



ACHIEVING CONVERGENCE WITH NATIONAL MISSIONS AND OTHER INITIATIVES

Third Convention of the National Alliance





Achieving Convergence with National Missions and Other Initiatives

Third Convention of the National Alliance

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Mission 2007 Secretariat



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Mission 2007 Secretariat

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Foreword

Seemingly impossible tasks can be achieved by mobilizing the power of partnership. This is the purpose of the National Alliance for Mission 2007, which provides a platform for working together by all committed to the cause of Rural Knowledge Connectivity. The Government of India has included knowledge connectivity in the Bharat Nirman Programme or a New Deal for Rural India. The Government of India has also initiated many new missions, such as the Rural Health Mission, Horticulture Mission and Financial Inclusion and is also committed to strengthening Panchayats and grassroots democratic institutions. It is only convergence and synergy among numerous ongoing programmes that can help us to leapfrog in achieving our goals surely, speedily and economically. Therefore, the focal theme of the annual meeting of the Mission 2007 held in Chennai on July 28-29, 2006 was "Achieving Convergence with National Missions and Other Initiatives". The present publication contains the proceedings of this convention.



M S Swaminathan

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S. Senthil Kumaran

Secretary - Mission 2007 Secretariat

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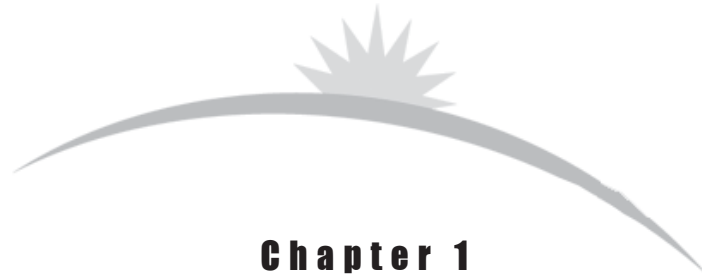
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Chapter 1

Mission 2007: A Coalition of the Concerned

The Mission

The National Alliance for Mission 2007 was established with an initial membership of 40 institutions during a national consultation on 19-20, May 2004, organised by MSSRF. Since then, the membership has grown to 130. A National Policy Maker's workshop was organised on 9-10 July 2004, which was the first convention of the Alliance. The second Annual Convention was held in July 2005. The third Annual Convention, held on 28-29 July 2006 at IIT Chennai, provided an opportunity to its member institutions to reflect on and rededicate themselves to the Mission, to deepen the collective vision for the Mission over a larger time-frame and to work out strategic partnerships as the Mission moves from its initial policy advocacy phase to a phase of rapid expansion through implementation of projects across the country.

The report on Policy Maker's workshop (2004) noted:

"The capacity and potential of ICTs to make large amounts of relevant information quickly and easily available in remote places has strengthened and increased its utility for rural development in India. The innovative and successful application of ICTs in the agricultural and rural development sector by corporate and civil society organisations has improved the possibility of the use of ICTs to enrich the livelihoods of the rural poor."

The National Alliance drew inspiration from the innovative initiatives of a number of agencies in different parts of the country. Some of the pioneering ICT development efforts were the Information Village project of MSSRF, ITC's *e-choupal*, Drishtee's Info Kiosks, n-Logue's information entrepreneurs, community Info Centers of NIC, etc. The need to scale up these efforts at a national level so as to usher in a knowledge revolution in rural India is what brought the partners together under the collective banner of Mission '07.

The Mission simply stated aims at:

"Taking the tools of ICT for enhancing agrarian and rural prosperity and well-being on the principle of social inclusion in access to technology."

Implicit in this Mission is the goal of ending the growing chasm between rural and urban India. While urban and industrialised India has witnessed impressive growth in the economy in recent years, for more than 700 million people in rural India, life continues to be an unending struggle for survival. Such a pattern of growth cannot be expected to provide stability nor can it be maintained on a sustainable basis.

The principle of social inclusion does not end there. Past experience of development agencies in rural areas have shown how the marginalised and oppressed sections of society, including women can be excluded from all such interventions by the dominant class/caste groups, unless these are designed on the principle of social inclusion. In fact, the access to knowledge and information by such groups is seen as the key to their socio-economic empowerment.

Vision

While the immediate goal of the Mission is “taking ICT to every village in the country through a multi-pronged strategy to a substantial extent by 60th Anniversary (15th August 2007) of Independent India”, the experience gained over the past two years has helped to give shape to a long term vision that goes far beyond.

Such a vision encompasses development of knowledge networks at three levels:

- a. Block level - thanks to the rapid technological developments by ISRO, satellite connectivity with tele-conference facilities can be made available to Village Resource Centers at the block level.
- b. Village Level - *Gyan Chaupals*, info kiosks, village knowledge centers, operated either by community based organisations, SHGs or local entrepreneurs, would be established in such a way as to cover all six million villages of India.
- c. Hamlet level: for remote hamlets not touched by the VKCs, it is proposed to make use of other communication devices like community radio, cell phones, etc to make the information/ knowledge accessible to such hamlets.

The establishment of communication networks and rural knowledge centers on the scale visualised by the Mission is unprecedented anywhere in the world and can only be achieved through the collaborative efforts of all partners. Even more challenging is the task of converting these physical assets into genuine knowledge centers, which people are proud to own and support because they value the potential of these in transforming their lives.

A massive capacity building initiative is visualised to train at least one female and one male for each of the one million village knowledge centers. The Jamshedji Tata National Virtual Academy established in August 2003 by MSSRF has demonstrated how to prepare rural youth as knowledge workers and to identify local leaders/ experts and community mobilisers as NVA Fellows. It is expected that other partners will come forward to help strengthen this capacity building initiative and expand its reach to all parts of the country.

At the Governance level, it is visualised that knowledge centers will partner with the Panchayati Raj institutions. In villages where VKCs are established as common property resources, a

local committee with representation from different social groups will need to be established. Building the capacity of such CBOs/ governance institutions is necessarily process intensive and may have to be continued over an extended period of time.

The vision of the Alliance includes the idea of making these knowledge centers / kiosks sustainable in the long run. Given the importance of this issue, an exclusive panel discussion was organised at the convention to discuss its various facets.

The Mission believes in building partnerships to exploit synergies, reduce costs and avoid duplication. The theme of the 3rd Annual Convention was precisely to work out the scope and modalities of achieving convergence with National Missions and other major initiatives of the government.

The Mission has adopted an ecosystem approach to interventions and would strive to maintain a basic unity of purpose while fostering a diversity of methods and approaches.

Methods and Models

There exists a plethora of perspectives on what a knowledge center or Info kiosk can do, how it should be operated and how it could be supported. This has led to a variety of models and approaches. Some of the important ones are listed:

- a. Community managed *Gyan Chaupals*: This draws upon the work of MSSRF in promoting VKCs as common property assets of the community.
- b. Commercial Model: This refers to the information kiosks set up by commercial organisations, which help to open up rural markets while eliminating middle-men, reducing costs and making products and services available to the farmer at his/her doorstep.
- c. Semi-commercial model: Some commercial models, such as ICT's *e-chaupal*, have added on to their portfolio services with social benefits, such as health, education, etc. In the process, they have got transformed from purely commercial to semi-commercial initiatives.
- d. Public-private partnerships: The recent CSC (Community Service Center) scheme proposed by the DoIT provides opportunities for public-private partnership. While the central government would provide the framework for partnership, the state governments would implement the programme in collaboration with private companies and civil society agencies.
- e. ICT-SHG model: SHGs have also been tapped to run knowledge centers as an economic activity. Some of these are being financed through NABARD.

