Commerce Web Portal, Primary Eye Care through Rural Vision Centre, and Account Maintenance of Self-Help Groups. All the applications were evaluated by Tata Consultancy Services in September 2008, and by February 2009, the applications were ready for trial runs in the field.

NVA will continue to focus on content and capacity building using different ICT and non-ICT tools for a revolution in rural knowledge.





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The First Village Knowledge Centre

Dr. V. Balaji, Mr. Renald Lafond, IDRC, Laurent Elder, IDRC, Prof. Subbiah Arunachalam, Mr. S. Senthilkumaran at MSSRF. Chennai



Mr. Y. C. Deveshwar, Chairman, ITC Ltd., Prof. M. S. Swaminathan, Chairman, MSSRF, Mr. Kanwalinder Singh, CEO, Qualcomm, Mr. Arif Khan, Qualcomm & Mr. Parag Kar, Qualcomm visited Fisher Friendly Mobile Application booth during the 4<sup>th</sup> Convention of Grameen Gyan Abhiyan at IGNOU, New Delhi



Visiting Sri Lankan Prime Minister Ranil Wickeremasinghe honours a Fellow of National Virtual Academy for Rural Prosperity



Former President of India Dr. A. P. J. Abdul Kalam with members of Jamsedii Tata National Virtual Academy for Rural Prosperity launched in 2003



Mr. Montek Singh Ahluwalia, Deputy Chairman, Planning Commission of India





# Part II

ICTs used in development



An initial dialog in January, 1992, on "Reaching the Unreached: Information Technology" was held with the support of International Development Research Centre (IDRC), Department of Space, International Tropical Timber Organization (ITTO), United Nations Development Programme (UNDP) and Council for Advancement of People's Action and Rural Technology (CAPART). This was in essence the birth of what was to be later called the Village Knowledge Centres (VKCs). As communication was not up to the mark, and it was a known hurdle, this engagement attempted to see if satellite communication could be used to reach the remote villages of India. The satellite technology was to be evaluated but even before that a need assessment was to be done on the ground. So the approach taken was to first conduct a series of surveys to identify the present reach of electronic media, the information linkages and what were the needs of the communities. It was seen that even in those days, the Cable TV penetration was very high. As against that, the telephone penetration was very poor with only one phone line per 300 people and that too with non-functioning lines for extended periods. Therefore, any deployment depending on the wire-telephone infrastructure would be risky and limiting in nature. In the search for the best technology to use, it was seen that some people on highways were using

## Range of ICTs



It is an indisputable fact that communication and new technologies are playing an important role in shaping the future of societies and how we interact with each other. Successful societies today demand vibrant, efficient and un-congested telecommunication networks. The Government and private sector is playing a role in these areas. However, the benefit of this development does not percolate to the rural economies unless there is some intervention and concerted effort by stake holders. Also, the technology developed has to be affordable to have a wider spread. There are many naysayers and barriers to be overcome in meeting this objective. MSSRF was a pioneer in identifying that ICT could play a major role in development and that using appropriate technologies there could be huge shifts in the functioning and this could have major positive impact going into the future.



VHF (Very High Frequency technology being installed and tested at MSSRF

walkie-talkies [VHF (Very High Frequency) Technology]. So the idea germinated why could MSSRF not use these walkie-talkies which had a range of about 8 to 12 km for dissemination of information? Initially there were some limitations such as no permission to transmit data but at least on voice the information such as weather data, market prices, varieties of rice, timing of bus services, etc could be transmitted. With this in mind, using a hub-and-spoke model a walkietalkie service was set up. Soon it was felt that it would be more effective if data transmission was also added and so by putting two radios instead of one, voice and data both were transmitted/received in a radius of about 12 km. At that time the popular operating system was MS Windows 95 which had a FAX software. So using data over VHF, FAX were transmitted and read electronically on screen.



VHF (Very High Frequency) radio with data transfer facility

In summers it was found that the VHF set can become very hot, so with local innovation at play, first a fan was setup to blow air at the back of the set and later a box was designed at the village with fans to house the unit and kept it cool and secure. Being a one-to-one communication, a time-schedule was drawn and sequentially updates were delivered to each spoke from the Villianur hub before 11 am.



Animator Ms. Sundari sending voice messages from Pillayarkuppam to VKCs in Puducherry using a Motorola VHF radio

The information was collected from newspapers, government depots, markets and bus terminals. Each day, from 3 pm, all the spokes would give a feedback daily to the hub. Also, for voice, because there was a speaker facility, a group of villagers could assemble in the room and listen in to the communication

collectively. Extending this further, at the hub, an EPABX (exchange) was set up to bridge calls to the VHF radio-sets. Prior to this, in the villages, there was practically no information available, and only if someone happened to go to the semi-urban areas or city, was some information passed. This was ad-hoc and guite unstructured but with the VHF network in 6 Village Knowledge Centres a big change was seen. This model of communication was so effective and impressive that MSSRF won the Motorola Dispatch Solution Gold Award in 1999 for the Information Village Research Project, Pillayarkuppam.



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You have given us all a wonderful insight into the MSSRF programme and we are very grateful. I hope we can continue to work with you and learn from the innovative approaches you are developing Christian R Lunnedal, Robert Chapman, & Michael Riggs of FAO

This model and method of communication was in use from 1997 to 2000. In the later part of 2000, a new technology came on the horizon – spread spectrum (802.11b/g). The advantage of this was that it offered high speed (11Mbps connectivity, although practically the speed was 2 Mbps) and more automation in the transfer of information. However, this was a point-to-point communication system and therefore there was a need to set up towers to get line of sight. This added to the cost of installation (about Rs. 150,000) but the advantage of higher speed and longer range would outweigh the costs. Six centres were connected in this manner in a radius of about 20 to 25 km. Due to the additional bandwidth available, and increased needs, new services could be run such as Internet web and e-mail access via a proxy server. Another service added in 2001 was to have video conferencing using Netmeeting software. This way, advisors were invited

to the hub centre and through video conferencing facility the group of villagers at the spoke centres derived the benefit. This model was very successful. Innovative use of available technologies, both new and old, to satisfy the needs of the local community was the reason that MSSRF won the Stockholm Challenge Award in 2001.



In 2001, the community newspaper was launched in local language. Initially there were sceptics - who would read the newspapers? They were proved wrong as local content useful for the villagers was very welcome and the newspaper continues to flourish even to day and now it has eighteen editions in three languages and reaches 820 villages! With every advancement of technology there are new challenges. Earlier with VHF radio, there was daily interaction between the hub and the spokes, with the automation on spread spectrum technology the knowledge worker staff at the hub felt less informed about the activities at the spokes. Therefore new processes were set in place such as regular video conferencing and web based interaction to keep the communications flowing both ways. However, this still did not address one gap while the hub and spokes were connected, MSSRF, Chennai and the hub were not connected. At that time, there was no broadband Internet or other fast connectivity. So towards the end of 2001, some investigation & tests were done on possible use of satellite based data broadcast in collaboration with Space Application Centre (SAC), Ahmedabad. This was also the same time when the SAC deployed few reporting terminals to fisher folk associated with MSSRF Knowledge Centres to be used in case of emergency. However, that was not very successful as the fisher folk found the equipment heavy to use and not water proof. Another issue was that this was powered by solar power which drained very guickly on use. In 2002, MSSRF in collaboration with World Space Radio under Open Knoweldge Network (OKN) looked at information dissemination using satellite radio technology. This was primarily aimed at information exchange of traditional knowledge as well as daily news of farmers, market information, good practices, medical emergency of blood requirements, etc. The content was uploaded using the Internet to the World Space system and this was broadcast as data to computer systems connected to the World Space Radio system. However, being a broadcast one-way transfer of information its use was limited. Also, in the long run the subscription could prove to be expensive. Meanwhile efforts continued to improve the connectivity between Chennai and the Hub. SAC offered a satellite facility that depended on uploading data to their FTP server in Ahmedabad which was then broadcast via satellite but unfortunately the dependency on Internet connectivity at that time made this link unreliable.

However, these efforts led to other initiatives in the later part of 2003. A collaboration between MSSRF and ISRO helped bridge the gap that was felt between the VRCs and the MSSRF, Chennai using ISRO's satellite facilities. Initially three locations were selected Thirvaiyaru, Sembatti (Dindigal) and Thangachimadam (Rameshwaram). This was keeping in mind three zones – delta, hilly & horticulture and fishing zones. This connectivity was not round-the-clock but limited to a daily specific time of day. This space-connectivity helped hold one-to-one and one-to-many video conferences as well as data transfers. Experts were called to one of the locations and using interactive video conferencing facility they were able to interact with multi-locations. Later five more centres were added to the network including some in Maharashtra

and Orissa. *Scientific American* selected Information Village Research Project for a special mention when it chose Prof. M. S. Swaminathan as one of the top 50 scientific leaders who were making a difference. On 18<sup>th</sup> October 2004, the Prime Minister of India inaugurated the Village Resource Centre (VRC) established by MSSRF & ISRO. Later when broadband connectivity was available in VRCs through DSL (phone lines), Skype over Internet is used to do video conference between VRCs. These conferencing facilities were very useful in having virtual conference on medicinal plants such as the one held in Kottakal (as the hub) and





Chennai, Bangalore and Jeypore. Meanwhile, also in 2004, in Phase III of IDRC's project, the Cable Radio Programme initiated Computer Aided Learning Programme with the help of Azim Premji Foundation w a s l a u n c h e d a t Pillayarkuppam VRC to provide computer education in local languages particularly to children. In 2005 the first version of the INCOIS Electronic Display Board was introduced for providing potential fishing zone information along with ticker alerts. This information was delivered to the display boards using a simple dial up modem and telephone line. On 28-29 July 2006, "Fisher Friend Mobile" concept was put in place with the launch by QUALCOMM along with Tata Teleservices and MSSRF. With the help of Astute Systems, discussions were held on how to provide wave height, weather, potential fishing zone, Government announcements and rural yellow pages to the fisher folk through a menu based mobile phone application. This application works in the local language of Tamil and is very useful. On 2<sup>nd</sup> August 2007 the use of Fisher Friend Mobile based on Qualcomm's BREW (wireless research) technology and developed in partnership with Tata Teleservice, Astute Systems and MSSRF was show cased during the 4<sup>th</sup> Mission 2007 convention. August 2007 also saw the launch of the tele-opthalmology services in VRCs and VKCs with the help of Sankara Nethralaya Medical Research Foundation with the mobile van "Knowledge on Wheels" programme. And soil and water testing facilities through a mobile laboratory. While these new technologies were being experimented with, the use and deployment of conventional technologies continued in parallel. For example, audio content from the archives was spread with a tie-up with AIR (All India Radio) to help spread the knowledge through radio programmes. From 2000-07 public address systems were deployed in many villages.



A halogen lamp on top of the Veerampattinam Spread Spectrum Tower guiding fishermen in the sea

This led to some interesting innovations from the villagers. The fisherfolk in Veerampattinam suggested that while the information on fishing zones was sent out, why not broadcast that over loud speakers in the village? This was done and it was found that frequently the wires connecting the speakers would get damaged due to high winds and saline water and sometimes the over hanging cables would get cut during temple or church organized festivals with tall vehicles. So the villages suggested a screw-type fixture that they could disconnect and reconnect as well as replace sections of the wire. Later when few students from University of California, Berkeley came to study the village ICT deployments for 3 months, they designed and developed a wireless speakers system using 802.11b protocol and since the speakers were not wired, solar power was used to drive the speakers. Later, when the cost of mobile phones dropped, a system was developed to reside the mobile phone into the speaker system itself. This way, when the phone was called (from a central location) the voice was transmitted over a loud-speaker. Using roundrobin, all the speakers relayed serially the information broadcasted. This is in use even currently in thirty six villages. During the visit of the University of California, Berkeley students, they also developed a proxy system which allowed downloading of common information and then accessing it offline.

Another noteworthy innovation was that fisherfolk asked that a bright halogen light could be fixed on top of the tall tower that was deployed in the village (for communication) so that this could serve as a guiding beacon of light for all the boats that went fishing. There are many such examples of initiatives and innovations which occurred in the course of time. There are also many examples of services which are unique in nature. MSSRF has a Yellow pages for villagers. Typically not all villagers have a telephone so conventional yellow pages doesn't apply but yellow pages based on categories of services with addresses is highly useful amongst the villagers looking for local services. 2007 also saw the launch of SMS based information. Initially this was launched as an internal service to transfer work-plans and receive feedback but later this was expanded to a database for wide-dissemination of information first to fisherfolk, then farmers and then also to MUPP students (to give out examination results as well information relating to employment opportunities).

In 2008 MSSRF in collaboration with IFFCO Kisan Sanchar Ltd. (IKSL) distributed the Green SIM card. Daily five advisories are delivered through an audio-based service to every member in the local language. There are about 30,000 subscribers to the network. MSSRF is the content provider for the Southern states as well as handles the call-centre when users call in for additional information that they may require. On 19<sup>th</sup> November 2008 IGNOU-MSSRF launched the Appreciation Course on Sustainability Science. This course explains the concept and functioning of VKCs and VRCs.



I must admit, in the 2 days I spent here, I have learned a lot about the challenges of setting up village tele-centers, the tremendous benefits to the community in a period of just 5 years and the vision and commitment of MSSRF team here in making this possible. The very best to them. Shalini Kala, ENRAP, IDRC, New Delhi

There is active discussion going on regarding expanding the Fisher Friend Mobile which was launched in 2007 by Qualcomm, Tata Teleservice, Astute Systems and MSSRF. So far, about 200 fisherfolk have used the Tamil-menu based system on 47 phones in circulation. The system has proved to be stable and very useful and some initial bugs have been ironed out. This number has a far bigger impact than visible on the face of it. With each of these 47 phones, the fisherfolk relay this information to everyone in the village so there is a multiplier factor. Also, the same service is now available through Tata Zone and anyone who buys the phone can access this service for a small fee (apart from the units in pilot test). There is a system in place to take daily feedback from all users and this has helped improve the service. Now there is discussion on making this information available as IVR (interactive voice response) so that even those who are illiterate can benefit from the voice based service through the mobile phones. MSSRF with a tie-up with Reliance Communications has set up a CUG (Closed User Group) facility with 56 VKCs. Calls within the CUG are free once the rental of Rs. 450 p.m. is paid, thus improving the communication between the centres tremendously. Being portable, the WLL devices are also carried in the mobile vans that are operated by MSSRF for soil testing and for ophthalmology tests. These devices are used to have conference calls with officials and villagers. In one of the villages they told us, "Normally we travel long distances and have to wait days and even then the officials don't even meet us. With this facility, we are able to communicate our issues with the senior Government officers." In future, the same device could also be used for datapurposes. With a tie-up with Rajiv Gandhi College of Veterinary and Animal Services, Puducherry an interactive kiosk was developed. This touch screen based kiosk provides information in both English and local languages on a

variety of topics ranging from rearing cows, gathering milk to animal health care, etc. IFFCO has also provided kiosks for knowledge dissemination. MSSRF is also extensively using K-yan PC developed by Prof. Kirti Trivedi (IIT, Mumbai) and marked by ILFS as a low cost computer which also incorporates a DVD drive and projection systems with speakers in one unit. This way with a simple interface, groups of villagers are able to see audio-video content projected on a large wall. This device is available in all VRCs of MSSRF. To disseminate audiovideo contents VCDs & DVDs are regularly sent to the VRC. Some cases where the VKCs are in remote areas, and where connectivity is poor, thumb-drives are sent via a relay of bus-drivers who also bring back information on their return. There are also efforts already in place to categorize, re-format and present existing and new audio-video information available in archives. This information will be put on public video services such as YouTube and also broadcast from the website of MSSRF.

Technological advances offer phenomenal changes which are also creating challenges for planners and governments but, at the same time, are opening up huge opportunities. With new technologies, unprecedented developments, and booming economies, the face of the world of telecommunications & IT is changing rapidly. Integrating the villages into this change and adopting the technologies for maximizing the impact in rural areas is a challenging task ahead. If due care is not taken, then the rapid technological developments will lead to a greater digital divide which in turn can lead to big social upheaval. With a very large population of India residing in villages, it is important to focus infrastructural development and to create a level playing field so that the benefit has a wider distribution. The strong growth phase in mobile telephony of which a sizable part comes from semi-urban and rural India could be leveraged to advantage. Demand for broadband access is also growing rapidly and the locations where this service is available has also expanded considerably. With the advent of 3G networks, new opportunities will arise. With MSSRF's history of having leveraged on its extensive human network and having being able to look ahead of the technology-curve MSSRF is suitably positioned to be the leader as it has so far been in deploying appropriate technologies in rural areas.





# Part III

Knowledge centres



MSSRF scientists use effective communication strategies to make a big difference to the lives of the rural communities they work with. Their 'communication for development' strategy is holistic, emphasises participatory communication and encompasses innovative use of technologies and generation of appropriate content. Then comes the crucial step of linking information and knowledge to empowering the poor & marginalized and creating income generation & livelihood opportunities. This needs much more than technology, viz. sharing knowledge, building partnerships, developing capacities, and setting up enterprises.

The work of MSSRF in fishing villages on the Coromandel coast of India, which began ten years ago, illustrates their approach to communication for development.

Veerampattinam, six kilometers south of Puducherry, is the first of many fishing villages MSSRF works with. Most of the 6,300 people there belong to the fishing community. It is unusually clean for a fishing village in southern India. It has straight roads running North-South and East-West and a wide beach. At the centre of the village is the Chengazhuneer Amman temple, surrounded by the water tank, the village school, a few shops, the marketplace, and the office of the local Panchayat (the traditional village government). The annual temple car festival celebrated on six continuous Fridays in July and August, when the deity is taken round the main streets of the village on the decorated temple chariot (called thare in Tamil and ratha in Sanskrit) pulled by hundreds of devotees, is the only major event and it attracts a few thousand pilgrims from far off places. Throughout the rest of the year, nothing of note happens and life goes on guietly. All that changed in 1999 when the villagers requested the M. S. Swaminathan Research Foundation (MSSRF) to set up a knowledge centre similar to the ones they had set up in Kizhur and Embalam. They provided space in one half of a rectangular room that served as the Panchayat office, located near the entrance to the temple.

## Making a difference to the lives of fisher folks

"Knowledge and information are essential for people to respond successfully to the opportunities and challenges of social, economic and technological changes. But to be useful, knowledge and information must be effectively communicated to people", says the Food and Agricultural Organization.



Preservation (Icing) of tuna fish at Chinnangudi village seashore with crushed ice

This centre, inaugurated in April 1999 by Dr. Maurice Strong, the well-known environmentalist, was one of a cluster of similar centres connected to a Village Resource Centre located at Villianur, some 8 km away, where MSSRF staff gather, process and add value to information on a wide range of subjects of interest to the people of the region. Within months of its inauguration, the knowledge centre started providing, among other information, forecasts of wave heights and wave current directions in the Bay of Bengal 36 hours in advance. The forecasts, based on information downloaded from the website of the US Naval Observatory in Rota, Spain, proved to be a boon. These forecasts were gross approximations and were not local enough. But something was better than not knowing anything. Ever since this service was started, not one person from the village has lost his life while fishing. Before that, up to half a dozen lives were lost every year when fishermen were caught in rough weather while fishing far away from the shore.

Needless to say, timely communication of vital information can be of great help to people. It can even save lives.



Fishermen returning from sea with their catch

We realize that the village knowledge centres/gyan choupals have been able to effectively disseminate to the rural communities, a variety of useful information which range from availability of employment opportunities to water conservation and mother and child health. Such need based information has helped the communities to access and benefit from a wide range of schemes, programmes, initiatives and facilities provided by the government and other actors in addressing serious issues such as functional literacy, conservation of biodiversity, tackling of water shortages, increasing production and productivity in crop, dairy and fisheries sector, combating malnutrition etc. to mention the most crucial ones. The local government institutions too have now come to realize the potential and utility of the village knowledge centres in terms of the latter's ability to empower the communities and enable them to actively demand services and entitlements from the Government organizations and the others.