Guiding Principles

The Mission uses a set of core guiding principles or values to steer the fleet of initiatives under its banner. Some of the important ones are:

- Building partnerships for sharing resources (satellite connectivity, hardware, software, etc) as well as knowledge and experiences, etc.
- Ensuring last mile connectivity and last person connectivity
- Providing location specific, demand driven, dynamic information to rural communities
- Achieving sustainability through revenue models and social benefits
- Social sustainability through social inclusion and empowerment of the marginalised sections of society as well as women.

The Journey so far, and its impact

The membership has been growing progressively and as the word spreads, this is likely to grow even faster, giving momentum to the movement. Some of the important developments are listed:

- i. In its first two years, the Mission worked intensively on creating a favourable policy environment for ICT initiatives in rural areas to flourish. The policy advocacy has borne fruit, with the GOI including ICT as an important strategy in its *Bharat Nirman* (New deal for rural India) programme.
- ii. The international and bilateral donor agencies have rallied around the Mission and formed an International Support Group (ISG) with fifteen member institutions. The group sees itself not just as a channel for funding, but also as the Mission's interface with the outside world in terms of documenting and sharing knowledge.
- iii. The 3rd Annual Convention has facilitated dialogue between the Mission and other National Missions and national initiatives of the Government. This dialogue is likely to lead to convergence in the areas of health, literacy, employment guarantee scheme, PMs Special scheme for distress hotspots, etc.
- iv. The Mission has catalysed a variety of innovations and initiatives. Some of these include:
 - The Government of India's Community Service Center scheme
 - Microsoft's Saksham programme
 - ITC *Gyan Sagars* and *Gyan Chaupals*, which use "The Hub and Spokes model"
 - ISRO's Village Resource Centers
 - NABARD's ICT SHGs
 - The Ministry of Panchayati Raj's offer to house all VKCs in the Panchayat buildings

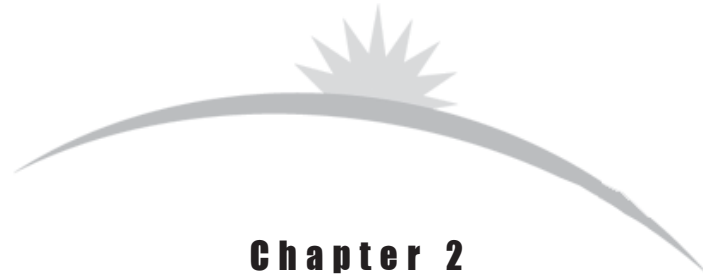
Details of these and many other such initiatives are provided in this report.

- v. A number of partners chose the Convention to launch some of their new initiatives either jointly or individually. These include:

- Rural Innovation Fund launched jointly by IDRC and Microsoft
- UNESCO's e-warehouse
- Several innovative technologies and products show-cased by various public and private companies at the Technology Pavilion.

Organisation of the report

The rest of the report is divided into seven chapters. Chapter two is drawn from the inaugural session of the convention and provides fresh perspectives on the Mission. Chapter three focuses on the theme of the convention and seeks to identify concrete ideas for convergence with the national missions on health and literacy, with *Bharat Nirman*, and National Rural Employment Guarantee Act. The scope for convergence with the PRI institutions is also explored. The next chapter continues with the theme of convergence, but this time, it is about partnership between members of the National Alliance. Chapter five provides a brief review of the various ICT innovations and initiatives triggered by the Mission in different parts of the country. Chapter six is an attempt to capture the debate on the issue of sustainability while scaling up ICT experiments. Two distinct perspectives or schools of thought are brought out through the discussion that occurred during a special panel on the subject and at various points during the convention. Chapter seven provides guidelines and ideas for different thrust areas including content generation, capacity building, care and management and coordination. The last chapter provides snapshots from the valedictory function.



Chapter 2

Fresh Perspectives on the Mission

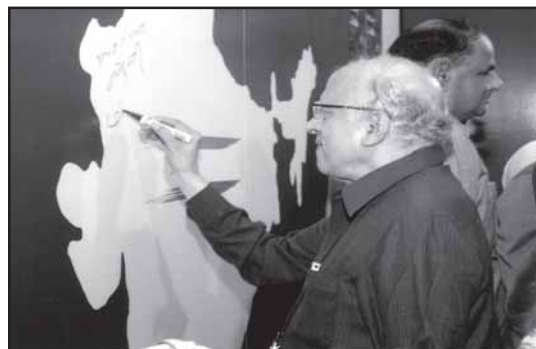
The Inaugural session of the Convention proved to be a useful exercise in perspective building. Presented below are some of the views expressed by leaders from Government, public and private sectors, civil society, and academia.

The Pathway to *Poorna Swaraj*

Starting from a small beginning in 2003, the Mission has become a large movement with about 130 partners. It represents a broad spectrum of partnership with a commitment to take information technology to the poor without compromising on the principle of social inclusion.

The aim of the convention was to explore how far the Mission could be a source of strength to other Missions (such as National Health Mission, Literacy Mission, etc) and new initiatives of the Government (for instance, the Prime Minister's scheme for 31 districts identified as distress hotspots). On May 1st, Maharashtra day, MSSRF initiated knowledge centres in Vidharbha, which had experienced a spate of suicides by farmers in the recent past. In these centers, the widows among others are being empowered with information and linkages that can help them to revive their agriculture, emerge from the debt trap and pick up the threads of their lives.

It is worth revisiting the message of Mahatma Gandhi who believed that "*Gram Swaraj* is the pathway to *Poorna Swaraj*". India ranked 159th out of 206 nations in terms of GDP and per capita income. As long as the 70 % of the population, which lived in the villages was kept out of mainstream development, India would not be able to progress further. The Planning Commission in its 11th plan document had identified "knowledge deficit" as one of the major impediments to



rural development. The Mission partners want to ensure that we do not end up with “digital apartheid” in our country. With the power of partnership, it is possible to accomplish seemingly impossible tasks. In this convention, the partners had come together to rededicate themselves to the Mission and speed up the tasks in front of them. (*Prof. M S Swaminathan, Chairperson, MSSRF and Mission 07*)

ICT: An Opportunity We Cannot Afford to Miss!

ICT represents an enormous opportunity for developing India, in particular rural communities. “In the 19th century, in the era of industrial revolution, we lost the opportunity as we were slaves. In the 21st century, in the era of knowledge, we are not slaves. Therefore, we cannot afford to miss this opportunity!”

The state of Gujarat has already made rapid strides to tap this opportunity (see Box 2.1). The experience has provided a number of insights that could help the Mission scale up quickly and in a sustainable manner. Some of the key ideas are presented below:

Linking modern thinking with traditional wisdom:

It would be a mistake to try and “inject” knowledge in the rural country side. The farming communities have their own knowledge and experience. What is needed is to create a bridge between modern thinking and traditional wisdom. It is vital to preserve the “soul of rural India”.

Horizontal networking with vertical connectivity:

Horizontal networking is very important as it will allow the villagers to share experiences and best practices amongst themselves. Vertical connectivity is also needed to support these horizontal networks. These networks would make it possible to collect information on a variety of aspects other than agriculture and livelihoods. For example, in the area of sports, if we can get the information on talented rural youth we can develop the best sport-persons to compete at international levels. In the area of entertainment, there is a huge diversity of folk music and dance, which can be tapped and developed further. In this way, the different types of potential in the rural areas can be developed.

Box 2.1 ICT initiatives in Gujarat

A multimedia presentation entitled “ICT in Gujarat: Movement for a Better Life” was screened at the Convention, which focused on the progress made by Gujarat in harnessing ICT4D. The presentation included highlights from different initiatives taken in Gujarat such as *Tele-fariyad* (a grievance resolution system using ICT) *Gyan Ganga* (providing knowledge to 18000 villages through ICT) and *Swagat* (a grievance resolution system where officers attended to peoples problems on every fourth Thursday of the month). Other initiatives included *e-dhara*, *e-gram*, *Jan Seva Kendra*, *Tele-medicine*, *Karma Yogi*, *Maha Abhiyan*, etc.

Addressing the problem of mindset:

Regarding the problem of digital divide, the problem is one of the mindset. Once we are convinced that there exists a lot of potential in rural areas, it does not become difficult to overcome this problem. The problem of mindset is also to do with not utilizing the full potential of ICT. For instance, 80 per cent of the people use mobiles only for making calls or for SMS. In the eighties computers were used as 'flowerpots' by many government offices. Later these became like cupboards!

Need for a long term vision:

It appears that "we have lost our wisdom in knowledge; lost our knowledge in information and lost information in data". This trend needs to be reversed. There is a need to develop a long term vision for the mission.

ICT through rural school teachers:

The teachers in the rural areas represent a valuable human resource. Development planners are not utilizing their energy in an optimal manner. Their energy is being dissipated in all kinds of miscellaneous services. If provided the right kind of training, rural teachers could take the knowledge revolution a long way.

Importance of physical connectivity:

Physical connectivity is as important as knowledge connectivity. Physical infrastructure, such as access roads, reliable and uninterrupted power, drinking water facilities, etc. is necessary to provide the minimum facilities required to stay in villages. Once these facilities are provided, people who are motivated to change society, will prefer to stay in rural areas. The success of ICT in Gujarat could be traced to the fact that the Government had been largely successful in providing such an infrastructure.



Local technology in local language:

"Science is universal, but technology must be local". This technology must be communicated in people's own language (language here also implies culture, body language and communication styles characteristic of different communities and regions). There is a need to create an atmosphere within society whereby the people become eager to invite and assimilate new technology.

Need for collaboration with the private sector:

Not enough private sector companies are coming forward to meet the challenges of the rural sector. There is a need to encourage private sector participation in a big way. The Gujarat government invites private companies to select a village of about 3000 population

to provide solutions to its problems over a period of two years with the help of ICT. The government would match their efforts by providing investment in infrastructure. An international referee would be invited to select the best company, which would get a prize of Rupees one crore. (*Shri Narendra Modi, Chief Minister, Gujarat*)

Linking Polity and Economy at the Grassroots

Need for course correction

India has ranked 8th in the world in the list of millionaires. However, when it comes to human development index, the rank is only 127th. This is a signal that if we do not take course corrections, the disparity would widen even more and create unprecedented problems.

Political miracle

The most significant achievement of India after independence is its democracy. India has 2.5 lakh local bodies and 32 lakh elected representatives of which 12 lakh representatives are women. This is nothing short of a political miracle, which, unfortunately, has not been taken note of by the media.

Convergence with PRI institutions

Effective institutions of governance are needed for any developmental work in the rural areas. For instance, one cannot conceive of an effective VKC without a suitable mechanism of governance. Village panchayats offered such a governance structure. **All VKCs could be housed in the premises of the 2.47 lakh village panchayats.** Gram Sabha meetings could be held in the premises to educate the village community and they, in turn, would communicate their requirements.



VKCs can exponentially increase the performance in all the three important areas of development, viz., education, health and livelihoods. In the field of education, the best teachers of any subject would be able to take classes in remote schools through VKCs and instruments of education can be used for educational purposes. Similarly, if health care was provided to remote villages through tele-medicine, people would automatically turn up to the knowledge centres. In the area of livelihood also, there is a tremendous potential. VKCs should provide a link between urban entrepreneurs and rural economy.

To address the problem of reliable electricity, there is a need to establish decentralised energy production. In Karnataka, the Panchayats have signed 22 MOUs with electricity manufacturers for utilizing agri-waste for generation of electricity. However, in order to achieve all this, it is imperative to link polity with economy at the grassroots level. The VKC and the panchayat should, therefore, be linked at the level of governance. In this way, it

would be possible to reverse the order of our achievements viz., 8th in HRD index and 127th in the list of millionaires. (*Shri Mani Shanker Iyer, Minister of State, Panchyati Raj Institutions*)

Building ICT Models with People at the Base

No previous generation has had the opportunity to lift as many people out of poverty as ours. Although India has 1/3rd of the software engineers in the world, about 1/3rd of India's rural population continues to live under sub-saharan and African conditions. Social indicators seem to indicate that economic growth will run out of steam unless social issues are addressed urgently. Such inequitable conditions are not sustainable in a large democracy like ours.

Mission '07 recognises the importance of knowledge and accessible information in empowering people, which in turn would enable them to:

- Reduce transaction costs
- Provide market access
- Increase transparency
- Eliminate middle men
- Increase education and medical facilities
- Put more money in their pockets.

The challenges of lifting a country out of poverty cannot be left to the government or charitable institutions alone. The best way to achieve it would be through business innovations and business models with people at the base, as suggested by management guru C K Prahalad. The rural population should not be seen as a burden and its economy should be unlocked. This is something the Mission also recognized and has started working towards.

During the recently concluded Steering Committee meeting of the Mission, a stock taking exercise was carried out. A number of positive points came out of the discussion:

1. *Building coalitions* - On this front, the Mission had done well as it had already grown to 130 members. In addition, the International Support Group, was formed in Oct. '05 which had 15 institutional partners, represented the Mission's global partners.
2. *Connectivity* - Rural tele-density is only 2 per cent as compared to 30 per cent in urban areas. Hence, there is an urgent need to improve the connectivity in rural areas. Some progress has been made in making access devices affordable to rural communities, e.g. Intel has launched "community PC", which is suitable for rugged conditions in rural areas and Microsoft has developed affordable software for entry level users. Microsoft is also developing new business models, which involve flexible payment schedules for hardware and equipment.
3. *Convergence of resources* - There are seven departments and four missions and numerous corporate entities, civil society organisations and donor agencies working

in the rural areas, but there is a total lack of synergy. What is needed is to stitch together an ecosystem of partners, which would lead to convergence of resources.

4. *Capacity building* - In a recent study of 350 kiosks, Microsoft found that the manner in which the kiosk operators were selected and trained, made all the difference between success and failure. In the national e-governance programme, the money spent on training is inadequate. The Jamshedji Tata National Virtual Academy has demonstrated how effective training can be imparted to rural youth. There is a need to scale up this model.
5. *Content and services* - Content must be relevant and affordable to the people. Local content creation is possible in a decentralized scenario. Innovative software applications are being developed and should be promoted further. For example, Voltex Tech. of Hyderabad has developed an application for MPs to track the performance of their constituencies and to take care of grievance redressal. **(Ravi Venkatesh, Chairman, Microsoft)**

Need to Promote Rural Entrepreneurship

Given the emerging crisis in the rural areas, there is no option but to scale up ICT initiatives for rural development. 700 million people reside in rural areas. Urban growth will not continue if the needs of rural people are not taken care of. India is in a unique position to make the knowledge revolution a reality and to show it to the rest of the world.