#### Svbille Suter

Counsellor and Country Director, Swiss Agency for Development and Cooperation, New Delhi. 15 November 2009

I had a really great experience here in Pondicherry. I visited almost all the Information Villages in about seven days and was amazed by the sights in the villages. The enthusiasm, the eagerness and warm welcome I received from the villagers and the MSSRF staff was really good. I have learnt immensely and I know that this experience is going to help me a lot in my life. I believe that this is going to be a success. Punita Shah, London School of Economics

Technologies used In the early part of the decade of 2000, different technologies were deployed to bring the wave height and other information to the fishermen. In the case of the fishermen of Veerampattianam, lives could not have been saved without the intelligent use of a combination of new and old technologies. The US Navy gathers the information on weather conditions in the Bay of Bengal through its own satellites and puts out the information on its website. MSSRF staff at the hub (Village Resource Centre at Villianur, now shifted to Pillayarkuppam) used to download wave height forecasts from the US Navy site once a day, interpret the data to suit the needs of the local fishermen, and transmitted the same as a multimedia file to Veerampattinam through spread spectrum technology. This enabled the two centres to receive and transmit data, text, audio and video files. The transferred message consisted of a weather chart in colour indicating wave heights as a function of the distance from the shore and the wind directions, a written statement and a voice announcement. At Veerampattinam a local volunteer downloaded the message, put up the weather chart and the written statement on the notice board and broadcast the voice announcement several times in a day over the public address system so that everyone in the village could hear it through strategically located loudspeakers.



Women taking part in a video conference on health at Nagapattinam VRC

As not only the men but also the women heard these announcements, women were able to tell the men on days when they are warned not to venture into the sea for fishing, to stay home and do some household chores and not to while away their time with their friends! An example of unintended social impact of technology.

The villagers were innovative too. When the 80 feet tall spread spectrum tower was erected they requested the knowledge centre staff to install a powerful mercury vapour lamp on top of it so fishermen returning home in the night could use it as a lighthouse. Till then all that they had was an ordinary tungsten filament lamp on top of the temple tower, half the height of the spread spectrum tower. The new lamp had resulted in an unintended benefit to the catamaran fishermen. They would normally fish close to the shore and carry a hurricane lamp to attract fish. The new lamp on the spread spectrum tower did the same and attracted fish close to the shore.

Some time in early 2005 the US Naval Observatory stopped providing information on wave heights in the Bay of Bengal. The fishermen of Veerampattinam, having found it extremely useful, insisted that MSSRF should restore the service.

கடல் தகவல் பலகை மீன்வளம் நிறைந்த பகுதிகள் (PFZ)						
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INCOIS electronic display board - displays potential fishing zone information in Tamil

MSSRF scientists spoke to Dr. Radhakrishnan, then head of Indian National Centre for Ocean Information Services (INCOIS), a Ministry of Earth Sciences laboratory located in Hyderabad, a few hundred kilometres north of Puducherry, about the problem and he told them that INCOIS could provide the information. Soon an INCOIS Electronic Display Board was installed at Veerampattinam. In the early days INCOIS provided only the potential fishing zone information which included latitude, longitude, depth, direction from the Veerampattinam shore, etc. of locations in the sea where large shoals of fish could be found. Later they added an early warning system and wave height information. The current version of the board, installed in 12 coastal village knowledge centres, has a World Space radio, a mobile phone, and a siren that can be activated remotely from Hyderabad when they notice an impending disaster. INCOIS is also working on providing wave height information with much higher resolution.

Now MSSRF delivers the information to the fishermen using a different technology, viz. Fisher Friend. In 2007, MSSRF joined hands with Qualcomm, Tata Teleservices and Indore-based Astute Systems to create the Fisher Friend project with a view to empowering the fishing communities in India and ensuring the safety of fishermen in the sea. Fisher Friend, developed with the help of Astute Systems, is a mobile application on Qualcomm's BREW platform that works on 3G CDMA handsets. It provides real-time safety and weather information as well as location of fishing areas and market prices to fishermen anytime, anywhere at the press of a button. Fishermen are provided specifically designed mobile handsets, which cost around Rs 2,500 (or US \$50). All information is gathered in a central server at MSSRF, Chennai. Upon sending a single-button-click request from a menu-driven client software on the mobile phone, fishermen get access to vital information, in the local language (Tamil) that is simple to understand. The first set of fishermen using Fisher Friend have expressed a desire that audio educational content related to fisheries be added and global positioning system capability incorporated in the phones, so the exact location of the phones can be tracked. This would make rescue operations much easier. The phones, operating on the Tata Teleservices network, can connect to the network from 10 -12 km from the shore. As of October 2009, about 200 fishermen were sharing 47 Fisher Friend mobile phones in Puducherry and Tamil Nadu.

Fisher Friend is indeed a boon to fishermen, says Machendran who frequents the VKC at Chinnangudi in Nagapattinam district. Now, as the fishermen know where to go to find a large shoal of fish, they save on diesel and more importantly time. Fishermen from other villages often wait for those from Chinnagudi to move out into the sea. On seeing the particular direction they take, those fishermen from neighbouring villages move in the same direction too knowing that the villagers from Chinnagudi are better informed and have a better yield.

Thanks for an illuminating set of meetings I learned much and am left thinking about much more! I look forward to another visit perhaps in less than five years, to see how this unique experiment continues to try to answer some of rural India's central puzzles. With great respect and many thanks for your hospitality and patience.

Mr Stephen J. McGurk, Regional Director for South Asia and China, International Development Research Centre (IDRC) 16<sup>th</sup> March, 2007

Thus even those who do not use the VKCs benefit from it. There have been days when Chinnangudi fishermen, together owning 80 boats, have returned with a catch wortth half a million rupees which is a huge sum of money!

During 2001-2002, MSSRF scientists tried a communication device called the Reporting Terminal developed by the Space Application Centre (SAC), Ahmedabad. It would help a fisherman send out a message at times of distress to SAC and SAC could then send an alert to MSSRF by Fax giving the location of the fisherman so they could organize a rescue mission. Unfortunately, these early experiments were not very successful. Fishermen found this device rather heavy and not water proof. Besides, the solar-charged battery limited the number of calls one could make to just two or three before draining out. From this feedback, SAC decided to work on an improved version.

#### Two-way communication

Communication for development must be two way. It is important in assessing the needs of the community one works with. MSSRF uses many strategies to both identify peoples' needs and to help them with solutions.

## video conferences.

which is available.

These range from one-on-one conversation to well organized dialogues and

On 21st November 2002, a one-day dialogue called the "Voice of the Fishing Community" was organised in Puducherry solely to know the problems faced by the community and their expectations. Apart from more than 150 men and women from fishing families, the dialogue was attended by Prof. M. Ramdadoss, a community leader and economist who later on became a Member of Parliament, senior officials of the Department of Fisheries, a few bank officials, MSSRF scientists and VRC & VKC staff. Several interesting suggestions came up. For instance, there should be greater investments on welfare schemes for fishermen. It was pointed out that of the Rs. 3,750 million the Government earned from fishing during a period, only Rs. 150 million was spent on fishermen welfare schemes. Other suggestions included training in sustainable fishing practices, training in fish preservation & export, setting up of fish preservation units, exchange visits with fishermen in other regions, and banning sale of mother prawns.

The dialogue led to several useful developments. For instance, three years later, the Federation of Fisher Women was formed with over 1,000 members This movement started in Veerampattinam spread to other coastal villages.

I'm immensely impressed by the nature and the extent of work being done in this project. The thing that appealed to me the best is that the online project is based on needs as perceived by the beneficiaries. Thus not only information regarding market prices or weather report are provided, information relating even to auspicious hours of the day are also available. This is very interesting as I'm sure such type of information would make the people use the centers more frequently and thereby they will also expose themselves to the other information

Ashok Gupta, Principal Secretary, Development and Planning Department, Govt. of West Bengal

Ms. Vimala Periandi, the leader of this movement was selected as a Fellow of the National Virtual Academy. The Federation is active in creating an awareness among fisher women of gender equity and empowering them. Also, the Federation is taking up women's grievances to the government and the Ministries. The Federation organised a one-day meet on "Listen to the Voice of the Fishing Community" which was very successful.

A few years later, when MSSRF scientists had established many more VKCs in coastal areas, they took the help of Netfish, a society under MPEDA focusing on training and awareness, to train over 6,000 people in 103 villages in subjects such as sustainable fishing practices, hygienic handling of fish, and guality control of fish products. As a result, many fishermen now use the turtle excluding device and practise sustainable fishing. In another programme, fishermen in the Rameswaram island were sensitized to the need for preserving the rich biodiversity of the Gulf of Mannar, especially the corals, seaweeds, sea grasses, turtles and dolphins.

Other organizations that MSSRF has partnered with in their work with fishing communities include INCOIS. MPEDA. Central Marine Fisheries Research Institute (CMFRI), Central Institute of Brackish Water Aquaculture (CIBA), Aquaculture Foundation of India (AFI), CIFNET, the Departments of Fisheries of the Tamil Nadu and Puducherry Governments, and educational institutions such as Annamalai University Centre for Advance Studies in Marine Biology, Manonmaniam Sundaranar University Marine Biology Institute at Parakkai, Bharathidasan University and Tuticorin Fisheries College. The posters provided by AFI and CMFRI have been particularly helpful to fishermen.

Experts from many of these organizations and academic institutions have taken part in dialogues with fishermen and women through ISRO's satellite videoconferencing. The experts assemble at MSSRF headquarters in Chennai and the rural communities in the VRCs.



A scene at the fishing port of Nagapattinam after the fishing boats returned with their catch

#### Capacity building

Providing information, and linking people to key organizations are inherently good development initiatives but that is not enough. Poor people have only two things to offer, viz. time and labour. If they can acquire some skills, they can use their time and labour profitably. MSSRF provides many skill building programmes depending on local needs.

For example, unlike in other fishing areas where women are involved in fishing as head loaders and traders getting a reasonable income, in the Rameswaram island, fisher women confine themselves to net mending and cleaning. Fisher women in Olaikuda, near Rameswaram, expressed a desire to have another source of income. They were trained in sea shell craft and arrangements were made for a leading dealer M/s Kalam Seashell Mart to buy their products regularly thus ensuring a regular income for those women. Other women were trained in the production of fish and prawn pickles by VRC staff

Professors of the Catering College in Chennai taught the importance of persona hyginel over a video conference. In an innovative move, arrangements were made for those assembling at VKCs, where video conferencing facility is not yet available, to hear and take part in the entire conference through at least an audio link. Dr. Qasim, Principal Scientist and Acting Director of the Chennai-based CMFRI, is popular among fishing communities in the coastal villages of Tamil Nadu and Puducherry, thanks to his frequent participation in the video conferences.

A number of fishermen have been trained in maintaining diesel engines at Vivekananda Institute of Technical Training in Rameswaram. In partnership with MPEDA, training in the use of handheld GPS (Global Positioning System) devices was given to fishermen in Thangachimadam. This training was imparted in three stages. The first stage covered orientation to the technology and its features. The second stage was hands-on training using devices supplied by PRICOL. The third stage of training was imparted by Central Institute of Fisheries Nautical Engineering Training (CIFNET). This was attended by 30 fishermen from different VKCs and on completion all of them received certificates of competence from CIFNET. This was very useful to them due to the close proximity of the international borders with Sri Lanka and the sporadic runin with the Naval patrols.



VRC at Nagapattinam

An even more important role was played by Mr. Vijayakumar, a resident of Nallavadu and a former VKC volunteer, who was at that time working in the Singapore port.



#### A long distance phone call saves a village

The residents of Nallavadu are indeed blessed and lucky. As part of an IDRCfunded project implemented by MSSRF, the village has a Knowledge Centre connected to the Village Resource Centre at Villianur, some 10 km away. The Village Knowledge Centre has a telephone, a public address system and a siren. All the three played a very vital role on the day when the tsunami struck the entire eastern coast of India.

On the fateful day, as he arrived at his office, Vijayakumar saw the tsunami alert and found that the tsunami was moving fast in a westerly direction from Aceh in Indonesia. Immediately, he called his family followed by a call to the VKC in Nallavadu and alerted them to flee the shore and to shout to others to follow. This news was broadcast over the knowledge centre's PA system and a warning siren alarm was set off. Just after that Mr. Gopu, another Nallavadu resident living in Singapore also called the village. Thanks to this, the entire population of more than 3,600 moved to safer places quickly. Not a single person died, although they lost 200 catamarans and 150 houses.

Nallavadu would have lost many lives had it not been for Vijayakumar's and Mr. Gopu's quick thinking and the swift and coordinated action that it triggered in Nallavadu. What was noteworthy was that the whole village could not have been warned in such a short time had there been no Village Knowledge Centre and the PA system with its siren.

The village communities have demonstrably shown that the village knowledge centres have empowered them and saved lives. When it really mattered they acted quickly, on their own, without looking up to MSSRF scientists & staff and the training as well as exposure they had received came in very handy.

The crucial role played by the knowledge centres in Veerampattinam and Nallavadu has been acknowledged widely and written about such as in the biannual publication Digital Review of Asia Pacific, which is supported by IDRC & ORBICOM.

Says former Editor of DirAP, Chin Saik Yoon, "Since the tsunami, IDRC has been funding a large research effort in Sri Lanka — another country hit hard by the wave — to learn how national disaster warning systems can be more effective. IDRC's partner is LIRNEasia, a non-profit organization that aims to improve the lives of Asia's people by using ICTs."





A fishing hamlet near Nagapattainam on the Indian coastline

India, with a vast coastline of 8,100 kms and EEZ of 2.02 million sq. kms, has large potential for marine resources and the coastal communities are dependent on the fishing activities for their livelihood. MS Swaminathan Research Foundation (MSSRF) in Tamilnadu has taken the lead role in taking the technology from the lab to the field. MSSRF has adopted extensively the ICT in the country and designed fisher friendly services like Fisher Friend mobile for providing these Potential Fishing Zone (PFZ) advisories and ocean state forecast information. Also MSSRF has made one-stop information centres called as Village Knowledge Centres / Village Resource Centres all along the coastal villages of Tamilnadu, Pondicherry and Andhra Pradesh. These VRC's have been connected via satellite technology for online video conferencing so as to educate, create awareness and clarify the coastal/ fishermen community doubts. These ICT initiatives of MSSRF have enabled the end users to interact with the scientists, doctors, professors, etc. thereby increasing the awareness among them and capability to easily adopt any new technology.

Dr M. Nagaraja Kumar, Scientist-in-Charge, PFZ Mission, Advisory Services & Satellite Oceanography Group (ASG), Indian National Centre for Ocean, Information Services (INCOIS), Ministry of Earth Sciences, Govt. of India, Hyderabad.

#### Ordinary public address system saves lives

If the knowledge centre at Veerampattinam saves lives of fishermen during normal days, it had done even better on Sunday, the 26<sup>th</sup> of December 2004 when the deadly tsunami hit the village. The usefulness was further felt a few days later when the relief supplies arrived.

On the day of the tsunami, around 7.15 am, some people noticed that all of a sudden water in the temple tank gushing out like a fountain. Word spread and soon there was a large crowd watching the spectacle without realizing the impending disaster. About two hours later, Mr. Mani, one of the Panchayat members, was on the shore preparing his boat. That's when he noticed something unusual – something which he had never seen or imagined before. The sea level rose all of a sudden like milk boiling over from a pot when left on a stove unattended. The water front advanced on to the beach, went past him and then immediately receded hundreds of feet. He was terrified and his sixth sense told him that something ominous was going to happen. He cast his wet clothes away and rushed to the knowledge centre in his under garments, and found the centre locked. Along with a few others, he broke open the door and started warning about the oncoming giant waves on the loud speaker over the public address system, requesting everyone in the village to vacate their homes and rush to safety. Later on he was joined by other members of the Panchayat. the secretary of the Panchayat a few years ago and had seen the system being used by the knowledge worker of the VKC which is housed in the same room as centre at the harbour in Puducherry. the Panchayat office. By the time the tsunami struck the village, everyone – including women, children, the old and the infirm – were already in the safe areas.

"We have not only lost lives, but also our livelihood. It may take months, perhaps years for us to recover. Our future is totally dark" – A fishermen at Periayakalapet, speaking two days after the tsunami attack

The villagers lost much property, but without major loss of life. An early estimate by an MSSRF team revealed that 57 launch boats, 44 fiber boats, 170 catamarans and 200 houses were lost. Of the 6,300 people in Veerampattinam, only one woman lost her life near the river when she was taking food for her husband. Two others died in the next village where they had gone to visit their relatives and did not receive the warning broadcast over the public address system.

When the relief supplies came, the knowledge centre volunteer used the public address system to request people to come street by street, queue up and collect the material. In contrast, due to the panic & fear, in many other tsunami-affected areas the supplies did not reach the right people and there were chaotic scenes. The distribution of relief materials at Veerampattinam was very orderly which was a marked differentiation from other villages. People who are used to a culture of sharing and communicating information in their daily lives are better able to deal with disasters.

After the tsunami the Department of Fisheries in Puducherry wanted to gather information from all fishermen such as number of people in the family, boats owned, boats lost & damaged, and if they had registered with the Department. The Department engaged the VKCs and the knowledge workers for the purpose as they had been in regular contact with the community. The Department was extremely happy with the survey carried out by the knowledge workers and used Fortunately, Mr. Mani knew how to operate the public address system. He was the data in determining the quantum of aid given to the fishermen. Later, in view of the efficiency, the Department requested MSSRF to set up a knowledge

> In another location, the well-known Velankanni shrine near Nagapattinam where both Christians and Hindus pray side by side, NVA adviser Mr. V Palaniappan, a retired agricultural officer and HAM radio enthusiast, set up his unit to provide information on disaster relief through his radio number VU2PKV. He was helping anxious relatives to know about the whereabouts of their family members living in coastal towns and villages near Nagapattinam. Whenever he could locate someone he helped him/her to speak to the anxious relative. Discovering the fate of loved ones is an urgent priority for disaster survivors.





Agriculture The first of the Millennium Development Goals is "to eradicate extreme hunger and poverty." FAO has estimated that the number of poor people going hungry in 2009 reached an all-time high of more than a billion. There is no other way, says Dr. Suresh Babu of the International Food Policy Research Institute, to bring those poor out of poverty except with agriculture.

## Impact of NVA on agriculture, education and health

What started as a small research project called the Information Village Research Project with financial support from Canada's IDRC and CIDA has now grown into a large nationwide programme. In 1998 there were less than five 'information centres' and now there are more than 100 Village Knowledge Centres. In the early days, when telecommunication facilities were primitive, the emphasis was on testing different technologies to deliver information to the rural poor guickly and the focus was on developing locale-specific and actionable information. But today the programme has gone beyond mere delivery of useful information to actually provide services, conduct training and capacity building programmes and create livelihood opportunities. It is indeed making a definite impact on a variety of areas, such as agriculture, fisheries, education, and health.

Transplanting rice seedlings at Keezhapunavaral



Road leading to Wardha, Maharashtra

The importance of agriculture is now realised the world over. "Fears of food shortages, a rethinking of antipoverty priorities and the crushing recession are causing a dramatic shift in world economic policy in favour of greater support for agriculture," says a recent report in *Time* magazine.

#### Embalam Knowledge Centre helps save the life of a cow

Some months back, Subrayan Panjaili, a round-faced woman who cannot read or write, sat in the courtyard of her small home in the village of Kizhur, in Puducherry, with the family's only milk cow, Jayalakshmi. For five days and nights, the cow moaned while in labor. Something had gone wrong, and she was unable to deliver her calf. Mrs. Panjaili grew ever more fearful that the cow would die. "This is the only good income we have", she said, explaining that the four gallons of milk the cow produced each day paid the bills. Word of Mrs. Panjaili's woebegone cow soon spread to Govindaswami, a public-spirited farmer. The village's computer, obtained through the M. S. Swaminathan Foundation is in the anteroom of his home. The computer is operated full-time and for no pay by his 23 year old, college educated daughter Azhalarasi, who used it to call up a list of area veterinarians. One doctor arrived that night and by the light of a bare electric bulb stuck his arm into Jayalakshmi and pulled out the calf's spindly leg and tied a rope to it and then dragged the calf into the world. MSSRF has sought to give the four villages in its network practical, highly local information, which is distributed through the village computer network in the local language of Tamil. Normally this kind of information is not available on the World Wide Web.