The three main deliverables are *education, health and livelihood*. The issue of sustainable livelihoods is most crucial. The "green revolution" led to change in rural lives through augmentation of agricultural productivity. However, recent years have witnessed a levelling off of agricultural growth. The Mission must recognise that the information needs of the farmers today are very different. They need plot-specific advice in order to improve productivity. ICT can help to cater to such needs.

In the area of hardware, the costs are coming down but power still remains a problem in many parts of the country. This is because it gets the leftover power after the needs of urban areas have been satisfied. It is difficult to make the knowledge centres work in such areas. Decentralize energy production can help to tackle this problem.

Another problem area is training. "We seem to have failed to provide the right kind of training to the people involved. We need to provide not just computer training, but also



1 *Strategic Analysis* (March 2005)

training for service provision and for entrepreneurship." (*Dr Ashok Jhunjhunwala, Faculty IIT, Chennai*)

Need for Strategic Thinking

Future Trends:

A recent forecast by Global Enabling Technologies¹ shows that the growth of converged mobile devices is outstripping all other devices like desktops, notebooks, smart phones, etc. The estimated current global demand for such devices is 863 million, which is expected to reach 1020 million by the year 2010.



Strategic thinking:

In order to maximise their socio-economic impact, these hand-held devices should focus on three strategies: a) broadband b) broadcast (including narrowcast) c) developing an ecosystem of devices and applications. QUALCOMM was already working in this direction:

- a. *Broadband:* The Wide Area Multiple Access technologies with the greatest potential are CDMA 2000, WCDMA and OFDMA.
- b. *Broadcast:* Wide area multicast technologies have been developed for operators using the above technologies. Media FLO technology has made it possible to transmit programmes from a TV to cell-phones. The video quality is equivalent to QVGA, 30 fps.
- c. *Devices and Applications:* Under its BREW programme, QUALCOMM will award five grants totalling \$ 500,000 for the development of the most innovative proposals for a BREW community application in the following areas: health care, education, public safety, governance, environment. The winning developer's BREW applications will be launched through a new or existing wireless Reach project with an additional \$ 500,000 investment. (*Mr Nikhil Jain, CTO, QUALCOMM*)

¹ *Strategic Analysis* (March 2005)



Chapter 3

Convergence with National Missions and Government Initiatives

National Rural Health Mission (NRHM)

Overview of NRHM

The NRHM was launched by the Honourable Prime Minister in the month of April last year. The rationale for the NRHM was the emergence of a serious crisis in the health sector. As it is well known, many public health facilities are not functional. In many places, where there are doctors and nurses, the drugs are not available. There are a large number of vertical programmes, such as drinking water, sanitation, malaria programme, HIV, etc. without any convergence. Infant mortality is very high and performance on other indicators of health, such as maternity mortality, communicable diseases, etc. are also not very good. The total fertility rates are unacceptably high.

NRHM is a response to this crisis. The goals of the mission are to provide affordable and quality health care to the rural population, especially the vulnerable sections and to reduce infant mortality, maternal mortality and total fertility rates. To achieve this, the Mission was making architectural corrections and addressing the problems related to absence of doctors, lack of infrastructure and convergence with other sectors. The most

important strategy as far as the NRHM is concerned is the placement of woman health activist called Accredited Social Health Activist (ASHA) in every village in India. At the moment, there are activists in ten states in India. At the end of 7 yrs, there will be one million ASHAs in the country covering all the states. This is going to dramatically change the Indian health sector. The Mission has been given priority since 4 of the 8 MDG goals are related to health.



It is also likely to lead to empowerment of women. **(Mrs S. Jalaja, Additional Secretary Department of Health, Ministry of Health and Family Welfare)**

Scope for Convergence:

The frameworks of both the missions overlap with each other. The vision of NRHM is based on Nehru's vision of rural communities where community welfare is achieved through collective action and where economy, education, health are the important sectors of a village. Decentralisation, community involvement and public-private partnerships are given a lot of importance in both the missions. **(Mrs S. Jalaja, Department of Health)**

We have an uncommon opportunity to enlist technology as an ally for health. The NRHM and Mission 2007 have a lot in common. For example, "timing"— both the missions are running concurrently. This is a good time to make a beginning because of the collective leadership provided by a group of enlightened bureaucrats in the Health Ministry, at the central government level. **(Ms Poonam Muttreja, Country Director, The John D and Catherine T MacArthur Foundation)**

What can Mission 07 do for NRHM?

- There are 18000 health facilities in the country, which need connectivity in order to enhance their performance. The health system should get connected to the larger system.
- ASHA's performance can also improve if the workforce can support her with knowledge services and the registers can be computerized. Health related information can be computerized and made user friendly. This can be done through technologically trained skilled people. In this way they can become an important source of education and information in the village.
- Under National Security for Nutrition, ASHAs are expected to play a key role by mixing with the children at the *Anganwadis*. At the *Anganwadis*, other health workers can come together to provide immunisation programmes, antenatal, prenatal checkups anti-malaria drugs, etc.
- ASHA is based in remote villages and the primary health care centre could be miles away from the village. Hence, she may find difficulty in corresponding with the doctors regarding the health of the villagers. *Virtual OPDs* can solve this problem and enable ASHAs to talk to the doctors.
- The Department is spending about 9500 crores of rupees annually at the sub- district level. It needs to track these funds with speed and precision. A health management information system (HMIS) needs to be developed. At the moment, the Department lacks a good system of data collection and data transmission. Besides, ASHAs are not able to communicate with senior officers and others.
- The mission can also provide health related information through e-governance.

- Tele-medicine is proving to be a revolution in the health sector and these efforts need to be scaled up.

However, there are a few notes of caution:

- There exist a plethora of schemes (2027 to be exact) related to health and allied subjects. How to integrate all these without having too many vertical programmes is a challenge.
- The existing programmes need to be strengthened with ICT technology. Before introducing technology, mobilization of the community is necessary. If the community is not mobilized, it will amount to a super-imposition of technology on the people and they will not understand or use the same.
- The technology that the villagers seek must be need-based. If there is a case of a snake-bite, one must know where to go and how to administer first-aid. Thus technology is related to a person's need.

A beginning can be made by initiating pilot experiments in different states. It is expected that creating awareness through ICT will lead to better health seeking behaviour and services. The co-operative principle should be followed – “all for one and one for all”. This would require everybody to participate and contribute actively. **(Mrs S. Jalaja, Additional Secretary, Department of Health, Ministry of Health and Family Welfare)**

Potential areas of collaboration:

There are four areas with extraordinary potential for collaboration and there is urgency for the ICTs to make a difference:

1. Promoting accountability
2. Changing public attitude
3. Creating access to information on health services
4. Training of health workers

1. *Promoting Accountability* - There is a need to monitor public expenditure and also to monitor not only the outlay, but also the outcome. All the accounts should be computerized at all levels, specially, at the Panchayat level. In the age of electronic banking, all the transference of money should be communicated to the community and people should keep an eye on public funds; in this way, corruption can be minimized. Also tendering contracts can be done electronically. Dr L C Jain (Planning Commission) has recommended fiscal decentralization, which will involve decentralization of expenditure upto Rs. 10 lakhs per district and upto Rs. 10,000/- per centre. It will be possible to transfer the amounts electronically, but people will have to be provided the information in order to ensure that corruption is not decentralized!

Accountability need not be viewed in terms of money alone. Just as we have “missing teachers” in the primary schools, we may have “missing ASHAs” and “missing doctors”. The system should ensure that field level functionaries are present in the village and doing their job.

Perhaps the most corrupt sectors in our country are education and health. This is because of the lack of knowledge and information among the people. ICT can provide a means of tackling corruption in the delivery system by providing information on the posting of health workers, prices and quantities of drugs provided to PHCs, etc. through the KVCs. Thus, ICT has a major role to play in promoting accountability.

2. *Changing public attitude* - The role of ICT remains somewhat unclear so far as changing people’s behaviour is concerned. Providing knowledge is not enough. It is about how knowledge can lead to behavioural change. There is a lot of discrimination against women and girl-child in this society. Perhaps ICTs can provide knowledge, which will change the behaviour of the doctors, family members and society at large. The recent ban on smoking in films is another example. This shows how, to a large extent, films have played a major role in influencing people. So maybe ICTs can also influence people’s behaviour through knowledge. It can stimulate public debate and lead to public action.
3. *Access to information on health services* – ICT can help to monitor the availability of drugs and provide vital information to the villagers such as location of nearest blood bank to a village in case of an emergency, the nearest doctor to be contacted, details of the nearest health care centre, etc.
4. *Training* - In the area of training of health workers, ICT can make a difference through distance learning.

The Mission should not be about reaching a few people, but it ought to “Reach ALL”. We are now saying “health for all”, “ICT for all”. Thus there is a big possibility of a marriage between NRHM and Mission 2007. *(Ms Poonam Muttreja, Country Director, The John D and Catherine T MacArthur Foundation)*

Linking with Sarva Siksha Abhiyan (SSA)

Overview of the Abhiyan:

The need for the *Abhiyan* has been triggered by a basic and substantial failure in educating our children. The rate of dropouts in the range of standard 1 to 8 is close to 60 per cent in rural areas. The people need basic numeracy and literacy as well as analytical skills and tools to harness resources from their environment. This failure can be attributed to the inability of literacy programmes to engage communities and also due to lack of resources and infrastructure, lack of trained teachers and quality teaching material. The *Abhiyan* seeks to address all these problems in a mission mode. *(Mrs. Aruna Sundararajan, IAS, Chief Executive Officer - CSC Project)*

SSA is Government of India's flagship programme for the achievement of Universalization of Elementary Education (UEE) in a time bound manner, as mandated by 86th amendment to the Constitution of India, making free and compulsory education to the children of 6-14 years age group, a fundamental right. SSA is being implemented in partnership with State Governments to cover the entire country and address the needs of 192 million children in 1.1 million habitations. The programme seeks to open new schools in those habitations, which do



not have schooling facilities and to strengthen existing school infrastructure through provision of additional class rooms, toilets, drinking water, maintenance grant and school improvement grants. Existing schools with inadequate teacher strength are provided with additional teachers, while the capacity of existing teachers is being strengthened by extensive training, grants for developing teaching-learning materials and strengthening of the academic support structure at a cluster, block and district level. SSA seeks to provide quality elementary education including life skills. SSA has a special focus on girl's education and children with special needs. SSA also seeks to provide computer education to bridge the digital divide.

A distinctive feature of the *Abhiyan* is to bring about community ownership of the school system by effectively involving the Panchayati Raj Institutions, School Management Committees, Village and Urban Slum level Education Committees, Parents' Teachers' Associations, Mother Teacher Associations, Tribal Autonomous Councils and other grassroots level structures in the management of elementary schools. (<http://ssa.nic.in>)

Scope for convergence:

Even the smallest of interventions to augment the training material and quality of training imparted can make a huge difference to the educational system. Clearly investments in education will yield the highest dividends in the long run. Various innovative models to harness ICT for education have been developed under diverse situations by different agencies. For example, the MSSRF has set up ICT resource centers in Pondicherry; MP government's ICT resource centres have done sterling work in drawing children into learning and also facilitating teacher training programmes; Azim Premji Foundation's programme and Intel's Teach to the Future programme have tried to reinforce and enhance classroom teaching.

These represent good models of ICT in the service of education and are being incrementally scaled up. However, this is not enough. The need of the hour is to scale up these models in a massive way. *The education mission should not be seen as one more mission that Mission '07 empowers; rather it should be the primary mission.* This calls for a joint effort from all

stakeholders across the spectrum – villagers, service providers, policy makers, technologists, etc. They should all make a concerted effort and must come together in order to bring about a revolution in the sector.

Potential linkages with Mission 07:

Some of the potential benefits of bringing about convergence between the two missions are:

- Teachers (Indian as well as international) can network amongst themselves and share best practices.
- In the present system of education, quality continues to be a major problem. Even after 5-6 years of schooling, children cannot compose a paragraph in their local language or do simple arithmetic. Perhaps VKCs can improve this by devising learning tools.
- Resources for self-learning can be developed and shared. NIIT came up with a programme for children to explore their creativity. ICT centers have been set up in remote tribal villages of Madhya Pradesh and the tribal children are exploring the system on their own. Children learn at their own pace through such resources.
- VKCs can become a significant delivery channel for knowledge resources and develop a two way communication.
- Lastly, VKCs, being anchored in community engagement, would help the *Abhiyan* to develop deep linkages with the community.

In this way, ICT can become a powerful tool for the literacy mission if used effectively. **(Mrs. Aruna Sundararajan, IAS, Chief Executive Officer – CSC Project)**

Linking with National Rural Employment Guarantee Act (NREGA)

Overview of NREGA:

- The Government of India passed the National Rural Employment Guarantee Act 2005 on September 2005.
- The Planning commission has identified 200 most backward districts of the country on the basis of prevalence of poverty indicated by SC/ST population, agricultural productivity per worker and agricultural wage rate. The Act is applicable to these 200 districts
- The Act gives legal guarantee of a hundred days of wage employment in a financial year to adult members of a rural household, who demand employment and are willing to do unskilled manual work.
- The choice of works suggested addresses causes of chronic poverty like drought, deforestation, soil erosion.

- Effectively implemented, the employment generated under the Act has the potential to transform the geography of poverty.
- The Act also addresses the issue of gender equity in the payment of wages. It was noticed that women turn out in larger numbers because, for the first time, they are getting salary equal to that of men.

(Dr. G Palanithurai, Professor & Head Department of Political Science and Development Administration, Gandhigram Rural Institute - Deemed University)

ICT can strengthen the implementation of the scheme in a number of ways.

- It can play an important role in overcoming muster role corruption.
- Government agencies are still struggling to get the right list of the poorest of poor. People habituated to receiving doles want to be on the BPL list permanently. Hence the scheme should go through the panchayats and the gram sabha and ICT should be used to create awareness leading to "sensible citizenship".
- PRIs could use the VKCs to promptly update the information base which is shared among public and various planning & monitoring agencies.
- Public could access the information and contribute their opinion on various issues
- The reach of web at village knowledge centers will help the GP in faster approval of their projects from Programme Officer/District Programme Coordinator.
- Also Programme Officer/District Programme Coordinator will have a clear picture of NREGA implementation in their gram panchayat/Block panchayat.
- Workers can lodge complaints and trace the redressal of the same

(Dr G Palanithurai Professor & Head Department of Political Science and Development Administration Gandhigram Rural Institute-Deemed University)

Available Software for Monitoring NREGA

NICs offering:

NIC has developed software for monitoring NREGA. The software supports both online as well as offline monitoring. The NREGA portal (www.nrega.nic.in) has been prepared & deployed by NIC in consultation with Ministry of Rural Development. Software & documents for various features of NREGA is available on the portal. Each Stakeholder can input and access information through this portal. The offline module is available on windows as well as open source platforms. The software is unicode enabled and supports all Indian languages.