Excerpts from Connecting Rural India to the World by Celia W. Dugger, New York Times, 28<sup>th</sup> May, 2000



The Jamsetji Tata National Virtual Academy (NVA) tries to do its bit by helping increase the income of small farmers - those who have very small land holdings and the landless poor. That makes sense in a country where two thirds of the population is dependent one way or another on agriculture and a vast majority of farmers own less than two acres of land. In this endeavour, NVA uses a wide variety of technologies and works with a large number of individual experts and institutions. NVA's interventions are aimed at improving productivity and cutting down costs by improving efficiency.

Through the VRCs and VKCs, NVA not only provides much useful information but also helps farmers with training and connecting them to other agencies.



ducational meeting proanised at the farm n Kelapur village



Demonstration of correct method of soil sampling

Right from the beginning, when the first knowledge centres were set up in 1998 with support from IDRC and CIDA, agriculture and farming related information was given much importance. Early reports on the project often highlighted the fact that information provided in the VKCs was locale-specific and related to prices of agricultural inputs (such as seeds, fertilizers and pesticides) and outputs (rice, vegetables) and market (potential for export). There was also the oft-repeated story of a farmer seeking solution for red rot in sugarcane. He was not impressed by a detailed report from researchers at an agricultural university, but was happy when he was told to dip the roots of the seedlings in a very dilute solution of potassium permanganate (of a particular concentration) before planting them. Farmers prefer simple easy to understand advisories. One aspect of value addition is to translate knowledge obtained from experts into simple statements the rural communities can follow.

#### Mr. Subhash Sharma, Knowledge Partner and Model Farmer

One of our model farmers, Mr. Subash Sharma, 58, lives in Dorli, 4 km from Yavatmal. He owns 16 acres of land and has leased an additional 51 acres which remained uncultivated as the owners found it unprofitable to farm in uneven land. He left college after one year of attending the Bachelors degree course in commerce. He had a natural flair for farm work.

It was in1975 he started taking interest in what he calls 'natural farming' with virtually no chemical input. He is not new to farming. Both his grandfather and father had farm lands and were practising organic farming.

When he acquired the land he gathered data on water and soil conditions for five years. He also travelled extensively in the states of Andhra Pradesh, Karnataka, Madhya Pradesh, Chattisgarh, Rajasthan, Gujarat and Uttar Pradesh and learnt different farm practices. He learnt that the five aspects one should take care were soil, water, seed, cropping pattern and labour economy.

He has been making a profit every year without exception. Organic farming has never resulted in a loss; instead it has strengthened natural resources such as conserving water, retaining soil fertility, and nurturing beneficial insects and soil organisms. He has not cut any trees in the field as they attract different kinds of birds which help in pest control.

Mr. S K Goyal, then Agricultural Commissioner of Maharashtra, visited Mr. Sharma's farm in 2001 and was impressed by what he saw. He requested Mr. Sharma to propagate his way of farming and to encourage others to follow similar practices. Since then Mr. Sharma has shared his views with close to 300,000 farmers. The serious ones visit his farm for about 4-5 hours and pay a fee of Rs 30/ per person. Scientists from ICRISAT and government officials of Maharashtra have visited his field.

Mr. Sharma was nominated by Mr. Goyal for the Fellowship of the National Virtual Academy (NVA), and he was selected in 2006 and he received his Fellowship certificate from former President of India Dr. A. P. J. Abdul Kalam during the Annual Meeting of the Indian Science Congress Association held at Hyderabad.

After he became an NVA Fellow, he started sharing his expertise with farmers introduced to him by the VRCs at Yavatmal, Wardha and Karda. NVA has organized not less than half a dozen training programmes for farmers from different parts of the Vidarbha region at Mr. Sharma's farm. Since then it has become a recognised farm school. He is very popular and many farmers contact him for advice.

From 2007, Mr. Sharma is a member of the Management Committee of the VRC at Yavatmal. He suggests that ideally there should be a VKC in every village in India. But he knows that it may not be possible. The next best alternative is to select a few people from each village with a flair for innovative farm practices and train them so they could help others in their villages.

Although Mr. Sharma is all for natural farming, he is not against technology, especially ICTs. He finds the new technologies used by the VRCs and VKCs extremely useful. It would save time and effort as one could reach a very large audience using these technologies.

How could we go one step ahead of farming and ensure other livelihood opportunities for our people? Mr. Sharma has an answer based on his own practice. He has 35 farm workers, about half of them women, and he treats them as partners in his farm business. All of them stay in the farm. He pays them decent wages and he shares his profit by giving them a bonus. The bonus is not paid regularly, but is paid at the time a festival like Diwali. Each one of them has a bank balance of at least Rs 200.000.

He also takes the entire group on tours to distant places such as Kashmir and pilgrimage centres such as Vaishnodevi. Their world view is widened and they return from these tours rejuvenated. All their children are going to school.

Thanks to these measures the workers put in their heart and soul into their work and there have been times when the yield was three times the normal.



Model farmer Mr. Subhash Sharma explaining natural farming to farmer trainees

Then there was the case of the cow in labour unable to deliver the calf mentioned by Ms. Celia Dugger in her New York Times report. The knowledge worker in the Kizhur Knowledge Centre found the addresses and phone numbers of a few veterinarians in the Rural Yellow Pages produced by the Villianur Village Resource Centre and called one of them who came and delivered the calf and saved the life of the cow.



Healthy cotton boll being examined for its growth

Now the amount of agricultural and animal husbandry related information and services provided have increased enormously. The digital library maintained by the National Virtual Academy has a number of useful documents, PowerPoint presentations, radio broadcasts and video presentations. The topics covered include organic farming, crop insurance scheme, tomato cultivation, mushroom cultivation, bank loans for farmers, soil testing, Vermi composting, fodder management and feeds, quality milk production, artificial insemination, and herbal healing for animals. The list is indeed long.

A most impressive programme and a great team! Thank you very much for making all the arrangements for the visit and workshop. I wish you further SUCESS. Gerolf weigel, SDC Switzerland

Each Village Resource Centre (VRC) and Village Knowledge Centre (VKC) has made detailed surveys of the villages under their jurisdiction and gathered information on crops cultivated, practices in vogue, markets, needs of farmers, services available, etc., and all the information is documented and readily available to the VRC coordinator, VKC managers, staff, animators and volunteers. Armed with this knowledge VRC staff have gathered considerable amount of information on these crops, their cultivation, the diseases they are prone to, and the experts they could approach when needed.

I think I have seen a very good example of a project with a very good coordination, commitment and dedication of various people who want to see the IVRP mission to be worthwhile and successful. I like to congratulate MSSRF, its staff and of course the volunteers who spend many hours in making this project a success. Keep up the good work and I hope to be able to hear even more success stories in the future. Frank Tulus, IDRC, New Delhi

For example, jasmine is cultivated in the villages served by Vamban Nal Road VKC, banana is cultivated in the Pullanvidudhi area and cocoanut is a major source of income in the villages served by the Neduvasal VKC. All three VKCs are supported by the VRC at Annavasal. When farmers from Neduvasal asked for help when their cocoanut trees were attacked by Eriophid mite, the Annavasal VRC organised a visit to the Coconut Research Station, Veppankulam, and today the farmers are practising what they were told by scientists at Veppankulam and are getting good yields.

For the jasmine cultivators of Vamban Nal Road, several training programmes were conducted with agricultural adviser Mr. Senthilkumar and experts from the Department of Horticulture acting as resource persons. NVA Fellow Anbazhagan conducted a training programme on organic farming methods in floriculture. Three meetings were held with farmers in three different villages and with their help the practices recommended by Mr. Anbazhagan were validated.

#### Mr. Sanjay Kolhe, Boundary Partner of VKC



The success of a knowledge centre depends not only on the quality of the content provided and the qualities of the implementing agency's scientists and staff but also on the commitment, knowledge and skills of the local partner. One of the most successful VKCs set up by MSSRF under its NVA programme is located in an interior village called Naya Wathoda, 45 km from Jasapur VRC.

The boundary partner who helped set up this centre is Mr. Sanjay Kolhe, 45, an enlightened farmer. Mr. Kolhe has been an activist virtually all his adult life. He was associated with Sethkari Sanghathna (Farmers association) and has been imprisoned several times for his activism and protests.

It was a chance meeting with the Vidarbha coordinator of the National Virtual Academy (NVA) Mr. Vishwanath Palled, at the office of the District Collector of Amravati, that led Mr. Kolhe to be a staunch supporter of the NVA and the village knowledge revolution. Years ago he had met Prof. Swaminathan in New Delhi when he had gone to represent farmers of Maharashtra and he knew about his great contribution to the science and practice of agriculture, but he had no knowledge of the knowledge revolution using modern ICTs being ushered in by the professor.

On hearing about VRCs, VKCs and the good work they are doing elsewhere in India and the Vidarbha region, Mr. Kolhe wanted to know how his village could get involved in the movement.

He invited Mr. Palled to visit his village. He organized a meeting at his home and had invited about 30 people from the village. After much discussion, the gathering desired that MSSRF should set up a VRC in their village. Mr. Palled explained that it would be difficult as theirs is a small interior village and persuaded them to accept a VKC. As no public building suitable for setting up of a VKC was available in the village and as it would be difficult for the community to collect enough money through subscription to build a new building, Mr. Kolhe offered to host the proposed VKC in his own house.

The VKC was inaugurated on 2 November 2007 by the former Vice chancellor of Punjabrao Deshmukh Agricultural University, Prof. Sharad Chandra Nimbalkar. Around 2,000 people attended the function. Mr. Kolhe is indeed a popular figure.

The VKC started taking up programmes in stages. First they introduced educational programmes such as Microsoft Unlimited potential and Computer Aided Learning. The centre charged a fee from participants, Rs 100/- per month for MUPP and Rs 20/- for CALP. As the village is small, everyone who wanted to learn had already learnt and the VKC would like to take these programmes to a wider area. They are already negotiating with Dr. Vijay Bhatkar, an eminent computer scientist, to expand this programme to the entire district in partnership with an organization which can provide the infrastructure and examining facilities. Next they took up tele-ophthalmology in February 2008. Mr. Kolhe invited a number of officials and key people from neighbouring towns and villages for the inauguration. The programme was a great success and created considerable awareness among the people. Since then 42 eye camps have been held in 28 villages in the neighbourhood, eyes of 2654 patients were checked between February and December 2008, and 79 of these had their eyes operated upon. What is more thanks to an initiative taken by a jail superintendent, eyes of 130 prisoners were checked of whom 24 were operated upon.

Unlike in most other centres, this VKC charges Rs 20 for each patient. The VKC has earned about Rs 63,000. This VKC has subscribed to ShareKhan.com and gets information on agricultural. commodities prices and future trading. The idea is for farmers to pool their produce and sell at the right price. Mr. Kolhe has provided outstanding leadership and has been selected as a Fellow of NVA.

With some support from the Tamil Nadu Women Development Corporation, members of 12 self help groups were trained in vegetable cultivation. Skill improvement programmes were also conducted in the areas of nursery development, floriculture and banana cultivation. A few months ago Mr. Dhanasekaran had a problem with his brinjal plants. They had suffered insect infestation. The VRC connected him to experts in ICRISAT, Patencheru, through video conferencing. After seeing the affected plant, scientists at ICRISAT suggested a treatment.

In Rajalipatti, 20 farmers came forward to adopt SRI (System of Rice Intensification). Annavasal VRC arranged for training through Agricultural Officer of the District, Ms. Jagadiswari.

In Ennai Panchayat serviced by the VKC located at Malapatti, farmers cultivating rice, vegetables and sugarcane wanted help in selection of seeds. The Annavasal VRC brought an expert from the nearby EID Parry Sugar Mill for a demonstration session.

NVA has a system of model farmers who are willing to share their knowledge, expertise and best practices with other farmers. A good example is NVA Fellow Mr. Ramakrishnan, a great supporter of Prathaparamapuram VKC. An integrated farmer, Mr. Ramakrishnan was associated with MSSRF even before the VKC was set up at Prathaparamapuram. He is an expert in Vermi composting, organic farming, preparation and use of Panchakavya and Azolla cultivation. By nature, he wants to share what he knows with others. He attended a soil health management workshop and he was the only one from his village. On returning from the workshop he shared what he learnt with 50 farmers! He is now invited as a resource person to training programmes organised by the Nagapattinam VRC.

Wardha.



#### Mr. Suresh Pawde, a Knowledge Partner

Mr. Suresh Bhagawant Pawde, 63, son of a freedom fighter, is a retired agriculture officer of the Government of Maharashtra. He belongs to

Currently he is working with MSSRF as a consultant for the Vidarbha region and helps the farmers in the 40 villages where the four VRCs - Waifad, Yavatmal, Jasapur and Karda – and the affiliated VKCs are active. He has initiated the Farmers Fortnightly Meetings (FFM) where about 20-30 farmers chosen as contact farmers assemble and discuss issues of interest to the farming community of the region. These meetings take place either in a VRC or VKC office or Gram Panchayat office or at times in farmers' fields. The contact farmers in turn help other farmers in their villages. Dr. Pawde has given his mobile telephone number to all the farmers in the region so that they could contact him any time they need his help. So far he has conducted more than 20 training and demonstration programmes in areas such as production of vermicompost and biofertilizer and seed treatment.

Mr. Pawde keeps himself abreast of latest developments by getting information from District Agricultural Office, KVKs, universities and research institutes.

After retirement from the government he did not want to rest and lead an idle life. He wanted that his time, energy and expertise should be used for the benefit of the farmers. In particular, he wanted to achieve whatever he could not accomplish as a Government employee.

In any case, he believes that is what God would like him to do. He is happy every time he sees a smile on the face of a farmer

Mr. Pawde says that knowledge should reach farmers in their own mother tongue. And he is happy that VRCs and VKCs are playing an important role in reaching out to farmers with knowledge that is immediately relevant. However, he feels that the success of such programmes rests largely with the people. Unless there is a major change in the mindset of the people such programmes will not become self supporting and sustainable.

He is happy that MSSRF has given him this opportunity. "What I could not get throughout my life, now I am getting through MSSRF," says Mr. Pawde. Currently he is a member of the elite group entrusted with the task of selecting Fellows of NVA.

It's pleasure to visit this institution of excellence. We have enriched ourselves by seeing its different activities. We are much impressed by the mission of this institution to help the poor rural mass. We pray to God for its constant and steady growth.

Swami Divyasukhananda, Ramakrishna Mission. 19<sup>th</sup> June, 2007

Another model farmer is NVA Fellow Sunil Deshmukh in Vidarbha. He is an innovative and unconventional farmer interested in low-cost new varieties of vegetables, fruits, cotton and soybeans. He is keen to learn about new developments and he attends workshops and training programmes organised for farmers by the Department of Agriculture, Agricultural Universities and companies. Often farmers visit him at his farm to get some insights and learn some good practices. Many farmers have stored his cell phone number so they could call him any time they need his help or advice.

In the area of animal husbandry, MSSRF is active in clean milk production and artificial insemination. Dr. Thiagarajan, an adviser to NVA living in Puducherry, is a veterinarian with over 40 years of experience. He has conducted a threemonth training programme in animal care and the eighteen trainees have now become barefoot veterinarians. Working together with Ponlait, the Federation of Puducherry Milk Cooperative Societies, and the Rajiv Gandhi Veterinary College, the VRC in Puducherry, he is making a big difference to animal health in Puducherry.

VRCs also help farmers take advantage of Government schemes. For example, they work with the National Bank for Agriculture and Rural Development (NABARD), which has several attractive programmes for farmers. In one of them, NABARD supports farmers' clubs with some funds in their first three years. But these clubs have to be sponsored by banks. It is rarely that a bank manager would take the initiative to meet farmers and help them form a club. VRCs talk to the farmers, liaise with a local branch of a bank and NABARD and facilitates the process.

MSSRF has a soil testing mobile unit which goes round different VRCs and VKCs in Tamil Nadu (see box). In Vidarbha, MSSRF does not have a soil test van of its own. But the VRC in Jasapur has teamed up with the College of Agriculture, Amravati, and Indian Farmers Fertilizer Co-operative Limited (IFFCO) to provide the service. Under this programme IFFCO's soil testing van visits the villages in the Jasapur region and MSSRF hosts the programme. NVA has organised many Soil Health Management training workshops in partnership with IFFCO in Tamil Nadu, Mahararashtra and Andhra Pradesh.

A Video Advisory entitled 'Orientation and guidelines to VRC staff on soil sample collection, soil testing camps in villages and test results dissemination with advisories' is found helpful by staff in different VRCs.

NVA also works with IFFCO Kisan Sanchar Limited (IKSL) and promotes their Kisan SIM cards, mobile phones, other advanced eco- and rural-friendly Kisan products such as lanterns for farmers to empower and improve the use of technologies in rural India. IKSL supplies Green SIM Cards and handsets and their customers receive five voice messages giving useful information on agriculture, animal husbandry, climate and market every day in their language.

In an innovative experiment, during the Annual Meeting of the Indian Science Congress Association held in the first week of 2008 at Vishakapatnam, NVA organised, with the help of strategic partner ISRO, a satellite-based virtual conference of women farmers from six locations in four states - Thiruvaiyaru in Tamil Nadu, Moosapet in Andhra Pradesh, Jeypore in Koraput district of Orissa, Yavatmal and Waifad in the Vidarbha region of Maharashtra, and MSSRF headquarters in Chennai. It gave the farmers an opportunity to talk to leading scientists and policy makers and for the scientists to know the concerns of the farming community straight from the horse's mouth.



Determining the insect infestation in the field

When Prof. Swaminathan went to Vidarbha to hold a farmers consultation as part of his work as Chairman of the National Farmers Commission, i was Mr. Vijay Jawandhia who invited him to hold the meeting in Waifad. Again when MSSRF decided to take its knowledge centres to Maharashtra, it was Mr. Jawndhia who offered his newly built house at Waifad to house the first VRC in Vidarbha.

one's rights.

#### Vijay Jawandhia, Boundary Partner of VRC

Why did he do such a thing? Mr. Jawandia is a thinking farmer and he believes it is knowledge that can transform the lives of the poor. According to him, the poor are poor not because others are exploiting them but because of systemic defects. Everyone in the cities and towns want food prices to be kept low. Then how can the poor farmhands get a high enough income for them to live a decent life, he asks. At the moment, he says, the economy is helping industries to get cheap labour keeping the farmers poor. For him the farmers' income and not the yield is the right indicator of progress in the agricultural sector.

For him the VRCs and VKCs set up in Vidarbha are indeed a gift of God to the people of the region. If one has no knowledge, he says, one has lost everything. It is with knowledge one can organize and then agitate for

In the early days people viewed these centres with some skepticism. Largely because the farmers movement, which was pretty strong in this region for about 15 years, did not at the end really fulfil the expectations of the ordinary people. But change came quickly, and people now see that VRCs and VKCs have facilitated easy access to both technology and knowledge. Now people can get what they need when they need. But the centres have also raised people's expectations and they want all their dayto-day problems solved by these centres. Unfortunately, says Mr. Jawandhia, solutions to farmers' problems are political and these centres cannot decide policies.



More needs to be done. For example, regional video conferences can help land-to-land flow of knowledge and video conferencing with research scientists can help land-to-lab and lab-to-land communication, especially in areas such as new varieties of seeds and technology. Indeed such conferences can facilitate researchers obtain feedback from farmers while the research is ongoing. An idea articulated a few years ago by Prof. Bruce Alberts when he visited the knowledge centres in Puducherry.

The VRCs and VKCs are clearly empowering our farmers and bringing them close to the nation's leaders, says Mr. Jawandhia. And he has played an important role in bringing these centres to the Vidarbha region.

#### Soil Testing Van

On 7<sup>th</sup> August 2007, NVA launched a new programme called "Knowledge on Wheels".