The software has the following modules:

- Administrative Module
- Beneficiary Module
- Finance Module

- Works Management Module.
- Stores and Inventory Management Module
- Grievance Redress Module

The software enables a citizen to access all relevant information about the scheme and its implementation, such as: NREGA Act, operational guidelines, contact details of key officials, monthly progress report, employment status, work status, financial details, available fund at each level, job card, employment register, muster roll, issue register, etc.

Such a facility would greatly strengthen the planning and monitoring mechanism of not only NREGA, but also other poverty alleviation and development schemes:

- It provides data on BPL census, 2002.
- It would be possible to input data from the village level online and thus facilitate planning and monitoring.
- Workers can come and check their records, lodge complaints and check on the action taken on their complaints.

(Mrs Madhuri Sharma, Technical Director, of NIC NREGA, Ministry of Rural Development, GOI)

From the stable of TCS:

Some of the key challenges in managing the NREGA activities are:

- Prevention of labour-displacing machines and contractors
- Maintaining transparency in all transactions – which includes issuance of job cards, preparation of shelf of work, payment of wages, etc.
- Monitoring of rights and entitlements. According to the Act, getting a minimum of 100 days wage employment becomes a right of law for the rural families. Timely payment of minimum wages also needs to be monitored.

A software package has been developed by TCS to plug the loopholes and to develop transparency in all transactions. The software helps in monitoring of rights and entitlements and in facilitating social audit. It helps to create a robust accountability mechanism (for details, refer nrega.ap.gov.in).

(Col S S Rao, Tata Consultancy Services (NREGA))

Linking with Bharat Nirman

Overview of Bharat Nirman:

The Government of India has conceived a time-bound business plan under *Bharat Nirman* to upgrade rural infrastructure in the country. The programme seeks to strengthen rural infrastructure in six areas viz. housing, roads, electrification, communication (telephones), drinking water and irrigation, with the help of a plan to be implemented in four years, from

2005-06 to 2008-09. A commitment of over Rs. 1,74,000 crores has been made with the objective of unleashing the growth potential of our villages. The objectives under each sector are indicated below:

Roads: It is proposed that by the end of 2008 – 09, every village of over 1000 population, or over 500 in hilly and tribal areas, has an all-weather road.

Communication: It will be ensured that 66,822 revenue villages in the country, which have not yet been provided with a Village Public Telephone (VPT), shall be covered by November, 2007. Out of the above villages, connectivity in 14,183 remote and far flung villages will be provided through digital satellite phone terminals.

Irrigation: The target of creation of additional irrigation potential of one crore hectare in four years is planned to be met largely through expeditious completion of identified ongoing major and medium irrigation projects. Additional irrigation potential of 28 lakh hectare is planned to be created through ground water development and 10 lakh hectare through minor irrigation schemes using surface flow.

Drinking water: In 1986, the National Drinking Water Mission, renamed as Rajiv Gandhi National Drinking Water Mission in 1991, was launched and further in 1999, the Department of Drinking Water Supply was created, to provide a renewed focus with mission approach to implement programmes for rural drinking water supply. Under Bharat Nirman, it is proposed to cover 55,067 hitherto uncovered habitations as well as “slipped back” habitations based on 2003 survey with priority to tackling problems of arsenic, fluoride and salinity.

Housing: The 2001 Census places the rural housing shortage figure in India at 148 lakhs. The Programme has accorded due priority to this need and it is envisaged to construct 60 lakh houses over the next four years across the country, starting from 2005-06.

Electrification: Ministry of Power has introduced the scheme Rajiv Gandhi Grameen Vidhyutikaran Yojana (RGGVY) in April 2005, which aims at providing electricity in all villages and habitations in four years. This programme has been brought under the ambit of *Bharat Nirman*. (<http://bharatnirman.gov.in>)

Linkages with Mission 07

On the recommendations of the Mission, the Gol has included rural connectivity as an integral part of *Bharat Nirman*. The DoIT is poised to launch a massive scheme to set up one lakh Community Service Centers in rural India. Meanwhile, there is considerable scope to add value to Gol’s efforts under the programme as demonstrated by two organisations – one public and the other private:

a) National Informatics Centre

NIC of the DoIT is involved in developing software to meet the requirements of a variety of rural development initiatives. NIC is currently working on all the six sectors identified as

critical under *Bharat Nirman*. A rural tele-centres at the block level had shown potential of converting un-skilled workers to low skilled knowledge workers. However, much work needs to be done to develop relevant content. "As of now, we consume global knowledge, which is not of direct relevance to us. We need to reverse this cycle in which people start putting knowledge into the system and ask to be paid for it!" (**D C Mishra, Technical Director, NIC**)



A more detailed description of the various kinds of applications developed by NIC is provided in Chapter 5.

b) India Water Portal

Arghyam is a registered public charitable Trust, setup in 2001 with a private endowment from Rohini Nilekani. The trust is now working in the water sector, supporting strategic efforts that bring equity and sustainability in access to water. Although India ranks second in the amount of rainfall received, its performance in the area of water security is rather poor. Water management is seen to be the key to improving this performance. Information and knowledge can play a big role in improving water management.

To this end, the trust has developed *India Water Portal*, which is a storehouse of information on the sector. It is also a collaborative space for those interested in water and related fields like conservation, sanitation, agriculture and waste water management to share knowledge, data and experiences. The approach adopted has been a ground up and collaborative effort leading to an open, inclusive platform. Data is pooled from multiple sources. The Portal is a voluntary effort being coordinated as a public service by Arghyam Trust and created in a spirit of sharing and openness by a wide range of partners ranging from experienced technical water experts, NGOs, Government Departments, historians and hydrologists, to IT specialists and educationists. (for details, see www.indiawaterportal.org)

Arghyam Trust is involved in a range of water management areas like water purification, rainwater harvesting, small-scale distribution systems in urban slums and integrated domestic water management in rural areas. Emphasis is given to awareness and education, research and technology in water management. Arghyam's Implementation Partners include eGovernments Foundation, Trina, ATREE, Rainwater Club, ACWADAM, Samaj Pragati Sahyog, CISED, Akash Ganga, Adayana, IDCA – US, Ajit Foundation, Myrada, several Government Agencies and many individuals. (**Ms Sunita Nadhamuni, CEO, Arghyam Trust**)

Linking with PRI institutions

Tamil Nadu was on the forefront of ICT initiatives with its RASI project. On introspection, however, it was found that the model was not sustainable. The main problem with any entrepreneurship based model was that there was not enough traffic to sustain the model. The technology was either experimental or too costly.

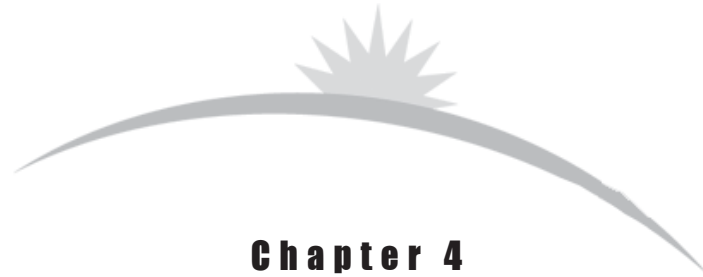
So the Department of Information Technology, Tamil Nadu put together a business model in partnership with other initiatives. In the programme for computerising Panchayati Raj Institutions, the PRIs were given computers, but these were underutilized. So it was decided to have SHGs do the PRI work, but also render services to the community. About 6500 panchayats have got the equipment and the process to train the SHGs has started. Technology is not a constraint, but the problem is one of cost. Therefore, there is a need to develop more back-end applications. Also, the last mile connectivity for stand alone villages has to be overcome by providing them content on floppy discs, CDs etc.