With the help of HP and ISRO, MSSRF got the soil van from HP-Kuppam project. The comprehensive mobile soil testing laboratory consists of a *p*H meter, an electrical conductivity meter, a colorimeter, a flame photometer, an atomic absorption spectrometer, a magnetic stirrer, an electrical weighing machine, an oxygen cylinder and glassware used in chemical laboratories. A full time technician travels to different locations selected by the VRC team and tests soil and water samples brought by farmers. The parameters measured include *p*H of the soil and the irrigation water, electrical conductivity of the soil and irrigation water, soil organic carbon, available phosphorus (Olsen method for neutral and alkali soils and Bray-1 method for acid soils), available potassium and available micro-nutrients (zinc, manganese, iron, copper, magnesium and calcium).

Soil testing helps identify problematic soils, their nutritional status, texture and structure and the test findings will help an expert suggest soil specific and crop specific solutions. Farmers are advised on soil fertility management through rational use of manure and fertilizers.

Each farmer is given a soil health card and is taught how to gather soil samples in the field. Once it is brought to the van, the driver of the van, who has been trained for the task, prepares the soil sample for chemical analysis.

In addition to soil testing facilities, the van has computers, an LCD projector, solar backup and a generator. With this facility, NVA screens a few documentaries on soil nutrient management, crop cultivation practices, integrated pest management, post harvest technologies, etc.



#### **F**ducation

In the villages of Puducherry and some parts of Tamil Nadu, people often refer to the VKCs set up by MSSRF as computer centres (in Tamil they say Kanini Maiyam). Although MSSRF staff and knowledge workers constantly try to impress upon the local people that the centres are knowledge centres and not mere computer centres, people continue to use the term. After all it was the computers that attracted many of them to the centre in the first place. While much of the information they ask for is provided by the knowledge workers without the individuals having to use the computer either to surf the Net or to access the voluminous database maintained by the centres, a number of people actually use the computers in these centres. These are people who register for any one of the computer mediated educational programmes. The three major educational programmes are Microsoft Unlimited Potential (MUPP), Intel Learn and Azim Premiji Foundation's Computer Aided Learning Programme (CALP).

Microsoft Unlimited Potential Programme (MUPP) is Microsoft's initiative to address the diverse social and economic issues faced by people who have not yet tasted the benefits of technology. It aims to catalyse communities to help create an environment that would allow people to realize their full potential. Microsoft delivers MUPP through partnerships with different kinds of institutions. VRCs and VKCs of MSSRF conduct the MUPP meant for training people in basic computing skills. The curriculum covers basic aspects of computer operation, digital media, Internet and World Wide Web, web design, word processing, presentation (PowerPoint), database and spreadsheet.

VRCs and VKCs also hold exposure meetings for students, rural youth and women, organised in partnership with educational institutions and private consultancy groups. Some of the trainees have been consistently helping in the VRC and VKC activities such as distribution of the community newspaper, running eye camps and training and awareness programmes.

Since introduction in April 2005 up to September 2009, more than 14,530 trainees (including 8,160 women and girls) from 847 villages have attended the MUPP.



### Microsoft Unlimited Potential Programme (MUPP)

The target audiences for this course are SHG members, women and men from the farming and fishing communities, unemployed youth, school teachers, employers from various organizations and school children. Before attending the final MUPP curriculum examination, each trainee spends 60 hours of hands on training and 60 hours in the classroom. Sometimes the rural trainees spend more than 180 hrs to complete this course. They also attend two model examinations. The successful candidates are given certificates.

VRCs have developed several MUPP course modules (in PPT) in Tamil and Marathi. The modules include computer fundamentals, web designing, Word, Excel, Power Point and Access.

#### Intel Learn

Launched in November 2005, the Intel Learn Programme is a communitybased programme designed to help children (8-16 years) gain hands-on experience with technology and acquire skills that they would need in tomorrow's world, such as technological literacy, critical thinking, and collaboration. Technology literacy involves the ability to use technology such as computers to communicate, and collect, organise, and share information. Critical thinking involves problem solving. Collaboration involves teamwork working with one or more people to complete a task. The curriculum uses an engaging project-based approach. As the programme had helped break down economic and social barriers for underserved youth, MSSRF was keen to include it in the portfolio of activities of the Jamsetji Tata National Virtual Academy for Rural Prosperity (NVA).

It was in November 2006, Intel Learn became part of MSSRF's activity to be delivered by VRCs and VKCs. By October 2009, in about three years, over a thousand children have taken part in this programme and 468 project reports have been submitted. The programme has received high marks from the people as it easily allows for locally tailored content.

Under this programme students have covered topics such as rain water harvesting, disasters, problems faced by their community and the future of the community. Here is an example.

Madhumitha Baskaran of the Srinivasa Rao Higher Secondary School in Thiruvaiyaru attended the programme in 2006 when she was in Class 6. She and her friends looked at the heavy traffic in their home town and the hardships it caused to the residents. The roads were congested and in the main roads pedestrians could not walk without constantly keeping an eye on both oncoming traffic and vehicles coming from behind. Added to this was the pollution caused by automobile exhaust fumes. They came up with a suggestion, viz. build bypass roads so that vehicles passing through Thiruvaiyaru to go to other destinations take the bypass and not come into the town



A latrine for every home in Agalangan

Agalangan is a small village near the fishing town of Nagapattinam. MSSRF set up a VKC in this village on a request from the members of a youth club who provided a small building to set up the centre. They work very closely with MSSRF staff and VKC knowledge workers. Children of the village throng the centre and many of them have enrolled in computer education programmes.

Three little girls (K Prathibha, S Anupriya and M Poulin) and a boy (K Prasath) in Agalangan, all of them in Class 6, attended the Intel Learn programme at the Agalangan VKC in early 2009. Thanks to a suggestion made by the Nagapattinam VRC staff they wanted to study the problems caused by the nonavailability of latrines in homes in the village. They made a guick survey and found that the village had a population of 779 (380 male and 399 female) living in 182 homes. As only 32 homes had latrines, most people were defecating in the open fields and cleaning themselves in the village pond thus contaminating the major source of surface water and polluting the environment. The children met a doctor and listed all the health problems open defecation could lead to, such as worm infestation, diarrhoea and a host of other water borne diseases. They also found that most people would not use footwear when going out to defecate, and ran the risk of transmission of hookworms through the human-soil-human contamination route. Besides the excrement attracted flies and mosquitoes and one was never sure if the food one ate was clean. In addition the village did not have a proper sewage system, and household wastes were stagnating everywhere. The absence of latrine affected the women the most. They would not like to use the open fields during daytime and in the night when they did business in the bush they ran the risk of being bitten by insects.

latrines in homes.



The study convinced the four children that the village needed much better sanitation and they came up with the suggestion that every home in the village should build a lavatory. With the help of the VKC knowledge workers, Jayalakshmi and Sasikala, they made an appeal to the local government authorities to build these latrines. In fact they made a presentation in a public gathering attended by the local MLA, the members of the Rotary Club of Thirunallar and the President of Sellur Panchayat. They also alerted the people in the village to the special loan of Rs 2,500 given by the State Government meant for constructing

In their short report, the four children have given a rough estimate of costs of building a latrine in one's home.

India is struggling with a sanitation emergency. Indians leave an estimated 100,000 tons of human excrement each day in open fields, river banks and streets of villages and towns. About three fourths of the country's surface water is contaminated. Everyone in Indian cities is at risk of consuming human faeces, if they're not already, says a report of the Ministry of Urban Development. Every day, 1,000 children younger than 5 years old die in India from sanitation-related diseases such as diarrhoea and hepatitis, says a report of the United Nations Children's Fund.

Agalangan children with youth leader and boundry partner



Intel Learn and MUPP students

Computer Aided Learning Programme (CALP)

The Computer Aided Learning Program (CALP) of Azim Premii Foundation (APF) envisages an environment, where learning and assessment would be fun and the opportunities to learn would be equitable. It focuses on young school children in rural areas in the age group 6-13 (roughly Class 1-8).

CALP aims to encourage the use of technology in class-rooms. Educational content in the form of CD is the heart of this program. The CDs provided by APF contain stories and are games based, with animated mascot characters in rural context with regional language. The content is tightly woven into the story and game.

In cooperation with the Azim Premji Foundation, NVA initiated the Computer Aided Learning Programme in Puducherry in April 2004 and extended it to Tamil Nadu VRCs and VKCs in early 2007.

VRCs and VKCs are disseminating information about this programme through knowledge workers, VKC users, and meetings at the village level. Under this programme the VRCs and VKCs are using 62 interactive CDs. VRCs conduct evaluation tests for students before and after the use of each CD.

MSSRF follows a well-defined process to engage with schools. This includes talking to officials of the Department of Education, meeting the head master and teachers (or SHG members), publicizing the programme, dividing children by class, training children in the use of keyboard, mouse and the CALP CD, allotting time to different groups of children, etc.

More than 10,000 children from 425 schools have completed the programme.

#### EduSat programme for school children

Another educational programme offered only at the Pillayarkuppam VRC is satellite-based programme offered by Vigyan Prasar of the Department of Science and Technology, New Delhi. Vigyan Prasar produces educational programmes for school children, nurses, women, etc. and beam on average 10 programmes a month. School children from five schools, viz. Deepa Ozhi Government Aided School, Thondamanatham, Government High School, Pillayarkuppam, Jawahar High School, Koodapakkam, White Angel English School, and Patrick School, have come to the VRC to take part in these programmes. One batch of B Sc (Nursing) students of the Jawaharlal Institute of Postgraduate Medical Education and Research visiting JIPMER's Rural Health Centre also attended a few EduSat programmes at the Pillayarkuppam VRC. EduSat programmes are audiovisual with plenty of practical demonstrations and each topic is covered comprehensively. For example, a programme called weather kit meant for high school students starts from the earth and takes the students through the atmosphere, clouds, temperature, etc. in a coherent manner.



Children learning Computer Aided Learning Programme at Sonegaon VKC

#### Health

Two economists, Jayathi Ghosh and C. P. Chandrasekhar of the Jawaharlal Nehru University, observed way back in 2002 "The potential of ICTs in the health area lies in their mediatory role between differently endowed segments of the health system, the health service provider and the beneficiary." That would be one way to reorganize and make the health system more efficient. It is around that time MSSRF joined hands with Aravind Eye Hospital, Puducherry, in an innovative experiment.

The doctors and optometrists of the hospital trained knowledge workers in the Village Knowledge Centres set up by MSSRF in several villages within 15 km of the hospital in checking eyes of individuals for short sight, long sight, difficulties in reading, cataract, etc. They also gave the reading chart and the minimal tools required for these men and women, with limited schooling, so they could put into practice what they had been taught.

The tests were carried out at the VKCs, equipped with computers, web camera and the means to communicate text, voice and images electronically.

Once the test was over, the knowledge worker took photographs of the individual's eyes and transmitted as a colour image to doctors at the Aravind Hospital. The doctors examined the eyes and if the individual needed to meet the doctor, they let the knowledge centre know.

Thus a number of patients were examined closer home and only those who needed to see a doctor went to the hospital contributing to a reduction in overcrowding at the hospital. This exercise gave tremendous confidence to the knowledge workers and earned them the respect of the community.

As the villages were small, the experiment did not continue for long. Once the knowledge workers had checked the eyes of all those who needed an eye test, there was no more work for them.

The VRCs and VKCs set up by MSSRF under its NVA programme started an eye care programme again in 2007, in partnership with the Chennai-based Sankara Nethralaya. This time around, it was a full-fledged tele-ophthalmology programme using satellite technology. [See Box]

NVA uses modern ICTs to create awareness of several diseases. They have many documents, radio broadcasts and video presentations in their digital library. Some examples are:

- o Kidney Problems and Preventive Measures, (Video)
- o Malaria Awareness Kit (Interview and education materials, PowerPoint, Video)
- Diabetes and Hypertension preventive measures, (Video)
- o Awareness on Malaria disease Dr. Nilamani, Assisant Director, Department of Health, Pudhucherry, NVA Fellows and Community members (Discussions broadcast by All India Radio on 21.04.08 & 28.04.08)

o Awareness on Filarial disease - Dr.Nilamani, Assisant Director, Department of Health, Pudhucherry, Ms. Jayaklakshmi, Thimmanayakanpalayam and Ms. Rukmani, Embalam (Discussions broadcast by All India Radio on 05.05.08 & 12.05.08)

- Awareness on AIDS Dr. Gilbert, Project Director, Ms. Anathalakshmi and Ms. Girija, VRC, Pillayarkuppam (Discussions broadcast by All India Radio on 19.05.08 & 26.05.08)
- o Uterus Problems and its Care (PowerPoint)
- o Nutrition (Adolescent Girls and Children) Dr. Shanthi, Dietician, Life Line Clinic & Multi Specialty Hospitals, Ph: 9840671218 (Discussion broadcast by All India Radio on 15.09.08 & 22.09.08)
- Care During Pregnancy An Awareness module (PowerPoint)
- o Diet & Nutrition for Adolescent girls and pregnant women Dr. Varsha and Dr. Shanthi (Video). In what turned to be a very popular video conference, two seasoned medical professionals, Dr. Soumya Swaminathan and Dr. Vijayalakshmi, addressed women assembled at different VRCs and answered guestions relating to women's diseases. For this programme, in all centres only women were present and no men – not even VRC staff were allowed.

Although the women knew that this programme was being video taped and going to be used for educational purposes, they were more comfortable without any men present at the time of the programme. The village women opened up and asked questions they would normally hesitate to talk about in public.



Womens health care camp organised along with a group of volunteer doctors

Many awareness camps and communication workshops have been held on diseases known to be prevalent in the region. Participants in these sessions came from the Health Department, Panchayati Raj institutions, Anganwadi, schools, NGOs, etc. For example, the incidence of HIV/AIDS and malaria is high in the Rameswaram island. The workshop on malaria revealed that soaking cocoanut fronds in little ponds near homes was an important reason for breeding mosquitoes causing malaria. The awareness programme on HIV/AIDS was held in all VRCs and they were specially meant for youth, adolescent girls and women. NVA links victims of HIV/ AIDS to other agencies who provide support to such people for education, house building, etc.

In some VRCs staff are trained to help women learn to self examine to detect onset of breast cancer.

NVA, under its Rural Innovation Fund, has supported a project on developing software for gathering and storing information on patient logistics in the area of communicable diseases. it is a scientific compiling of patient data for combating the 'most likely to recur' phases during the next season. Another project supported by RIF is a cost effective method of evaluating the bone mineral density by the use of Image analysis applied on radiographs for better results proposed by a professor in Manipal.

#### From a coolie to a systems operator

Here is the story of Ms. V Raji, 23, a resident of Pachaimalayankottai, a village near Sempatti, in her own words.

"My father (Mr. Vellimalai) passed away eight years ago and I am living with my mother (Ms. Rajammal, 45) and grandmother. My mother is an agricultural farm labourer. I had studied up to Class 12 and used to earn some money through manual labour. I came to know about MSSRF and the VRC in Sempatti through members of a self help group. In a meeting of the self help group there was a discussion on the free computer training offered by the VRC. Immediately, I went to the VRC and enrolled myself in the MUPP course. I applied myself diligently and learnt all that was taught and cleared the examination. After that I remained without a job for a few months. The self help group offered me a job; I was paid Rs 1,500 per month for maintaining their accounts in a computer. After six months I left the job as I wanted to pursue my studies. Unfortunately, because of the economic hardships faced by my family, I could not pursue higher studies and I remained at home without a job for a few months. One day the VRC staff informed me of a job opportunity in the Karunai Charitable Trust at Sempatti. I joined this Trust as a systems operator at a salary of Rs 2,000 per month. That was very helpful for me to pursue the Bachelor of Computer Applications course by correspondence. Currently I am working as a systems operator in the Eveready Spinning Mill located in Dindigul. I get a monthly salary of Rs 4,500. I have completed the BCA course and I have now registered for the MCA programme, again by correspondence.

I am very grateful to MSSRF and the VRC staff. But for their help I would not have learnt to use a computer nor would I have got a job in the textile mill."

Ms. Raji is in constant touch with the VRC, says Ms. Kalaivani of the Sempatti VRC. She comes there at least once a week to learn about opportunities in higher education and employment. She encourages other girls to join the computer training programmes offered at the Sempatti VRC. She volunteers to teach fresh batches of MUPP trainees and CALP students. Her mother would like her to get married soon, but Raji, the main breadwinner of the family, is postponing marriage perhaps because she would like to support her mother and grandmother.

[with support from Indian Space Research Organization (ISRO), World Diabetic Foundation (WDF), ESSILOR India Private Limited]

A simple ceremony of signing a memorandum of understanding that took place in Chennai on 29<sup>th</sup> December 2006 turned out to be a boon for thousands of people living in rural India.

India is home to the largest number of blind in the world. Much of the blindness is caused by cataract, diabetes and glaucoma and is preventable if diagnosed and treated early, says Dr. Badrinath. But then 70% of India's more than 1.1 billion people live in villages with virtually no access to medical care and more than 80% of the doctors live and work in cities & towns. The doctor-patient ratio is far more skewed in India than anywhere else. How could he provide comprehensive eye care to the millions in rural India? A tough guestion indeed.

Dr. Badrinath thought hard and for long and came up with a truly innovative solution: Mobile tele-ophthalmology. Teleophthalmology holds a great potential to improve the quality, access, and affordability in health care.

### Knowledge on wheels: Delivering eye care Strategic Partner: Sankara Nethralaya Medical Research Foundation

The two organizations that started collaborating on that day are the National Virtual Academy of Rural Prosperity (NVA) of M. S. Swaminathan Research Foundation and Sankara Nethralaya Medical Research Foundation, a wellknown eye hospital and research centre in Chennai, founded by the visionary Dr. S. S. Badrinath. They agreed to work together to provide quality teleopthalmology services to people in rural areas of Tamil Nadu. That was something Sankara Nethralaya had always wanted to do. Nine months later, in October 2007, the two organizations signed another agreement to extend their collaboration to the Vidarbha region of Maharashtra, says Dr. Sheila John, head of Tele-ophthalmology at Sankara Nethralaya.

For patients, it can reduce the need for travel and provide the access to a super-specialist. Ophthalmology lends itself easily to telemedicine as it is a largely image based diagnosis. Also, the rapid progress achieved in the field of telecommunications renders teleophthalmology easily feasible. Well-trained optometrists would be sent out in vans with the latest equipments for a comprehensive eye examination and a facility to interact with ophthalmologists at the base hospital Sankara Nethralaya to different villages where they would examine the eyes of the patients.



All equipments would have cameras so digital images could be transmitted to the headquarters in Chennai where qualified experts would examine the images and prescribe a treatment. In 80% of the cases, the optometrists would be able to provide the needed help, and only 20% of the cases would need an intervention by a doctor at Chennai, says Dr. Badrinath. The van was also equipped with spectacle grinding and frame fitting facilities, to provide spectacles then & there at a reasonable and affordable cost to the rural community. Patients who needed to be treated by a doctor or surgeon would be advised to go to a nearby hospital. If they wanted to be treated by Sankara Nethralaya they would be provided free treatment at the hospital in Chennai.

Sankara Nethralaya started their teleophthalmology work in villages within a 100 km radius of Chennai with a mobile bus offering primary eye care in 2003. The key to the project was a mobile bus designed by a team from Sankara Nethralaya with assistance from the Indian Space Research organization.

The next question Dr. Badrinath asked himself was how could he reach out to the villagers and attract many more to come to the Sankara Nethralaya van? That was not as difficult as the first question, for he knew about the Village Resource Centres and Village Knowledge Centres set up by MSSRF, founded by his long-time friend Prof. M. S. Swaminathan. The rest, as they say, is history. Dr. Badrinath has a great admiration for Prof. Swaminathan and says that the association with MSSRF has brought considerable benefits to Sankara Nethralaya.

Another important aspect in blindness prevention is mass education, an area in which the VRCs and VKCs play an important role. Once people know about



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Mr. Sanjay Dubey, Sankara Nethralaya is doing tele-opthalmology services at Naya Wathoda VKC

the seriousness of a problem they are ready to seek a solution, says Dr. Badrinath. During our visits, we met an old woman, about 70, in Naya Vathoda, near Wardha, who had lost sight and was totally blind and whose sight was restored thanks to the intervention of the Sankara Nethralaya mobile clinic. Incidentally, the surgery was performed free by Dr. Nangia, an old student of Dr. Badrinath and now heading a hospital in Nagpur.

A number of school children who came to the mobile van at Thangachimadam were treated at the Sankara Nethralaya hospital in Ramanathapuram and they are now able to see the blackboard in the classroom clearly and are doing well in school. Many fishermen got their eyes checked by the van and got treated subsequently either at Chennai or at Ramanathapuram.

In the words of Dr. Badrinath, partnership with MSSRF has bridged a very important gap. Not only has it helped Sankara Nethralaya reach out to the unreachable, but the shared use of technology has saved on costs. The van with all its equipment, donated by Essilor, costs close to US \$200,000, and on days they are not visiting VRCs they are deployed elsewhere.



That is the right way to use resources, especially in a developing country, says Dr. Badrinath. What are his future plans? With the introduction of 3G technology in rural areas, Dr. Badrinath thinks that it should be possible to transmit the images through mobile phones without having to dependent on the satellite resource. Also, he would like to see the deployment of miniature ophthalmic equipment already in use in Australia, so that surgeries can be performed in patient's homes. And finally, he would like to make the programme self sufficient, and reduce dependency on donor funding. He has no doubt that this programme is scalable and can cover a much wider area. Soon Sankara Nethralaya will be deploying five vans in West Bengal and they will partner with the Sri Ramakrishna Mission in this endeavour.



Eye examination being done on Smt. Chandrakala

Tele-opthalmology services delivered in rural India through a van



The responsibilities of VRCs include identification of suitable villages for setting up new Village Knowledge Centres, talking to and winning the trust of community leaders and a wide cross section of the local people, identifying the right boundary partners (people who will assist in setting up the new knowledge centre and provide continued support once it is set up), selecting the volunteers in consultation with the boundary partners and training them as knowledge workers, identifying potential strategic partners in the region (who will help the programme by sharing their knowledge and expertise or provide other forms of support), organising capacity building programmes for members of the community, linking both VKCs and the people with strategic partners, and coordinating with the national level hub and VKCs for the videoconferences.

## Village Resource Centres (VRCs)

he Village Resource Centres, forming the middle tier in the three-tier knowledge network of the National Virtual Academy, play a vital role in delivering the programmes of the NVA and ensuring that benefits do reach the rural communities. Right from the beginning MSSRF has adopted the hub-and-spokes model. The national level hub located at MSSRF headquarters in Chennai forms the apex of the knowledge network and the Village Resource Centres located at block levels as its spokes centres. In turn these Resource Centres act as the hubs for the many Village Knowledge Centres serving as their spokes centres. Thus the VRCs support the many Village Knowledge Centres under their jurisdiction and coordinate their activities with the national level hub.

### Organization and responsibilities of VRCs

VRCs are normally located in the ground floor of a building with an open terrace. These buildings will have sufficient space in the ground floor to accommodate a small conference facility-cum-training hall so that physically challenged people can come in. The antenna for wireless communication will be set up in the terrace. Each VRC will have several PCs (6-10), Internet connection, printer, scanner, web camera, digital camera, power back-up, UPS, speakers, and telephones. All staff will have a mobile phone as well.



Women volunteers at the Panithitu VKC

#### Needs assessment and community participation

One major function of the VRC is community needs assessment both before and after establishing VKCs. Needs assessment is not a one-time affair. It is an ongoing process. Before a VKC is set up it is important to know about the village, the people and their needs in considerable detail. In short, this step involves the compiling of the village profile. NVA obtains satellite-based land use/ land cover maps of the region from ISRO. While collecting all these data, the VRC initiates a feasibility study covering technical, social and institutional aspects. It is important to involve the community in both the data collection and the feasibility study. Working together with people makes development participatory and gives the people a sense of ownership. It is for the same reason, MSSRF insists that the village communities should provide rent-free space to house the VKCs and pay electricity charges.

The importance of community participation right from the beginning became amply clear from what happened in the tsunami-affected Nagapattinam region. MSSRF did not have any knowledge centre in this region before then. After a team from MSSRF made a quick study of the tsunami-affected areas, it came up with a comprehensive action plan which included setting up of knowledge centres as one of the long-term measures. Many other organizations, both NGOs and others, had stepped in immediately after the tsunami and had set up telecentres in hired buildings even as MSSRF was talking to communities. To representatives of those organizations it looked odd that MSSRF should ask for rent-free space from people who had suffered massive losses of life and property. A few years down the line, almost all of those telecentres have vanished and most of those organizations are no longer active in the region, but MSSRF and the knowledge centres set up by them are continuing to serve the people. Says a member of the Agalangan youth club, "The people from the VRC and VKC are like family. They act as a bridge between us and the world outside. They are genuinely concerned about our welfare. But for them we would not have known about and benefited from many schemes."

After a VKC is set up and it has started functioning well, need assessment will help fine tune its activities. In this phase need assessment is done at different levels using different techniques. For example, feedback from the villages is gathered through participatory rural appraisal (PRA), and the needs and satisfaction levels of different sectors are assessed through homogenous focus group discussions. At the level of individual households, VRCs and VKCs gather information through door-to-door sample surveys and interviews.

I must say, my impression was very positive. The staff members who I met with (Dr. Thiagarajan and Mr. Elumalai) were extremely competent, and it was apparent that the village volunteers feel significant commitment to their jobs, and to putting high-quality effort into their activities. The project is commendable, and I have no doubt it will continue to serve as a model for other efforts of this type. I will certainly tell others about it - and I would love to be updated on your progress. Alder Keleman (ESAE), FAO, Rome, 7<sup>th</sup> July 2009

#### Organization and functions of VRCs

Each VRC is headed by a project associate and will have two or three subject specialists (with knowledge in anyone or more of the following areas: agriculture, horticulture, fisheries, sociology, rural development, agricultural economics, etc.) and a technical person who can handle minor problems with computers and communication equipment used. Depending on the number of VKCs, the number of villages covered, and the number of activities, each VRC will have one or more animators. Three or four VRCs in a region will be managed by a coordinator and the coordinators function under the Director of NVA who overseas the entire activities from MSSRF headquarters in Chennai.

VRC's work involves both activities that are performed in the centre and activities that would require field visits. Each VRC has to plan well and prepare an activities calendar so that the staff time is well managed and the activities such as needs assessment, training programmes and awareness creation are carried out efficiently.



Front view of Thangachimadam, MGR Nagar VKC

A typical day at the VRC

evening.

The tasks are allocated to different people working in VRCs. An animator may scan newspapers (for example, in the many centres in Tamil Nadu and Puducherry, Dhina Thanthi, Dhina Malar, Dhinakaran, and The Hindu) and magazines (e.g. Employment News, Thozhil Malar, Valar Thozhil, Valarum Velanmai) and search Internet (e.g. www.incois.gov.in, www.samachar.com) for latest news relevant to the community, gather information from the Collectorate, translate material in English, interpret weather charts and edit information received from strategic partners.



Normally, the VRC is opened well before the stipulated time of 9.30 a.m., says Ms. Velvizhi, the coordinator of VRCs in Nagapattinam, where the VKCs are located in both coastal and interior villages. Often the coordinator, project associate and animators visit distant VKCs and return to the VRC late in the

The priority tasks for the morning include writing the day's important news on the notice board and collating and forwarding before 10.30 data for Fisher Friend Mobiles (FFM) and latest information related to agriculture, livestock, fisheries, health, education, employment, livelihoods, subsidies, training programmes, etc. as well as Government announcements and announcements from the District Collectorate to the VKCs.



Technical Assistant undertaking MUPP class at Yavatmal, VRC, Maharashtra

Another animator will go to different VKCs to conduct computer-based training programmes such as MUPP, Intel Learn and CALP. Apart from conducting these courses in VKCs, VRCs conduct them in their own premises as well. Usually MUPP classes are scheduled for the afternoons and CALP classes are held in the evenings.

VRCs need to build relationships with other institutions and government departments in the region as well as with individual experts. Experience has shown that face-to-face meetings with strategic partners and government officials are more effective than mere phone calls. Either the coordinator or the Project Associate usually goes for such meetings and again experience has shown that it is better to go for such meetings before lunch, as many partners and officials also go on field visits in the afternoon.

One activity that needs considerable coordination is the periodic video conferences with the national hub in Chennai and other VRCs. Once the date and theme for the video conference is fixed, each participating VRC should identify individuals to be invited to the event in consultation with the VKCs.

These video conferences are held usually in the afternoon in the time slot allotted to MSSRF by ISRO. They give an opportunity for the village communities to talk directly to experts and get their doubts cleared and guestions answered. In a typical example, experts in career counselling and university professors will answer questions from students who are completing Class 12 (or +2 as is called in Tamil Nadu and Puducherry) and their parents about courses available, job opportunities, etc.

VRCs also connect members of specific focus groups with experts and officials in remote locations through audio conferences using closed user group telephones. For example, the Puducherry VRC regularly arranges audio conferences for groups of farmers with public officials in departments such as Horticulture and Agriculture. This saves time. Interested farmers assemble in someone's field and the VRC staff bring and set up the telephone, dials the concerned officer and the conversation begins. With the speaker on, everyone assembled can hear.

VRCs maintain a user register in which they record all transactions. Mostly users come to the centre, but sometimes when the coordinator or the project associate is on the field people ask for some information, says Mr. Rajkumar, Coordinator of the Annavasal VRC. When they return to the VRC they record such events in the user register.

Internet at VRCs is used well. Staff members at the centre use it for surfing the net and finding useful information as well as downloading weather-related information. But that is not the major use, says Mr. Rajkumar. People use it for downloading application forms and, filing applications online; students use the Internet to know examination results, and would-be teachers refer to seniority lists for teacher recruitment. Many poor people from the Annavasal region apply for passports so they can go to other countries as labourers and they come to the VRC to find the status of their passport applications. Often, as the users are not familiar with the use of computers, the staff at the centre have to perform the searches.



The Career Guidance programme for MUPP pass out students is being organized at Yavatmal VRC through professional counselors

I have had a very good impression from the MSSRF team, mostly about the commitment of each member of the team with the principle of inclusion. The profound respect for local actors, seen as partners more than as beneficiaries, was a lesson I learnt from you. In my opinion another essential point of what I could understand of the VKC's strategy is the fact of prioritizing the appropriation of information and knowledge rather then the appropriation of technological devices. Eric Pasquati, Foundation FARM, Burkina Faso, 22<sup>nd</sup> April 2009

VRCs are also responsible for the publication and distribution of the community newspaper. This involves considerable amount of work such as selection of news and features to be included, getting contributions from members of the community, editing the text, getting the newspaper printed and finally distributing it.

VRCs organise several useful services such as providing eye care through the tele-ophthalmology mobile unit operated in partnership with Sankara Nethralaya, Chennai, and providing soil and water testing for farmers through a mobile unit under NVA's Knowledge on Wheels programme. VRCs organise farmers' visits to the fields of model farmers to facilitate horizontal transfer of knowledge and takes agricultural and animal husbandry experts to farmers' fields to help solve their problems.

#### Conclusion



VRC plays a key role in all aspects of NVA's work, viz. providing knowledge (mostly locale-specific demand-driven content), capacity building (providing training either to help people do what they do better or to open up new incomeearning opportunities) and linkages (with banks, government departments, experts, etc. so they can gain access to life-improving knowledge and opportunities). In addition, they also provide many services.

Ms.Kalaivani Rajendran, trainer of Thiruvaiyaru VRC(52 years old) and a NVA fellow of Pasupathikovil preparing Psudomonos with her group members

A day in the life of a Village Knowledge Worker [Here is a first person account of the functioning of a typical VKC]

I am K. Rajadurai and I am a knowledge worker at the Village Knowledge Centre at Vamban Nal Road near Pudukottai in Tamil Nadu. I have pleasure in sharing my experiences on a typical day as a knowledge worker.

I woke up around 6.00 a.m. and went, as I do every morning, to the village tea shop. There were others sipping their morning cup of tea and during our conversation the topic of knowledge centre cropped up and I answered their questions. This does not happen everyday. I returned home, got ready, finished my breakfast and I was on my way to the VKC well in time to open the centre before 9.30 a.m. My first job was to write down the important news reported in the news papers on the notice board. Today, I wrote about 'diesel at subsidized price for farmers' as the main item. Around 10.00 a.m. the first batch of students learning to use computers through the MUPP (Microsoft Unlimited Potential Programme) came in and I taught them MS Word. The class was over just before 11.00 a.m. MUPP is popular not only in our VKC but in all VRCs and VKCs run by MSSRF.

As soon as I finished the MUPP class, Mr. S. Mathi of Manchanviduthi, a neighbouring village, came in with a few saplings in his hand. He had a problem with the eucalyptus saplings he was raising in his nursery. They were developing knot-like growth, not seen in healthy plants. He found these knots in almost all eucalyptus saplings and he was worried he might incur a heavy loss this year. What should he do to save his saplings, he asked? I opened the Valam (Prosperity) website and searched for useful information on knots in eucalyptus saplings. Unfortunately, I could not find anything. I called our agricultural adviser Mr. Senthilkumar, who lives in Pudukottai, and fortunately he was at home when I called. I explained the problem and asked him how we could solve Mr. Mathi's problem. Mr. Senthilkumar told me to bring the affected saplings for inspection. He wanted to see them before he suggested a treatment. Going all the way to Pudukottai would take time and I had other things to do at the centre. So I decided to send a photograph of the affected plant.

With the help of our boundary partner's cell phone, we took a photograph of the affected part of the sapling and sent it to the agricultural adviser as a message. Within a few minutes Mr. Senthilkumar replied stating that Mr. Mathi should mix Imiedachlorpid in water and spray it on the saplings from a tank sprayer. Mr. Mathi could hear what Mr. Senthilkumar told as I had kept the telephone on speakerphone. Mr. Mathi was very happy with the immediate solution and confident that this would work as he had spoken with someone very knowledgeable in the field. He had asked several people for the solution but no one could guide him properly and now he had a clear idea of what he should do to save his saplings and prevent big loss.

Around 12 noon Ms. Maheswari of Kothakkottai came in for MUPP training. She had written her class 12 (called +2 in Tamil Nadu) public examination and was awaiting the announcement of the results. She had taken mathematics as one of the subjects in class 12 and she wanted to know what course she could pursue. I used the "After +2" software on the PC to show her the wide variety of courses available. She said that she would want to pursue the BDS course (dentistry), and wanted to know where dental colleges are located. I took out from the shelf the book Academic Profile of Tamil Nadu and showed her the list of dental colleges. She was surprised to know that there were so many dental colleges in our state (Tamil Nadu). She thanked me profusely and left for home with satisfaction and clarity about what course she could pursue.

Around 1 pm the second batch of MUPP students came to the centre and I conducted a theory class. Later on I assigned them some hands on work. Mr. Kandasamy, a student of B. Ed. came in and wanted to know if I could help him type and take a print of the question paper he has prepared. I helped him out with that. He was very happy. Had he gone to Pudukottai to get the job done, he said, it would have cost him both time and money. Thanks to the centre's presence in the village he could save on time as well as money. He thanked me and the centre before he left.

I had my lunch around 2 pm and then came Mr. Ramasamy, a college student. He wanted to learn spoken English. This is one big problem faced in rural areas.

Most students have problems with speaking and writing in English. I myself face this problem. For some reason, the schools are unable to impart proficiency in English. I helped Mr. Ramasamy using *Ideal English* software. He told me that he wanted to take part in the elocution competition to be held at his college and he wanted to speak about our former Chief Minister, the late Mr. K. Kamaraj. I took out a book on Mr. Kamaraj from the small library we maintain at our knowledge centre and gave it to him. I also gave him a book on public speaking (in Tamil). Mr. Ramasamy was very happy and he started preparing for the elocution competition immediately.

The third batch of MUPP students came in around 3.30 p.m. and I conducted a class test for them. Later I taught them MS Excel. The class was over by 4.30 p.m. After that, 15 children from the Pappanpatti Elementary School came in. They are from classes 3-5 and they attend the Computer Aided Learning Programme (CALP - designed by the Azim Premii Foundation) at our knowledge centre. I loaded the CD on Dusserah Holidays and opened it for them. All the children listened to the programme attentively. They answered the questions using the computer terminal. For those who had some difficulty, I gave them some help. Later, I asked them to read the latest issue of our community newspaper, Namma Ooru Seithi and asked them to answer questions asked in the newspaper. They were competing with each other to answer the question ahead of others. I could see the joy of learning in their faces.

By now it was 5.30 p.m. and I sat and recorded the day's activities in the register and returned home after a day's work done. I was happy that during the day I could help many people in my own small way.

Mr. Rajadurai holds a B. Sc degree in physics. Currently, he is a first-year student of a three-year Master of Computer Applications (MCA) programme in a rural college. He says that the three years he worked as a knowledge worker at the Village Knowledge Centre was largely responsible for his choice of MCA. Born and raised in a village, he had no exposure to any new technology. It is after he joined the VKC that he started using computers and acquired some proficiency and interest to pursue a Masters course in computers.



Farm fields between Kandiyur and Amman Pettai

While working at the VKC he saw clearly how much one could learn on a wide variety of subjects and topics from the knowledge centre. He had learnt much about agriculture, horticulture, animal husbandry, hygiene, health care, and creating livelihood opportunities. The three-year stint at the VKC has given him a sense of confidence that he and others like him could compete with the boys and girls from the cities. It also gave him and other youth a sense of purpose in life, he says. The youth would like to work towards the development of their village and use the VKC to improve the lives of the villagers. Now he realises the truth in what former President Abdul Kalam had said, "Youths are not useless. They are used less." He is grateful to Prof. Swaminathan and the Foundation for bringing about a purposeful change in his life.



Mr. Prashant Depe, Knowledge Worker of Yavatmal VRC is interacting with CALP students on various modules of the course. These students come to the centre during the off time of school of after school





# Setting up Village Knowledge Centres for ICT-enabled development

here is more recognition than ever before that knowledge, information and communication have a fundamental role to play in economic development generally, and in improving the lives of the poor, says Mike Jensen, who has been following developments in this area for more than two decades. Consequently, technologies necessary to support the increased use of information, communication and knowledge management are likely to be adopted much more widely than at present. Fortunately, information and communication technologies (ICTs) have evolved in the recent past, and with Moore's law operating in full force there has been a tremendous reduction in the costs of these technologies making them affordable to more and more people, witness the dramatic growth in the number of mobile phones and personal computers sold annually even in low-income countries and the use of GPS (Global Positioning System) by fishermen.



#### VKCs are meant for empowering people

From the point of view of development, it is not technology which will be the critical factor. It is available and affordable. What will be crucial is empowering the rural poor and the marginalized with knowledge, skills and livelihood opportunities or in other words bringing about a transformation in their economic and social status. Professor Swaminathan believes that initiatives such as the village knowledge centres can play a central role in empowering the people. That is why MSSRF is going ahead with building alliances and partnerships so that such knowledge centres could be set up virtually in every one of the panchayats in India. In fact, the tag line for the National Alliance he helped create is "Every Village a Knowledge Centre." Of course, not all of them need to follow the MSSRF model. There can not be a 'one-size-fits-all' approach to telecentre development. "Let many flowers bloom," he says. There could be different models and one could adopt the generic name 'telecentres' or 'knowledge centres.'

Mr. S. Senthilkumaran, Director - IEC, M. S. Swaminathan Research Foundation



A women user at Jasapur VRC in indicating the village problems with Village Maps being prepared during the Need Assessment of the village

Often it is not the local community which sets up such centres. These are set up by others interested in development. These could be NGOs like MSSRF, industry associations such as NASSCOM, business houses such as ITC and Hindustan Unilever, small companies like Drishtee or even the Government.

In this chapter we will see how to go about setting up telecentres or village knowledge centres owned by the communities themselves, largely based on the experience of MSSRF. Please note that this is not the first such attempt. A few highly regarded manuals are listed here.