The village resources and services centre scheme, of the Department of Information Technology, Government of India would provide a number of government services, which would generate revenue for the SHGs. Commercial applications will cross-subsidize government schemes. A special purpose vehicle was being created to run the pilot.

The Mission aims at setting up VRCs to reach every village in the country. But village level entrepreneurs do not have the expertise, capability or traffic to sustain their enterprise. Neither technology nor software or hardware should be a burden on the kiosk manager, but it should be borne by the government. Thus, sustainable revenue schemes should be introduced in every village to all the entrepreneurs along with special purpose vehicles that can be used for commercial purposes. The experience of the special entrepreneurial model shows that the cost of hardware and software should be cut back by Rs.4000/- and support should be taken from the government. Process engineering is required to make it more sustainable.

The right to information should include information of right quality, right quantity at the right cost and to the right people.

The Tamil Nadu Government is committed to take ICT revolution to the doors of the common man. The Department has adopted the motto, "FUSE" which stands for Find, Use, Share, Expand. ***(Dr. C Chandramouli, Secretary, Department of Information and Technology, Government of Tamil Nadu)***



Chapter 4

Building Partnerships, Evolving Strategies

ISG and the National Alliance

SDC has been instrumental in convening the International Support Group for Mission 07. SDC fully subscribes to the goals of the Mission, which involves augmentation of rural livelihoods and reduction of poverty and where ICT is seen as the means to this end. Recent studies have provided strong evidence to show that poverty alleviation can be up-scaled with the help of ICT by empowering people through knowledge and capacity building. ICT has made it possible to reach huge numbers in a short time frame. It also provides interactivity making it possible to test demand response. Distance learning is leading to reduction in training and education costs.

On the other hand, there are challenges both on the supply and demand side. This is because it involves an *unprecedented scaling up effort*.

Supply Side Challenges

The ICT infrastructure is developing fast. The challenge is how to fully exploit it and avoid duplication; how to achieve coherence and complementarities.

Reliable power supply is proving to be a major bottleneck. The policy for energy supply needs to address the issue of efficiency. There is a need for low cost, decentralized energy solutions.

Demand Side Challenges

On the demand side, the challenge is to integrate communities of users and sources of knowledge in an inclusive manner. There should be equity in access to knowledge and building up capacities.

Long term sustainability - In order to augment the livelihoods of rural communities on a



sustainable basis, there is a need to ensure continuous interest of hardware and software providers.

ISG intends to strengthen its ties with the National Alliance and respond to these challenges. It wishes to strengthen the networking among interested partners. ISG could also help to develop a multilevel monitoring system.

The Mission has the potential to lead the way not only in India but also globally.

(Dr Francois Binder, Country Director, Swiss Agency for Development, Convener, ISG)

QUALCOMM's Strategic Technology Initiatives

QUALCOMM was empowering citizens of the world through information connectivity and through effective partnerships. Its annual R & D expenditure is in the order of \$ 1.0 billion. Some of QUALCOMM's recent initiatives as well as the need for strategic thinking based on future trends, are as elaborated below.

QUALCOMM's Initiatives

Among the important technology initiatives of the company are its Wireless Reach Initiative, development of Media FLO technology and BREW programme.

The Wireless Reach initiative creates sustainable 3 G projects through partnerships with government, civil society organisations and private sector companies. It seeks to empower underserved communities with focus on education, government, health-care, public safety, etc. It has successfully demonstrated increased tele-density and Internet penetration in countries like Indonesia, Peru, China, etc. by placing cellular kiosks in the hands of villagers. In China, the kid Tracker Device using QPoint location based services enables the visually challenged individuals to seek help in case of an emergency.

Partnering with Nasscom Foundation:

In India QUALCOMM in partnership with NASSCOM Foundation, will provide Internet connectivity to 65 VRCs using CDMA 2000 and Fixed Wireless Terminals (FWTs).

Future Trends:

A recent forecast by Global Enabling Technologies¹ shows that the growth of converged mobile devices is outstripping all other devices like desktops, notebooks, smart phones etc. The estimated current global demand for such devices is 863 million, which is expected to reach 1020 million by the year 2010.

Strategic thinking:

In order to maximise their socio-economic impact, these hand-held devices should focus on three strategies: a) broadband b) broadcast (including narrowcast) and c) developing an ecosystem of devices and applications.

- a. *Broadband:* The Wide Area Multiple Access technologies with the greatest potential are CDMA 2000, WCDMA and OFDMA.

- b. Broadcast:* Wide area multicast technologies have been developed for operators using the above technologies. Media FLO technology has made it possible to transmit programmes from a TV to cell-phones. The video quality is equivalent to QVGA, 30 fps.

Devices and Applications: Under its BREW programme, QUALCOMM will award five grants totalling \$ 500,000 for the development of the most innovative proposals for a BREW community application in the following areas: health care, education, public safety, governance, environment. The deadline for submission of applications is August 30, 2006. The winning developer's BREW applications will be launched through a new or existing wireless Reach project with an additional \$ 500,000 investment. **(Mr Nikhil Jain, CTO, QUALCOMM)**

QUALCOMM is committed to support Mission 07 through *technology, partnerships and investments*. It can collaborate with Mission partners in the following areas:

- Research agenda for children
- e-warehouse of content
- Popularising community radio and developing local FM
- Disaster preparedness and recovery and rehabilitation from natural disasters.
- Capacity building of one million Fellows by sharing its experience, content and methodology.

(Mr. Parag Kar, Director, Government Affairs, QUALCOMM)

The Mission 2007 Rural Incubation Fund

As envisaged by Mission 2007, one of the major obstacles in the way of the emergence of 'Rural Knowledge Societies' across India is 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 India, under its project *Saksham*, and International Development Research Centre (IDRC) through its initiative *telecentre.org*, (see Box 4.1 for details of both these initiatives), have collaborated to constitute a fund known as '*The Mission 2007 Rural Incubation Fund (RIF)*'. Both have contributed equal seed money of \$1,00,000/- towards this Fund.

The Fund seeks to support R&D in the area of designing and incubating innovative software applications and solutions that are both practical and replicable across the country. In addition, it also seeks to support initiatives towards developing and packaging services and content that can be delivered through the Village Knowledge Centres (VKCs) or Information Kiosks.

Box 4.1

Promoters of Rural Incubation Fund

Saksham (Microsoft India)

'Saksham', the self reliant rural market initiative of Microsoft India, through its four levers of innovative business models, public private partnership, localised content and affordable solutions, is designed to address the issues that have so far affected the uptake of IT in the rural segment - be it the lack of infrastructure and connectivity, or of affordable and relevant IT services and solutions. The initiative also effectively addresses concerns regarding the economic viability of existing kiosk models.

'Saksham' has been developed in close consultation with industry partners and imbibes the principles of public-private partnership to create a sustainable economic model and a strong rural IT ecosystem. It will not only provide local entrepreneurs with the opportunity to set up and manage these kiosks to provide locally relevant services, information and content, but also provide the local ISV (Independent Software Vendor) community with the opportunity to develop rural content and applications.

telecentre.org (IDRC)

International Development Research Centre (IDRC) considers development research as a collaborative venture to find long-term solutions to the problems encountered by developing countries. It works towards identifying, initiating, and coordinating strategic relationships/networks to benefit poor and marginalised communities in developing countries.