UNESCO was perhaps the first to come up with a telecentre manual. They brought out The CommunityTelecentre Cookbook for Africa: Recipes for Self-Sustainability by Mike Jensen and Anriette Esterhuysen in 2001. It was a guide explaining different telecentre concepts, start-up strategies and telecentre management strategies. Three years later UNESCO brought out "How to get started and keep going: A guide to community multimedia centres" edited by Stella Hughes, Sucharita Eashwar and Venus Easwaran Jennings. It has 11 chapters written by an international panel of experts and it is very well illustrated. For ease of reading it is among the best.

IDRC brought out in 2002 a cute little book called "Community telecentres for development: Lessons from community telecentres from Latin America and the Caribbean" written by Karin Delgadillo, Ricardo Gomez and Klaus Stoll.

Two US academics, Royal D Colle and Raul Roman of Cornell University, wrote a Handbook for Telecenter Staffs, a guidebook for telecentre managers and others setting up local access centres. Sponsored by ITU and FAO, the handbook has ten chapters and covers the daily workings of a telecentre for community development. The handbook is replete with real examples from telecentre projects in different parts of the world.

Mátyás Gáspar, a pioneer of the telecentre movement, has written Telecottage handbook: How to establish and run a successful telecentre, published by UNDP - Europe and CIS in 2006.

More recently, in 2008, Telecentre.org brought out their own five-volume Training Commons Modules, developed in collaboration with NASSCOM Foundation, Development Alternatives, World Corps India and PLAN International India. This is available only in electronic form <http://www.telecentre.org/uploads/tele-manuals.pdf>.

MSSRF started setting up knowledge centres about 12 years ago. Much has happened since then. In particular the technologies used to connect different knowledge centres in the early days are now fit to go to museums and will be of mere historical interest. More importantly, development priorities have changed and donor agencies would like to see ICTs embedded in other development initiatives. But that is something MSSRF has been doing all along. That is one reason why when several other initiatives with great focus on technology failed to survive, the MSSRF knowledge centres with their focus on people, content, services and capacity building are growing from strength to strength

The MSSRF knowledge centres constitute a three-tier knowledge network with the facilitating agency at the top serving many Village Resource Centres at the block level and Village Knowledge Centres serving a cluster of a few villages at the bottom.

## Step 0: Self-assessment



A scene of Jasapur VRC in Amravati district where people are coming to read newspapers and access information

The second question one needs to ask is if one is ready to spend a number of years on this mission. Village knowledge centres are not mere cyber cafes. They aim to transform the lives of people and that does take time. The ability to stay the course and retain one's enthusiasm and commitment till the end is important. One would better be a long distance runner rather than be a sprint champion.

Those who want to work in the field of ICT-enabled development should ask themselves why they want to do that. They should have a vision and a clear appreciation of what needs to be done. MSSRF's vision is to harness the power of ICTs for the knowledge, skill, economic and social empowerment of rural families based on the principle of reaching the unreached and voicing the voiceless. Never mind if one cannot articulate one's vision in precise language. Usually, it takes some time for one's vision to get refined and one learns constantly when working in the field. But one should start somewhere.

The third question is if one has people skills. Development by necessity ought to be inclusive. One will be meeting and working with a variety of people - men, women and children from different social strata, rich and the poor, the landless and the unemployed, public officials, professionals, teachers, traders, farmers, fishermen, and the list is really long.

Finally, one should know what kind of telecentres one wants to set up. That would determine the guiding principles. In the case of MSSRF's community-owned telecentres, the principles are:

1. It is a people-centred programme based on community ownership. People and their needs are the concerns. Technology is important but it is subordinate to transforming people's lives.

2. The information/ knowledge and services provided must be locale specific and mostly demand driven.

3. Social inclusion must trump every other consideration.

4. Success of development projects depend on sharing knowledge and building partnerships.

Once the implementing agency assures itself that it is ready to set up telecentres and it can sustain the effort over a long period of time, the implementing team should select the geographical area - the district or block - where the centres will be set up.

It is good to begin with the selection of the location for the hub or the Village Resource Centre and appointment of staff to man the VRC. As the VRC is the fulcrum of much activity, it should be located in a central place in a town which has access to information sources and technology. MSSRF chose Villianur for their first VRC. The staff are chosen not for their technical merit alone but their keenness to work for public good. Then comes the situation assessment or understanding what is available and what needs to be done, followed by meeting, convincing and seeking the support of and winning buy in from key people.

Once the VRC is set up, one needs to build many VKCs around it.

#### Step 1: Social Mobilization and Need / Demand Assessment

Before setting up of these VKCs, one must make sure that the staff and volunteers of the implementing agency are accepted by the people. They should establish a good rapport with a wide cross section of the local community. Unless the local people are ready to work with them, the programme cannot take



Women user Ms Ambiha, from Pillaiperumal Nallur village, a member of farmers club along with women farmer club members sharing the content in the community newspaper

The implementing team should carry out many consultations with the local people and assess the information needs of women, men, children, the poor, landless, etc. and how they get the information they need. Local youth should be engaged to carry out surveys so they will get a sense of participation. Information to be gathered includes district and village profiles, household details, economic activity of the village, people below poverty line, maps, existing infrastructure like government institutions, primary health centres, educational institutions, libraries, extension centres, self-help groups, and farmers associations. Also of interest will be the nature of information flow among different players in the rural community, profiles of underprivileged communities, markets in the neighbourhood, details of artisans and small merchants, problems of landless labourers and local interaction patterns. This will help the implementing agency to develop micro planning for the village.



The VRC Management Committee, Jasapur VRC is interacting with readers of Community News Paper (CNP) being published by VRC

#### Step 2: Community Participation

Community participation is vital in all rural, community-based projects. In every community there will be some people who are committed to doing public good those who could become Fellows of the National Virtual Academy. Often it is such people who would help the centre in the early days, say in getting a place to house the centre and in organizing community consultations. Such people should be identified and taken on board. With their help the centre should ensure the participation of the entire community not leaving out anyone. Inclusiveness (or diversity) is the key to success of any community project. Local community participation should start from the conceptualization stage and be sustained throughout. The local community should be encouraged to select a group of individuals for managing the local knowledge centre. After the centre is well established, one may assess the extent to which the community is ready to support the local centre, by way of making in-kind or cash contributions. Conscious efforts should be put in to build multi-stakeholder partnerships, but one needs to be careful in selecting the partners to engage with.

### Step 3: Connectivity

Step 4: Content Creation and updating of relevant content to suit local needs is a key factor in the VKC programme. As Alfonso Gumucio-Dagron has pointed out, "The core concept is to build a "local web" that specifically caters the needs of local communities, in terms of contents, culture and language," as "90% of existing

Microsoft India has had a very fruitful partnership with MSSRF in the ICT4D sector. The work in making ICT context specific for various village communities has been specially commendable. Ms. Vikas Goswami, Lead CSR, Microsoft Corporation India Pvt. Ltd., New Delhi, 25<sup>th</sup> November, 2009

The most feasible and cost-effective system should be used. Internet technologies offer new options to provide cheaper and more flexible services (e.g. VoIP). One should be alert to new technologies that keep cropping up because they are far more powerful than their predecessors and often cost less and are easier to deploy. Ever since Prof. C. K. Prahalad pointed out the possibility of doing business with the poor, major corporations are developing low-cost technologies especially suitable for the poor. However, what already exists often determines what options one actually has. Adequate technical skills are required for ensuring/maintaining a robust connectivity infrastructure. The local knowledge workers must be trained to handle minor problems. Constraints must be removed on the basis of a malady-remedy analysis; for example, wired and wireless technologies could be used where telephone connections are not adequate or satisfactory. Similarly, solar power can be harnessed where the regular supply of power is irregular. Remember there is a solution for every problem. Fortunately, in India the Indian Space research Organization provides satellite-based services to telecentre organizations, and companies like Qualcomm and the Tata group are willing to work with telecentres.



Lady in Maharashtra reading Marathi newspaper Aamchi Gram Varta brought out by the VRC

web pages is irrelevant to 90% of the population of the world." That is why one should develop plenty of local content through research on local priorities.

"The generation of local contents should be essential in any ICT project that aims to benefit rural or marginalized urban communities, and it should be built in during the inception of the project, not as a complement that may (or, more likely, may not) be implemented as the telecentre develops."

The information provided should be demand driven, up-to-date and relevant to the immediate needs of rural women and men. It should also reflect the local culture and identity. Packaging of appropriate content in the local language for specific community needs and choices is an important activity of the centre

Content should be delivered in both conventional and electronic means using not only web sites, but also community newspaper, radio, and announcements over public address system and notice boards.

The convergence between radio and Internet provides useful examples of how to create local content, relevant to local needs.



There is also need for knowledge transfers between and across rural communities, scientists, educators, administrators, health care providers, technology enablers on local agro-ecological and socio-cultural conditions of each village, and also relating to various farming methods and techniques. Information flow should be a two-way process. Not only should the rural poor get answers to their gueries from experts through the Knowledge Centre, but they should also be able to inform the experts what they need so the experts can reorient their research. VKCs can provide three types of contents namely, generic (health, government schemes, local news, employment news, etc.), dynamic (market, school examination results, weather, etc.) and timely information (wave height, potential fishing zone details, etc.).

#### Step 5: Hub and Spokes Model

In this model, pioneered by MSSRF, much of the content is received and processed at the hub (the Village Resource Centre) and transferred to the spokes centres (the Village Knowledge Centres). This model is designed to empower rural families with new knowledge and skills based on the Gandhian principle of Antyodaya (i.e., unto the last), where the empowerment starts with the poorest and the most underprivileged women and men. In this model, the local population will have a sense of ownership of the VKC. It will be managed by a committee whose members are elected by the community, so that the information provided is demand and user driven. The local communities should be able to run the centres when the implementing agency moves to other regions. The hub and spokes centres should act as a rural library and much more

Each hub may serve about a dozen knowledge centres and up to 30 villages within a radius of 60 km. Each hub will have at least three networked computers, one scanner, two web cameras, internet facility, one printer, one digital camera, solar backup facility, etc.

The VKCs should be located in a public place and not be associated with one group or caste or tribe, and should allow everyone to take part. Each VKC should have two-way communication with hub. A VKC will have at least two computers [depending on village population and needs], a web camera, phone, a printer, notice board, etc.

#### Step 6: Management, Monitoring and Evaluation

VRCs and VKCs may develop several monitoring and evaluation tools such as outcome mapping, result-based management and logical framework analysis for analysing the effectiveness of VRCs and VKCs. Both VRCs and VKCs may collect profiles of trainees of different ICT-based curricula, document case studies such as services and technologies used, behavioural changes due to information use, and impact on individual livelihoods, economic and social empowerment.

They may analyse user pattern (one-time and frequent users, age, occupation and gender of users), frequently asked questions, information flow, and time taken to reply gueries. VRCs may also develop indicators for all training programmes. Implementing agency may form a management committee consisting of experts, representatives of NGOs and members from the community to review the programme periodically.





A view of Keezhaputhanur Village knowledge centre located in Thirumarugal block in Nagapattinam

The implementing agency will form a management committee for each VKC consisting of several experts, representatives from NGOs and members from the rural community. This committee will review the programme periodically. Involving youth in the management of the VKCs and decision-making is important. Managers should be familiar with the technology, willing to learn and have an interest in the needs of the community. The management processes should be flexible and collective but with individual accountability.

The community's role in management should typically be advisory. It is important to identify young volunteers with leadership gualities and good communication skills to be the link with the community and set in motion an process of information sharing; more importantly, these volunteers should enjoy the confidence of the community.

The implementing agency should conduct periodic impact assessments based on surveys, and establish a virtual network of policy makers, researchers, educators, service providers and farming and fishing communities. It will be necessary to carry out case studies on empowering women and the underprivileged sections of society, and to monitor the impact of the knowledge centres on government policies and relationship [example: transparency of government schemes], the economic and social status of the community, gender equity, etc.

The Grameen Gyan Abhiyan has been an inspiration and model for IDRC's work on community information hubs, largely influencing the global work of Telecentre.org, and other national movements (such as the telecentre movement in Sri Lanka). MSSRF has created the space for hundreds of practitioners, academics, policy makers, and private sector players to come together to dialogue on holistic models for rural access to services enabled by a myriad of technological solutions. Indeed, the government's commitment to roll out 100,000 community information centres is a clear indicator of MSSRF's useful influence and perseverance. With tremendous foresight the Foundation has put in place a National Virtual Academy to support and accredit the thousands of info-mediaries that will be required to ensure success for the government's plan.

It is more crucial than ever for stakeholders to gather at the table and share lessons and amalgamate where and when necessary. MSSRF's role as facilitator continues to be as important as ever.

It has been IDRC's privilege to be associated with the transformative work of Professor Swaminathan and the Foundation.

#### Phet Savo

Senior Program Officer, International Development Research Centre (IDRC) of Canada

#### Step 7: Services

VKCs will act as multi purpose centres. Before starting the services VKC animators should have detailed discussions with the community [at farm fields, near the shore, market, tea shops, temples, bus stands, panchayat meetings, government training programmes, primary health centre, schools, etc.]. The hub will create a guestion bank based on interaction meetings with rural community and policy makers. After that animators may segregate the services based on local community needs by subject as well as classify them as either free or feebased services



Training session on making soap oil is in progress at Embalam in the house of NVA Fellow Ms. B. Kasthuri

Some examples follow:

• Agriculture [crop production (seed varieties, irrigation, etc.), availability of different seeds, different seasonal crops, pest details, market intelligence, weather information (harvesting time, sowing time, etc). training on soil health care, water harvesting and management, crop and pest management, Codex Alimentarius for food safety standards, etc.]

- Tools (procurement, marketing, hiring), pricing, financing (micro credit), crop insurance, weather reports, disaster warnings, broadcasting local news, organizing interaction meeting with experts and rural community, initiating labour information network, etc.
- Animal husbandry [animal health & veterinary services, finance & schemes, animal breeds, production, livestock development (markets, vaccine, diseases, different breeds, veterinary centres details, etc.)]
- Fisheries [wave height, potential fishing zone details, procedure for claiming their entitlements, schemes for induction of new technology / modernization of seafood industry, schemes for augmenting export production (culture fisheries), scheme for development of capture fisheries, development of ornamental fisheries, schemes for quality improvement, assistance for marketing and market promotion activities, hygiene and quality maintenance, promotion of seafood export, insurance schemes, etc.]



First aid for snake bite being demonstrated by a knowledge worker of Keezhapoothanur VKC

- examinations]



Anganwadi children educated and entertained at the same time with educational CDs at Keezhapoothanur VKC

 Citizen services [procedures, documentation, forms, contact directory, grievance, schemes, matrimonials, government schemes, government entitlements, etc. [Household entitlement cards], getting ration cards, community certificates and other government services, STD, PCO,, FAQs]

Health [vaccination schedule, especially pregnant women and infants, family planning, medicines, ambulance services and transportation, hospital and primary centres information, blood bank, life-saving drugs, doctors database, appointment with doctors, tele-health, medicines management system for rural PHC]

 Education [examination results, education abroad, schemes/scholarships, counselling/FAQs, syllabus, schooll/college/university details, training in software and hardware for the rural youth, and issuing hall tickets for different



- Women [women's rights, procedures to be followed in lodging a complaint, land related issues, vocational course details for women, health issues, various marketable cottage products, etc.]
- Land/property [land records, property transfer, property tax, property rules & regulation, land income certificates]
- Employment [job opportunities, registration, self employment schemes]
- Social welfare [schemes, directory of NGOs, citizens' rights]
- Utility services [applications, outstanding bill statement, bill collection on various utilities, grievances]
- Business [procedures, documentation, forms, schemes (subsidy loans), compliances with rules & law, desktop publishing]
- Panchayat matters [births, deaths, utility connection (water, electricity, etc.), property transfer, tax rules, tax payments, license & concessions, permits]
- Tourism and transport (room availability, booking, booking of long distance) bus tickets, information on transport routes, sight seeing places]
- Entertainment [video, cable TV], environment [pollution control information, formsl
- Consumer welfare [consumer rights, consumer courts, legal assistance], etc
- Establishing a virtual network of policy makers, researchers, educators, service providers and fishing communities

The above services may be delivered to the community through community newspaper, internet, public address system network, farmer / fisheries advisories through phone, face to face through knowledge workers, notice boards, community radio, village meetings, publications, farmers / fisher folk / self help groups, etc.

#### Step 8: Partnership

In every programme, harnessing the power of partnerships is very important. It is only through partnership VKCs can bridge the gap between "scientific knowhow" and "field level do-how" that VKCs will need partners in the areas of agriculture, animal husbandry, education, weather, health, business, law, etc. Apart from community ownership, the second most important ingredient for the success of ICT-enabled development programmes is building multi-stakeholder partnerships. If the primary function of a Knowledge Centre is to provide authentic and reliable information/ knowledge, the question is who can provide such information? Often it is the experts working in academic and research institutions and extension centres. It is therefore imperative to forge partnerships with experts – both individuals and institutions.



Mr. David, Boundary partner, in front of the MGR Nagar VKC, Rameswaram island

Also, if the development is to be holistic and integrated, one cannot work in isolation. We have to bring in the expertise and take advantage of the knowledge and skills of a wide range of people and organizations, as well as pay heed to the indigenous knowledge and traditional skills of the communities we work with.

In the case of MSSRF, the technology partners include Indian Space Research Organization, Qualcomm and Tata Teleservices; and the knowledge and services partners include Sanakara Nethrlaya, agricultural universities, veterinary colleges, Indian National Centre for Ocean Information Services, and many individuals and local institutions.

#### Step 9: Capacity Building

This is a key area and is important at all three levels, viz. VRC staff, knowledge workers and staff of VKC and the community.

The staff of VRCs should have a variety of skills such as ensuring community participation, facilitation skills, gender analysis, micro planning, community needs assessment, knowledge of the functions of the management committee, monitoring and evaluation procedure, digital photography, hardware maintenance, content development, information transfer and content management.



Village Knowledge centre management committee meeting held in Athani Village Knowledge Centre. R.Rajkumar, senior scientist, Annavasal VRC conducting the management committee meeting



The VKCs will be managed by Grassroots institutions (local *panchayats*) / Youth Clubs / Farmers Clubs / Fishermen Co-operative Societies comprising both women and men. Capacity building of the above groups and human resource development are essential for success. This will ensure the demand-driven nature of the information provided. At least one woman and one man may be selected from each village and trained as community information managers. They can be given some recognition (such as Fellows of the National Virtual Academy). These knowledge centre managers and operators are a strategic resource and they need to be trained continuously.

NVA has been conducting a series of training programmes for knowledge workers on various aspects such as the concept of a VKC, methodology of



and dissemination of need-based content, managing users and visitors, maintenance of the user register, bill books and other records pertaining to VKC, building rapport with users and community members, gender concerns, basic hardware and software training, the kind of services expected from VRC/VKC, frequently asked questions, collection of feedback in the form of case studies, identifying the skills and aptitudes of users, etc. VRCs conduct quiz programmes for knowledge workers (KWs) to ensure that they are aware of the various current information and the availability of existing content at VRCs and VKCs. VRCs conduct monthly KWs meetings to share, to learn and to create a platform for better planning of VKC activities; VRCs encourage KWs to develop training materials related to VKC management based on their field experience and VRC training.

VRCs help knowledge workers to develop a monthly action plan.

VRCs provide orientation on reporting and documentation of VKC activities, documenting the users queries, developing monthly reports and documenting the case studies.

VRCs facilitate the linkage between the knowledge worker and the government departments. This creates local-level linkage between the VKC and the concerned departments.

VRCs organize VKC knowledge workers experiences sharing meetings.

VRCs conduct technical trainings to KWs - handling of various technical problems in computers, UPS, public address system, printer, etc.

VRCs provide the training for KWs to share their experiences through Google Notice Boards (audio content).

VRCs set up social blogging using Orkut for VRC and VKC staff to share their views among themselves.

VRCs create several platforms to improve the capacity building of KWs such as involving them in all the capacity building training programmes, requesting them to give the introduction in all the training programmes, sharing the VKC activities, organizing meetings, requesting them to share their views in the gram saba meetings, linking with boundary partners, making monthly plan, etc.

The VKC needs to develop linkages with a range of rural service providers and handle services of both Government and private sector. Some of these services will be fee-based and generate revenue for the Centre. Collaboration with private sector and industry could be on the pattern of production on contract / franchise / buyback arrangements. The active participation of the elected women and men members of local bodies is also crucial for the success of this movement

VKCs may also provide several training programmes for micro enterprises in areas of interest to the community and in which locally available resources could be used. Some examples are clean milk production, artificial insemination for cows, fodder cultivation, production of biofertilizers and biopesticides, vermicompost, oyster mushroom cultivation, products from agricultural waste (e.g. handmade paper and board from banana waste), backyard ornamental fish breeding, sea farming, cage fishing, sea weed farming, aquaculture, pen culture in estuaries, edible oyster production, and ornamental fish growing.

The knowledge centres can also provide computer aided learning for the rural children and spread quality literacy among rural families.

### Step 10: Sustainability

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While economic sustainability is a desirable goal, community-owned knowledge centres may take some time to achieve it. There are other equally important priorities, such as social sustainability and bringing about social change. As Prof. Swaminathan points out, no one questions the economics of spending millions of dollars on irrigation projects that bring water to farmers' fields. Bringing information to the rural poor should, by the same logic, be considered as an essential responsibility of a civilized society, especially when we are keen to become a knowledge society and when we have accepted in many parts of the world the Right to Information as a fundamental right.

Says Alfonso Gumucio-Dagron, "One of the main thrusts of libraries and telecentres is to open the world of information and knowledge to the communities, with the advantage that telecentres can tailor the information to community needs. From the point of view of sustainability, community telecentres should be treated as public libraries."

Sustainability should be defined in terms that are more coherent to the social and cultural functions of community telecentres. Dagron suggests that the concept of sustainability should be reviewed in terms of community ownership and in terms of concrete benefits to community organisation and development, particularly in rural areas.

With the communities owning the centres and having control over the content and services delivered, VKCs can create long-term, self-sustaining solutions, which reflect local needs and require local initiative and entrepreneurship, so it will fuel the creation of additional local business and community enterprises. Already in India both governments and businesses use community-managed centres for sending out information and providing services to the public.

Community participation and commitment are fundamental conditions for the sustainability of community information intiatives, says Dagron. User participation and the capacity building work carried out are other determinants of sustainability.

When the number of telecentres increase to tens of thousands and the cost of information exchange dips considerably, as is happening already, these centres will have a significant impact on development for the poorest people.

- entitlements
- groups
- workers

One can conceive a business model for VKCs based on the belief that local entrepreneurs and communities will find new and innovative ways to use these appropriate technologies to improve both their life chances and their domestic economic situations, and that by putting more relevant local content within reach of more people, business at local public access points will be demonstrably increased. Typically therefore, a VKC can offer a range of free public good services as well as fee-based services. Some possibilities are:

• Providing access to telephone, fax, voice mail, e-mail, SMS and the web (like an STD booth)

• Offering training in IT and computer applications

• Facilitating distance education (by setting up community colleges in partnership with open universities)

• Providing information on weather and government services and

• Facilitating access to news, entertainment, electronic libraries and publications, and databases on appropriate technologies

• Administrative, accountancy and bookkeeping services for self help

• Telehealth, telemedicine and continued education to local health care

• Tools and resources for community organization and participation in decision making

 Recording of local culture related material such as devotional songs and images of local temples.

Other facilities: printers, scanners, digital cameras

• Further education/health info in multimedia formats (on CDRom/DVD/Hard Drive)

 Awealth of locally relevant services including; primary produce processing information, market prices, etc.

• Various resale services – e.g. acting as agents or outlets for mobile phone companies or domestic telecom companies - offering mobile charging services, pay as you go top-up services, etc. VKCs of MSSRF are selling IFFCO Kisan products such as lanterns and SIM cards.

An interesting application of ICT in strengthening rural livelihood (i.e. income) security is its role in promoting linkages with credit institutions and with private sector industries willing to have products manufactured by rural self-help groups through a franchise. This has opened up opportunities for spreading a large set of promising S & T based "franchises" that banks could support through loans.

The VKCs are vital for creating sustainable rural micro-enterprises in the area of agriculture, food processing, animal husbandry, fisheries, sericulture, handicrafts, rural industry and even in IT-based services. The VKCs are all the more vital in developing a rural to urban e-Commerce service network.

Links with journals, press and private companies can fetch low-cost page design work.

Another option is to link VRCs with cable TV operators, and to get more advertisements from agricultural product companies.

VKCs can provide hardware training for village communities and allow them to provide low-cost services for companies, institutions and individuals. The VKCs can distribute SMS [local content] through cell phones to different kinds of people like academicians, traders, doctors, students, etc. VKCs can train and transform village youth into administrative assistants, desktop publishers, GUI designers, icon artists, data entry operators, software developers,

### Conclusion

Community-owned VKCs can open a world of information and access to village communities and allow them to provide low-cost services for companies, institutions and individuals. They can go beyond information and provide training in a variety of areas to help them earn a higher income. It can help villagers reach out to experts with their problems. All these can happen if certain basic conditions are met, such as a people focus, community participation and commitment, and a willingness to share knowledge and build partnerships.





# Part IV

The Road Ahead



community."

One does not have to be a discerning observer to see that MSSRF continues to remain an exemplar be it in the ingenuity with which technology is used or the speed with which staff and volunteers in newly established centres win the trust of the local communities or in the creation of a wide range of contents, services and training programmes.

While probably MSSRF has remained modest in publicising more widely what it has achieved in the villages of Puducherry and later in other parts of India, it has certainly taken upon itself the leadership role in India. The credit for conceiving the idea of the National Virtual Academy (that was eventually expected to train more than a million Fellows who would manage knowledge centres all over India), Mission 2007 which had the daringly ambitious goal of establishing village knowledge centres in everyone of the more than 230,000 Panchayts if not in everyone of the more than 637,000 villages, and Grameen Gyan Abhiyan, a national movement for ushering in the knowledge revolution in rural India go to MSSRF and Prof. Swaminathan.

# Reaching Out to the World

As far back as November 1999, the PANAsia Telecentre Learning & Evaluation Group's Mission to India observed: "The Group's overriding impression of the MSSRF telecentre initiative is that of an exemplar for most of the aspects of ICT-led development in rural locales. From the creative, sometimes ingenious, use of technology, to its relationships with the target communities, the Foundation demonstrates an admirable record of accomplishments. A further lesson for the benefit of the telecentre community at large might be for the Foundation to publicise more widely what it has achieved and for it to adopt more of a leadership role in the international telecentre

#### Exemplar and leadership role

## **Empowering people**

The knowledge revolution has triggered other benefits such as empowerment. Knowledge workers from village knowledge centres in Puducherry have attended and spoke at major international events such as WSIS, Geneva and WSIS, Tunis. More importantly they have won a status in their own community and neighbourhood. It is not just women who have been empowered. Thanks to a training programme, carefully designed and delivered by NVA adviser Dr. Anburaj Thiagarajan, village youth in Puducherry have become experts in artificial insemination and barefoot veterinarians. Thousands of school children have become computer literate and their performance in school has improved, thanks to programmes like Microsoft's MUPP, Intel Learn, and Azim Premji Foundation's CALP. As Prof. Peter Singer of the University of Toronto observed, children, in a Dalit village where people live in thatched huts and earn on average about \$25 a month as wage labourers, pegging away at computers in a small brick building instil hope.

The seeds sown more than 12 years ago have the potential to grow into a huge tree, and it is well within the realm of possibility to see the entire rural population of the world transformed through ICT-led village knowledge centres.

We are very proud of our association with Grameen Gyan Abhiyan (erstwhile Mission 07), which has played a pivotal role in the country, in coordinating the various initiatives that are aimed at catalysing the application of ICT for overall development activities. MSSRF, which has been functioning as the secretariat of the Abhiyan has been instrumental for the progress achieved so far in the operationalisation of village knowledge centres/gyan choupals.

Sybille Suter, Counsellor and Country Director, Swiss Agency for Development and Cooperation, New Delhi, 15<sup>th</sup> November 2009

#### A model for the world

Already India's neighbours in South Asia have followed the Mission 2007 model. Nepal has its Mission Swaabhimaan, Bangladesh has its Mission 2011 and Sri Lanka has its Nenasalas under the e-Sri Lanka Development Initiative. Recently the President of Chile invited a team of experts from MSSRF to initiate programmes similar to the ones carried out at MSSRF including the National Virtual Academy and Village Knowledge Centres.

During 2002-2005, MSSRF had conducted four innovative workshops on ICTenabled development for development workers and policy makers from Africa, Asia and Latin America. Called the South-South Exchange Travelling Workshops, these events brought together development practitioners from 25 countries in the four years. They met not in conference facilities in cities but in rural settings - in the villages where MSSRF has located VRCs and VKCs in Puducherry and Tamil Nadu. About 80 participants took part in the four years, of which at least 65 were from outside India. They met the local communities, knowledge centre volunteers, and Panchyat leaders and carried home sweet memories and much knowledge. Many of them have used the learning to advance the cause of ICT-led development in their own countries. They can be ambassadors of MSSRF and help spread the movement.

Firmly believing that sharing knowledge and building partnerships form the basis of all development activities, MSSRF scientists have always been willing to welcome serious researchers from any part of the world who want to look at how the VRCs and VKCs function and how they bring benefits to the community they serve. Coming from different cultures and backgrounds they bring a fresh perspective and at times they may reinforce existing understanding from a totally different point of view.

One such researcher, Dr. Julien Swindell of the Royal Agricultural College, Cirencester, UK, is a great admirer of MSSRF's work in ICT-led development. "The key to the success of MSSRF in Pondicherry is *local*. The needs are local, the resources are largely local as well, and the facilitating agency itself is permanently based in the locality" To him, it is a classic example of Schumacher's notion of "Think global, act local." One other point he made: MSSRF did not go away on completion of the project, or between project meetings. A time limited project is likely to be of only passing interest to intended target population. Prof. Swaminathan agrees.



Other researchers, such as Prof. Eric Brewer and his students from the University of California, Berkeley, come to learn what technologies and technological tweaking will be the most suitable for exercises of the kind MSSRF is engaged in. The interaction between the project team, mostly consisting of people hailing from rural and semi-urban areas, and the US-trained techno savvy young men and women with a desire to contribute to the wellbeing of the world can indeed be an experience in cross-cultural and interdisciplinary learning. And one would like to see more of it

Foundation," he says.

and practice.

There is a general feeling that donor agencies, especially the bilateral agencies, are losing interest in ICT-led development and are moving away from the field But Prof. Swaminathan is steadfast in his commitment to ICTs. His faith in the efficacy of genetics and plant breeding saved India from hunger and starvation about four decades ago. His faith in ICTs may yet prove to be as helpful as his faith in genetics. Prof. Ajay Parida, Executive Director of MSSRF, is equally supportive of the Foundation's ICT initiative. "It is a flagship programme of the

MSSRF is constantly looking to innovate and identify the best technology which can help the people apart from scaling up what they have already done successfully. Already MSSRF is busy setting up a Multimedia service to provide audio and video on demand. The Foundation is also researching the best way to make the vast knowledge gathered over the years and stored in their systems to be indexable and searchable by non-technical people. That would facilitate farmer-to-farmer interaction and knowledge sharing.

The torch is lit. A working, effective low cost, scalable model is there and now it is for the others to come forward and help the torch bearers spread the knowledge in all directions for the betterment of humanity.

In the Philippines, a number of initiatives have been launched in the recent times and they all are built on some flavor of the VKC concept



Already people from Bangladesh and Sri Lanka to Chile, countries half the world apart, have joined the movement. More will follow. The trick is to keep the movement global and attract the Brewers of the world to contribute but keep the implementation and delivery local as perceptively observed by Swindell

Based on the VKCs the VASAT project of ICRISAT has successfully developed and sustained a system of information hubs in South Central India with a focus on knowledge empowerment for drought management. Some of the partners from here have visited the original VKCs and have learnt much from their visits. I am glad the ongoing arrangement of mutual visits and working partnerships have done much to spread the message of knowledge empowerment through VKCs as a desirable and viable proposition in the developing countries of the world.

William Dar, Director General, ICRISAT, 20th July 2009

South-South Exchange Travelling Workshops on ICT-enabled Development

In the first three years of the IDRC-funded Information Village Research Project, MSSRF researchers had accumulated considerable experience in different aspects of ICT-enabled rural development through community-based information centres, such as selection of the village, winning the trust of the local community, choice of technologies, selection and training of volunteers (knowledge workers), content creation, capacity building, building partnerships and so on. They had also won some international recognition, and the future seemed promising. It was time to share their knowledge and experience gained through working with the rural communities in Puducherry with the worldwide community of development workers as well as to learn what was happening elsewhere in the world on the ICT-enabled development front.

They thought the best way to do that was to organize an annual event where ICT-enabled development practitioners from many countries could meet and exchange experience and insights. Instead of holding the workshop in a conference room in a city, they thought that it would be far more useful if the workshops were to be held in the villages where MSSRF had set up village knowledge centres and resource centres so that workshop participants could actually visit those centres and meet and talk to the people themselves. Thus was born the South-South Exchange Travelling Workshop. The first workshop was held in October 2002.

In the initial year the workshop was supported by Hivos, IICD (both with their headquarters in The Haque) and IDRC. Twenty participants came from 13 countries, viz. Bolivia, Honduras, India, Kenya, Malaysia, Mongolia, the Netherlands, Nigeria, Philippines, Sri Lanka, Tanzania, Thailand, and Zimbabwe. The participants visited several village knowledge centres in Puducherry as well as the hub at Villianur and a few villages in the Dindigul district of Tamil Nadu.

They met and discussed with MSSRF staff, volunteers, and a large number of the villagers. In every village meetings between the workshop participants and

the local people (including Panchayat leaders, temple trustees, local government officials, farmers, fishermen, self-help group members and youth) were organized. Apart from MSSRF researchers and VRC and VKC staff, members of self help groups and farmers associations also made presentations. Despite the language barrier, there was considerable exchange of experiences. The conversation was not restricted to ICTs, technologies used and contents shared, but covered social, religious and agricultural practices, status of women and culinary habits. The farmers among the village communities were keen to know from the visitors cropping patterns and irrigation methods in their countries. Women from villages were eager to know about the status of women in Africa and Latin America. As the participants have come from different countries and cultures, one could see a wide range of perspectives. The visits helped the participants to understand MSSRF's perspective of integrating ICTs with overall knowledge management of the community. Participants identified six key issues that underlie the success of the MSSRF knowledge centres:

Sustainable utilization of local resources; Knowledge empowerment and management; Sustainability; Gender empowerment; Community involvement; and Technology as tools. Another vital aspect of the MSSRF knowledge centres is that the centres are open to all. In fact, when the participants visited the knowledge centres in Dalit villages they were asking questions about the practice of untouchability and how the knowledge centres were tackling it.

Particiapnts also noticed major differences between villages within a few kilometres of each other. For instance, women of Embalam enjoyed considerable autonomy whereas women In Nallavadu were very hesitant even to speak. This fact was discussed in the villagers meet with the participants and as a result within a month the Embalam women were invited to help Nallavadu women set up a self help group. On the last day of the workshop, the activities shifted to MSSRF headquarters and one among the participants, Mr. Theophilus Mlaki of Tanzania was chosen to distribute the certificates to the participants. [Someone jocularly referred to him as the Hon'ble President of Tanzania. And today Mrs. Mlaki is a Minister!] At this session participants summed up their

# experience.

Experience with MSSRF helped Claudia Pompa "realize the importance of ICTs instrumental in setting up Mission 2011 in Bangladesh. for social development and how to introduce ICTs in a holistic way. After the experience in India we designed a project called Oportunet. Funded by USAid Says Samuel Senfuka of CEEWA, Uganda, "I learned it was important to use this project provided with internet connectivity to 100 institutions countrywide, convergence technologies to have inclusive society and increasing access to ICTs. Earlier we used to focus a lot on new technologies without thinking through reaching over 28,000 people."

impressions. Overall, they thought that the information centres were full of promise and that, if intelligently planned and properly managed, ICT access centrescould become community owned knowledge centres that could empower people living in rural areas. They were also happy that they could meet development practitioners from more than a dozen countries and learn from their

Three more SSE Travelling Workshops were held in 2003, 20004 and 2005, with the help of Global Knowledge Partnership (GKP). While all of the four workshops shared the same goal, viz. to learn from one another, and all of them facilitated cross-cultural learning, each one was different from the other for two reasons. One, MSSRF's work expanded into new areas, and two, different participants brought different experiences. In one workshop we had four participants from Latin America, all of them Spanish speakers. Three of them were fluent in English and one (from Guatemala, working with indigenous people) hardly knew English. But the other three took turns to explain to him what was going on and he did not feel handicapped at all. In fact, when the participants were halting in the temple town of Thanjavur after visiting the VRC at Thiruvaiyaru, where the participants witnessed the inauguration of the ISRO-MSSRF VRC programme by Prime Minister Manmohan Singh, everyone went for shopping and he, who did not know English, made the best bargains!

In all more than 80 participants from over 20 countries have taken part in these workshops. These workshops have had considerable influence on the participants and their programmes. For example, Ms. Ednah Karamagi of Brosdi, Kampala, a participant in the first workshop held in 2002, coducted a travelling workshop in Uganda with emphasis on knowledge management. Mahmud Hasan of D-Net, Bangladesh, took part in the second SSE workshop in 2003; later on a team from D-Net visited MSSRF VKCs and VRC in Puducherry, and they had set up Pallithayas, similar to the VKCs set up by MSSRF, and were

how it was to benefit our target group! The experience and lessons I learned from MSSRF South-South Workshop are a landmark in my organization. The workshop and staff at MSSRF enhanced my passion for ICT enabled development work." After he returned from the workshop, CEEWA introduced sharing and networking programmes for rural women through radio, and integrated the use of community notice boards for information access. CEEWA integrated gender specific implementation strategies to cater for different categories of people accessing the telecentres, e.g. special time and days for women and permanent technical staff at the centres.

Mary Sagapan of the Development Academy of the Philippines says that the workshop was of great help to others implementing similar projects. The importance of community involvement and partnership as well as the importance of building partnerships were among the common learning of the participants.

Maria de Lourdes Acosta Cruz of Chasquinet, Ecuador, saw in the MSSRF project villages "empowered women and their leadership within their communities." She says, "The experience in India was one of the inputs in shaping the 'Exchange Program to Telecenters Operators', which we implemented two years later in 2006/07." The concept of learning while traveling had a special impact because it was possible to get in touch with the reality of the communities. Much more important than merely visiting telecentres and social projects has been the contact with the people."

Manuel Garcia Chuta of Asodigua, Guatemala, says: "The experience of the workshop has created an important contribution to our work with indigenous communities in Guatemala. Very similar to the rural communities in India, we use ICTs as important tools for change and integral development. Thanks a lot for giving us an opportunity to get to know the real essence of community work which you are doing in India."



South-South exchange travelling workshop - A session in progress

It is heartening to see that the staff of MSSRF and their project team members continue to innovate, for more than two-decades now with a determination to demonstrate the relevance of technology and knowledge in the lives of ordinary people. When the world was stubborn enough despising information and communication technologies, the staff of MSSRF argued the case way back in 1992 that the ICTs can help to reach the unreached; when the ICT critics were writing off telecentres as failures, it was the MSSRF that envisioned the every village a knowledge centre movement, giving a thrust and an implementable formula for the second generation telecentre movement; when the Indian government was still authoring the national eGovernance plan, it is the MSSRF that gave the magic figure of 240,000 panchayat level knowledge centres as front-end service delivery as well as last-mile knowledge connectivity centres; and when the Bharat Nirman was still being scripted, it was the MSSRF that helped to integrate knowledge connectivity over the physical connectivity layer of the UPA's new deal for rural India. While MSSRF continue to unite Bharat with India, the unreached with the reached; and the poor with their rich counterpart, it is the visionary leadership of Professor M S Swaminathan that continues to guide not only the staff of MSSRF or their partners, but the millions of grassroots champions who alone can redeem India from its current state.

Basheerhamad Shadrach, PhD, Senior Program Officer - Asia, Telecentre.org, International Development Research Centre, Canada, 24<sup>th</sup> November 2009

If you ask me what is the role of MSSRF in spreading this particular innovation, I would say we are open. This is not a secret initiative. Anybody can partner with us. Whatever technical support is absolutely essential, we can provide it. We can share our experiences and there are about a hundred centres operating in various states of the country. You can walk into any of the nearby VKCs and interact with the community, see the benefit for yourself and get back to us. We will help you.

Dr. Ajay Parida, Executive Director of MSSRF, talking about the knowledge centre initiative



Awards won by the MSSR's ICT-enabled development project



Different editions of "our village news'

## Digital Library

Fisheries

- o Interview on Coastal Eco System Mr. J. Murali and Dr. A. Sivakumar (Discussion relayed through All India Radio on 04.02.2008)

- & II) Mr. Thillai Govidan, Joint Director Fisheries, Fisheries Department, Chennai (Announcement relayed through All India Radio on 01, 08.09.2008)
- o New Technologies and State level Govt. Schemes on Fisheries (Part I
- o Government Schemes for Fishermen Mr. S. Velpandian, Assitant Director Fisheries and Mr. Raju Saravanan (Discussion relayed through All India Radio on 02.06.2008)

# Appendix

NVA is developing a digital library of photographs, video documentaries of events, audio recordings and PowerPoint presentations pertaining to NVA, Informatics Division of MSSRF, VRC and VKC programmes, GGA Secretariat and JTS. Photographs are indexed and standardized (JPEG; appropriate brightness and contrast; 72 dpi resolution; printing quality; etc.).

The following digital videos are available in the Digital Library.

- o Integrated Coastal Zone Management (Part I & II) Dr. V Selvam and Ms. S Velvizhi (Discussion relayed through All India Radio on 03.10.12.2007)
- o Discussion on Tuna Fishing and its related Government Schemes (Part I & II) - Mr. J. Jerin, Mr. K. Mariasibu, Mr. Raju Saravanan and Mr. Shakil, NETFISH, MPEDA, Chennai (Discussion relayed through All India Radio on 24,31.12.2007)
- o Discussion on Role of VKC in Fishing Community Women Empowerment - Ms. A. Magesh, Ms. G. Jaya, Ms. J. Kalaiselvi and Ms. M. Kalaiselvi (Discussion relayed through All India Radio on 18.02.2008)

- o Gulf of Mannar Sea Resource Mr. V. Naganathan, IFS & Dr. A. Selvam (Discussion relayed through All India Radio on 14.07.2008)
- o Cage Fishing a traditional Fishing technique : Mr. Kevikumar, Mr. M. Mariya Sndaradass, Mr. J. Susai Sakkariyas & Mr. M. Joseph (Discussion relayed through All India Radio on 23.06.2008)
- o Mobile Fisheries Application Mr. Arun & Mr. Mesiyan (Discussion relayed through All India Radio on 12.05.2008)
- o Sustainable Fishing Practices (Part I & II) Dr. Mohamed Kasim, Prinicpal Scientist & Dr. Rasagopalan, CMFRI (Ph: 9444226385 / 24617310) (Discussion relayed through All India Radio on 13.10.2008 and 10.11.2008) 24.11.08
- o Mud Crab Fattening Dr, Kathirvel, Principal Scientist, CIBA, Chennai (9444222733) (Discussion relayed through All India Radio on 25.08.2008)
- o Rainbow Revolution Ornamental Fish Culture, 5<sup>th</sup> September 2008 (Video)
- o Mud Crab Farming: easy way to increase income (Video)
- Sustainable Fishing Practices for Fishing Community, August 14, 07 (Video)
- Micro Enterprises Fish and Prawn Pickle Making, Turkey Rearing, Ornamental Sea Shell Crafts Traditional Knowledge - CAGE Fishing (Interview, Video and Demonstration)

Role of Village Knowledge Centre for rural development – Outreach

- o Open Knowledge Network, Pondicherry
- o Inauguration of ISRO-MSSRF, Village Resource Centre (VRC) Programme, 18th October 2004
- o Inauguration of the First National Virtual Congress of Farmers and The Second Convocation of the Jamsetji TATA National Virtual Academy for Rural Prosperity (NVA) Fellows, 5th January 2006
- o First National Virtual Congress of Mahila Kisans 95th Science Congress, 5th January 2008
- o Empowering People: Improving Lives ICT4D (Village Knowledge Centres Programme, Pondicherry
- o Celebration of rural competence Department of Communication and Journalism, University of Mumbai (Vidarbha VRC activities)
- o South South Exchange on ICT-Enabled Development A Traveling Workshop
- o Visit of United Nations Hunger Task Force to Villianur Village Resource Centre and Costal Village Knowledge Centre, Veerampattinam
- o Ms. Gillian Pearl & Mr. Anshuman Varma Microsoft Review to Thangachimadam VRC & VKC
- o Inaugural Address and Purpose of the programme (Rural Knowledge Revolution) - Prof. M. S. Swaminathan and Mr. S. Senthilkumaran (Discussion relayed through All India Radio on 19.11.2007)
- o Discussion on VRC and VKC Dr. J. D. Sophia, Ms. Velvizhi, Mr. Raju Saravanan and Ms. Nancy J Anabel (Discussion relayed through All India Radio on 26.11.2007)
- o VKC activities Mr. S. Senthilkumaran (MSSRF) & Mr. Rajagopal (AIR) (Discussion relayed through All India Radio on 03.03.2008)
- o Role of Boundary Partners in VKC activities Mr. David and Mr. Joseph Jeramias (Discussion relayed through All India Radio on 09.06.08)
- o One day in VRC Mr. R. Srikiruba and users (Discussion relayed through All India Radio on 21.07.08 and 06.10.08)
- o Experience sharing by NVA Fellow Ms. Nancy J. Anabel & Ms. M. P. Thillaipackiam, NVA Fellow (Discussion relayed through All India Radio on 28.07.08)

- o Discussion on Thangamalpuram VRC activities Mr. R. Sendhur pandian and Mr. K. S. Arumugapandian, Farmers (Discussion relayed through All India Radio on 04.08.08)
- o Benefits of Village Knowledge Centre Ms. J. Stella, Vembar (Discussion relayed through All India Radio on 11.08.08)

#### Agriculture

- o Organic farming for Sustainable Agriculture, May 30, 07 (Video)
- o Awareness on Crop Insurance Scheme for Tamil Nadu Farmers, 2008 (Video)
- o Fodder Crops Cultivation and Management, 22nd August 2008 (Video)
- Presentation on Tomato Cultivation Practices (PowerPoint)
- Presentation on Eriophid Mite Control in Coconut (PowerPoint) 0
- o Discussion on Organic Farming Mr. K.P. Murugesan, Mr. G. S. Dhanapathy, Mr. R. Anbazhagan and Mr. Muugesan (Discussion relaved through All India Radio on 21.01.08, 28.01.08 and 17.03.08)
- o Discussion with coconut and jasmine farmers Mr. J. Lahirdeen, Mr. K. Kobikumar – farmers and Mr. V. Rajamani, Assistant Agriculture Officer (Discussion relayed through All India Radio on 16.06.08)
- o Bank Loans for Farmers (PowerPoint)
- o Horticulture crops an overview: Mr. S. Nagarajan and Mr. Raju Saravanan (Discussion relayed through All India Radio on 09.06.08)
- o Soil Testing Dr. B. Ragupathy, Consultant, NVA, Mr. V. Palaniappan, Advisor, NVA and Mr. V. Ramalingam, Farmer – Villiyanur (Discussion relayed through All India Radio on 27.10.08)
- o Soil Health Management Dr. B. Ragupathy, Consultant, NVA and Mr. V. Palaniappan, Advisor, NVA (Discussion relayed through All India Radio on 20.10.08 and 17.11.08)
- System of Rice Intensification (PowerPoint) 0
- o Vermi-composting Technique (Power Point with Audio)

### National Priorities

o Rain water harvesting - Dr. Parasuraman (Discussion relayed through All India Radio on 18.08.08)

- (Discussion relayed through All India Radio on 07.01.08 and 11.02.08) Veterinary Doctor, Mr. K. Srinivasan, Lay inseminator, Ms. Jeyalakshmi, Farmer (Discussion relayed through All India Radio on 14.04.08)
- o Ethno Veterinary Practices Mr. S.S. Subanandan, SEVA, Madurai o Artificial Insemination - Dr. Thiavagarajan, Advisor, NVA and Retired
- o Quality Milk Production Dr. T. Kumanan, Manager Project, Ponlait, Ms. Sundari & Ms. Dhanalakshmi, NVA Fellows ((Discussion relayed through All India Radio on 24.03.08 & 31.03.08)

- o Cattle Infertility, A calf a year Dr. T. Kumanan, Manager Project, Ponlait, Ms. Sundari (Discussion relayed through All India Radio on 07.04.08)

#### Health

- Video)
- Kidney Problems and Preventive Measures, November 15, 07 (Video) o Malaria Awareness Kit (Interview, education materials, PowerPoint,

- o Climate Change in the context of rural development Dr.T.N. Balasubramaniyan & Dr. A. Nambi (Discussion relayed through All India Radio on 10.03.08)
- o Water Management: Irrigation Canal & Tank, Dr. P.G. Gomathynayagam, Retd. Chief Engineer & Ms. Nancy (Discussion relayed through All India Radio on 29.09.08)

#### Animal Husbandry

- o Fodder Management and Feeds Dr. V. M. Shankaran, Agronomist, Madras Veterinary College, Vepery, Ph: 9940338315 (Discussion relayed through All India Radio on 03.11.08)
- o 3 Days Training session on first AID and Herbal Healing Practices for Animals, Pondicherry (Video)

• Diabetes and Hypertension - preventive measures, June 25, 07 (Video)

- Awareness on Malaria disease Dr. Nilamani, Assisant Director. Department of Health, Pudhucherry, NVA Fellows and Community members (Discussions relayed through All India Radio on 21.04.08 & 28.04.08)
- o Awareness on Filarial disease Dr.Nilamani, Assisant Director, Department of Health, Pudhucherry, Ms. Jayaklakshmi, Thimmanayakanpalayam and Ms. Rukmani, Embalam (Discussions relayed through All India Radio on 05.05.08 & 12.05.08)
- Awareness on AIDS Dr. Gilbert, Project Director, Ms. Anathalakshmi and Ms. Girija, VRC, Pillaiyarkuppam (Discussions relayed through All India Radio on 19.05.08 & 26.05.08)
- Kidney Problems and its Care (PowerPoint)
- Uterus Problems and its Care (PowerPoint)
- o Nutrition (Adolescent Girls and Children) Dr. Shanthi, Dietician, Life Line Clinic & Multi Specialty Hospitals, Ph: 9840671218 (Discussion relaved through All India Radio on 15.09.08 & 22.09.08)
- o Care During Pregnancy An Awareness module (PowerPoint)
- Diet & Nutrition for Adolescent girls and Pregnant women Dr. Varsha and Dr. Shanthi (Video)

#### Micro-enterprises / SHGs

- o Sustainable Livelihood for all The Micro enterprise cum Micro Credit Revolution (story telling method – through cartoons explaining different micro-enterprises development procedures) (Video, Audio and Animation)
- o Amla Jam Processing Ms. Jayanthi Rani (Discussion relayed through All India Radio on 17.12.07)
- o Interview on Involvement of Women in Income Generation Activity Ms. M. Kalaiselvi & Dr. J. D. Sophia (Discussion relayed through All India Radio on 25.02.08)
- o Formation of Self Help Groups Ms. Sundari Raji, Mr. L. Aruldass, Ms. M. Rosemary from SMSSS & Ms. R. Srikiruba, MSSRF (Discussion relayed through All India Radio on 30.06.08)

## IT Literacy

- o Training on HTML, Dreamweaver & Photoshop, 17& July 2008 (PowerPoint and step by step Screen Shots)
- Advanced Training on MS Excel, 19, July 2008 (PowerPoint and step by step Screen Shots)
- o Intel Learn Programme to Village children Mr. K. Abdul Salam, MSSRF and Intel Students (Discussion relayed through All India Radio on 11.08.08)

### General

- Right to Information Act 2005 (PowerPoint)
- Instructions to obtain Ration Card (PowerPoint)

Capacity Building materials for Gyan Chaupal Staff (telecentres)

- o Training on Community Participation and Facilitation Skills, 18-20, December 2008
- o Workshop on Demonstration of different Solar Application: Tata BP Solar's Arunodhya, 6th December 2008 Chennai & 15th December 2008
- o Workshop on Networking through e-forum: Setup and Moderation Procedures, 27-28, November 2008
- o Community Participation and Facilitation Skills
- o Community Needs Assessment
- o Development & Micro Planning
- o Gender Analysis
- o Monitoring and Evaluation
- o Village Knowledge Centre: Management Committee
- o Wave Height Measurement Manual on Interpretation and Measurement of wave height Image provided by INCOIS
- o Fisher Friend Mobile Application (FFMA) Control Panel– Operating the FFMA Control Panel – a detailed manual

The audio programmes are repeatedly relayed through Internet Radio and through VRC and VKC networks, Community Radio network of education institutions and local Public Address System network. The Video CDs are shown in the VKC villages using K-yan PC projector.

## Training Modules and Contents developed by VRCs

Apart from Chennai VRC, each VRC is developing a number of training modules with the help of local experts and the communities.

Thiruvaiyaru VRC

- Vermicompost (PowerPoint) 0
- Komari disease (PowerPoint) 0
- Computer problems Troubleshooting (PowerPoint)
- System of Rice Intensification (PowerPoint) 0
- Detergent powder preparation (PowerPoint) 0
- Controlling red palm weevil in coconut (Video) 0
- Microsoft Unlimited Potential Programme Course Material in Tamil 0 (Text)

## Nagapattinam VRC

- Fish and prawn pickle preparation (PowerPoint)
- Turtle Excluder Devices (PowerPoint) 0
- Diesel engine mechanism (PowerPoint) 0
- Hygienic handling of marine products during fishing and processing (PowerPoint)
- System of Rice Intensification
- o Career Guidance

## Thangachimadam VRC

- o Eye camp awareness (Video)
- Microsoft Unlimited Potential Programme Advertisement (PowerPoint

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- Value added fish products Fish pickle preparation (PowerPoint + Audio)
- Wind Direction Map and Period (based on traditional knowledge of fisher folk) (Line Drawing)

- Microsoft Unlimited Potential Programme Course Material in Tamil (Text)
- Chinnapalam village (Map, Line Drawing, Data, Seasonal Mapping fish catch, festivals : Booklet)
- Evacuation route map, Vulnerable area, Time line series, Issues of
- o 12 stages of cyclone warning symbols based on harbour flags (Photographs + Text)
- GPS handling Step by step procedure (PowerPoint)

- Turtle Excluded Device (TED) (PowerPoint + Video)

## Annavasal VRC

- National Rural Employment Guarantee Scheme (PowerPoint)
- Technical guidance for computer trouble shooting (PowerPoint) o Guidance for writing news in information board (PowerPoint)

## Puducherry VRC

- Foot and mouth disease (PowerPoint)
- Mastitis (PowerPoint)
- Selection of cows (PowerPoint)
- Basic hardware learning module (PowerPoint)

• Making sea shell ornamentals (PowerPoint + Audio)

- "Kadal Valikatti" International Sea Border Route Map (Map)
- Diesel engine mechanism training tool kit (Line Drawings + Text)

- Awareness on HIV / AIDS (PowerPoint)
- Hygienic handling of fish processing (PowerPoint)
- Prawn pickle making (PowerPoint)
- Right to Information Act (PowerPoint)
- MUPP curriculum Digital media (PowerPoint)

Breast cancer (PowerPoint)

- Coconut Eriophid mite control (PowerPoint)
- Moringa cultivation practices (PowerPoint)
- About the formation of soil and soil types (PowerPoint)
- Integrated pest management Paddy (Flash)
- Clean milk production (PowerPoint)
- Fundamentals of basic computer literacy (PowerPoint)
- o Bird flu (PowerPoint)
- o National Rural Employment Guarantee Scheme An introduction (Video)

## Nagercoil VRC

- Dry fish making (PowerPoint)
- Importance of sea turtles (PowerPoint)
- Value added products Fish Cutlet (PowerPoint)
- Value added products Fish Pickle (PowerPoint)
- Value added products Fish Wafar (PowerPoint)
- Value added products Masala Dry Fish (PowerPoint)
- Value added products Shark Fin Rays (PowerPoint)
- o Preparation of Tuna Masimeen Smoked fish made from Tuna (PowerPoint)

## Sempatti VRC

- Vermi Compost (Video)
- Veterinary Camp (Video)
- o Eriophitmite control in coconut (PowerPoint)
- Tomato cultivation practices (PowerPoint)
- Mushroom cultivation (PowerPoint)
- Coco cultivation in intercropping in Coconut (PowerPoint)
- Safe water production (PowerPoint)
- Soil health management (Audio)
- Computer system trouble shooting (PowerPoint)
- Water pump functions and service (PowerPoint)

#### A small selection of satellite-enabled video conferences

Date	Title of the Programme	<b>Resource Persons / Institutions</b>
09.02.09	'Orientation and guidelines to VRC staff on soil sample collection, soil testing camps in villages and test results dissemination with advisories'.	Mr. J.Srinath, MSSRF and Mr. V. Palaniappan, Advisor
13.02.09	Review of Rural Placement Programme of 4 students from Kalinga Institute of Information Technology (KIIT), Bhubaneswar, Orissa	Mr. J.Srinath, MSSRF
13.02.09	Review with Pondicherry and Thiruvaiyaru VRCs on Installation and preparation of short key for IFFCO's Agri Content portal in Kuruvinatham VKC and Thiruvaiyaru VRC	Mr. J.Srinath and Mr. P.Sivakumar, MSSRF
19.02.09	'Panchayati Raj Institutions: sharing the awards won by the Presidents and Members, their experiences and their rights, powers and responsibilities'	Ms. Lalitha, State Coordinator, The Hunger Projects, Chennai.
20.03.09	Interaction with rural communities of Puducherry and Nagapattinam	H E Dr. Michelle Bachelet Jeria, President of the Republic of Chile
09- 10.04.09	Virtual Training to Vidarbha Technical staff on evaluation of MUPP theory and practical	Mr. P Sivakumar
10.04.09	Orientation to VRC staff on Short Content selection and preparation for IKSL Voice messages	Ms. Sumathi
16.04.09	'Reproductive health & Gynecological problems, Nutritional deficiencies, Hygiene practices and Nutritional requirements for Adolescent girls'	Dr. Soumya Swaminathan, Scientist F, Tuberculosis Research Centre, Chennai, Dr. Vijayalakshmi Seshadri, Consulting Gynecologist & Obstetrician, Sundaram Medical Foundation, Chennai and Dr. Rama Narayanan, Advisor, MSSRF
09.05.09	Potential fishing Zone information to Fishermen using INCOIS Electronic Display Board	Dr. T. Srinivasa Kumar and Dr. M. Nagaraja Kumar INCOIS, Hyderabad Prof M S Swaminathan, Chairman, MSSRF Dr. Ajay K Parida, Executive Director, MSSRF
11.05.09	Technology Day - Launching of 'Digital Literacy Course of MS Office' by Indiss Infotech Solutions Pvt. Ltd. and interaction with Rotary Club Members for their support to VKCs and the rural communties shared their experiences of how they utilize the VRCs and VKCs through different technologies and their impact	Prof. M.S.Swaminathan, Rtn. K B Sridhar, Executive Director, Indiss Infotech Solutions Pvt. Ltd and Ms. Asha Priya Sridhar, managing Director, Indiss Infotech Solutions Pvt. Ltd. Dr. Ajay K Parida, Executive Director
30.10.09	Technical guidance	Mr. P Sivakumar, Mr. Rajamanickkam, MSSRF, Chennai





content