"telecentre.org", a collaborative initiative by IDRC, Microsoft and SDC aims at connecting telecentre networks, innovators, social investors and other interested groups. Telecentre is a public place where people can access computers, the Internet and other technologies to develop their digital skills, gather information and communicate with others to share and exchange best practices, experiences, knowledge, innovations, products and services.

The project's main premise is that ICTs, if used locally, empower individuals and the communities they live in. It invests in strengthening telecentre networks to foster sustainable ecosystems that provide better service delivery to the poor and marginalised communities.

The Fund will support only project costs, and may not be accessed for recruitment, core organizational costs and recurrent needs. Funding support will vary between 5,000 – 10,000 USD, depending upon the nature and utilitarian value of the proposal

The RIF will set up a committee under the Mission and request for proposals which will then be funded. The idea is to support small innovations of individuals and grassroots organizations. It is expected that the disbursements of scholarships will commence from 1st January 2007. **(Ravi Venkatesh, Chairman, Microsoft India; www.dirpcpc.com)**

UNESCO in Search of Partners

The objectives of the Mission are co-terminus with those of UNESCO. One of the common objectives is to bridge the digital divide between the urban and rural areas. UNESCO has promoted Community Multimedia Centres (CMCs), which have pioneered *community radio* all over the world. However, the combination of radio with new communication technologies and Internet are found to be significantly more effective and this is the direction in which the CMCs would like to progress. In this project, villagers themselves benchmark their success and try to improve on it. They adapt generic content to suit their own need. CMCs learn to network and support themselves. UNESCO is in the process of scaling these activities based on its experience of developing 10 different models in South Asian Countries including a few in India, which are all community owned and operated. It has setup centers of excellence in sharing and providing for knowledge development

Areas for Cooperation and Collaboration

Four key areas for concrete cooperation and collaboration are:

- i. Tools:* One of the tools used at CMC sites is *Open.eNRICH*. This could be made available to Mission partners.
- ii. Publications and training materials:* Documents are available to disseminate knowledge and CMC websites are also available for the Mission's use. Apart from this, green stone digital library software and other content at these knowledge centres are also available for sharing.
- iii. Distance learning:* Along with IGNOU, UNESCO proposes to work with Mission07 to provide distance education to the masses through the Panchayath Raj Institutions and also help in the development of distance learning packages. Distance learning packages already developed are available for sharing.
- iv. Capacity building:* In the area of training, UNESCO would be happy to enter into some form of collaboration with the Jamshedji Tata National Virtual Academy.

UNESCO is committed to the overall objectives of Mission07. It hopes to continue identifying such concrete areas of collaboration and to work towards their successful implementation. **(Dr. Jocelyn Josiah, Advisor in Communication and Information for Asia, UNESCO)**

ISRO's Two-tier Knowledge Networks

Satellite technology has opened up new vistas in the field of ICT. Satellites and fibre play complementary roles. Fibre offers practically unlimited bandwidth but 'limited geographical reach'. On the other hand, satellites provide limited bandwidth, but 'limitless reach'.

Two series of satellites have been developed by ISRO over the years. The INSAT series of satellites focussed on *communication*, while the IRS series dealt with Earth Observation Systems (EOS) including study of natural resources. ISRO has developed a variety of applications to harness this technology for the benefit of the common public. The EOS applications in particular are meant to target the poor and vulnerable.

SATCOM Applications

One of the important applications of the communication satellite is tele-medicine. 175 hospitals have been connected and so far 1,25,000 cases have been treated. In the field of e-learning, there are 5,000 virtual classrooms of which 2,000 are interactive.

EOS Applications

The earth observation applications include spatial information support for management of land and water resources at the village/ micro-watershed levels, advisories for agricultural development, weather, fisheries and horticulture; and programmes for distress hotspots, etc. Under its Disaster Management Support programme, it plans to link up with national /global weather/ disaster alert networks.



Establishment of Knowledge Centers

ISRO is facilitating the establishment of two-tier rural Knowledge / service connectivity, which includes a) VRCs at Block/taluka level and b) VKCs at individual village level. It has already set up 109 VRCs of which 40% are functioning well. Another 175 VRCs are in the process of being set up. An additional 100 plus are expected to come up by March 2007. This would take the total to 400 plus by the end of the 10th five year plan. The target is to establish 4,500 VRCs by the end of the 11th five year plan.

It also plans to work as ISP for remote areas like Andaman and Nicobar, Lakshadweep etc. A few VRCs in friendly neighbouring countries are also being contemplated.

Collaboration with National Alliance Partners

Hence ISRO considers itself a major stakeholder in the National Alliance and its Mission. Three initial knowledge networks established by ISRO in collaboration with other partners include:

- i. ISRO-MSSRF VRC project in Tamil Nadu, which was ISRO's first VRC network.
- ii. ISRO-AMRITA Project in Kerala and TN, which was the second project.
- iii. VRCs in Farmers' Distress Hotspots, which is the most recent initiative.

ISRO would like to partner with more institutions. The previous initiatives have helped to clarify roles and responsibilities of ISRO vis-à-vis partner institutions, which are summarised in Box 4.2: (*Dr. V.S.Hegde, Deputy Director, (Applications) EOS Programme Coordinator, VRC ISRO Hqrs.*)

Box 4.2 Partnership with ISRO

ISRO's Role:

- to provide connectivity through VSAT, associated communication equipment and low-end AV equipment
- to provide the requisite satellite bandwidth
- to provide minimal h/w (EKG) and s/w connectivity necessary for telemedicine
- to provide s/w connectivity for tele-education
- to make available and customise available Natural resource database along with minimal query and analytical tools
- to take care of maintenance of equipment for the first three years

Partner Agency's role:

- to carry out need assessment through participative techniques, such as PRA, RRA etc.
- to take care of the infrastructure for the knowledge centres – building with civil and electrical facilities to house the equipment, additional multi-media computers, ec.
- to provide the manpower – at least 2-3 knowledge workers at each VRC
- to establish referral services by linking up with Expert centers, hospitals, local doctors, teachers, etc.
- To organise the contents and regular updating of the same.
- To take care of maintenance of equipment after the initial three years

Providing Market Information to Farmers through ICT: MCX

“Think big, start small, and scale fast” was a slogan provided in the inaugural session of the convention. Multi Commodity Exchange of India Ltd. (MCX) has actually put this philosophy into practice. It is only two years and seven months old and has already achieved a turnover of 6740 Crores on an average per day . Started in 2003, it now has over 500 centres with over 1200 members. MCX trades in 72 commodities of which 28 are agricultural commodities.

On 10th February this year, an MoU was signed between MCX and NAFED to set up a National Spot Exchange for Agriculture Produce (NSEAP). The concept of the NSEAP is to provide a national level electronic institutionalised spot market to farmers. It provides a place where farmers can sell at the best possible rate and end users can buy at the most competitive rate. Farmers would be communicated market information through VSAT, mobile, Internet etc. A delivery contract would be signed. The farmer would deliver the produce at the nearest warehouse of the company and get its payment there itself. In this system, the farmer stands to gain because the best price is offered by end users directly. In India, farmers get only 25-30 per cent of the price paid by the end users as compared to 60-65 per cent in the US. NSEAP can help to change this situation in favour of the farmers. After launching of NSEAP, the canvass of commodity trading would be complete – India will have both spot and future markets available on electronic platform with national reach. The farmer would get the highest price as per export parity or parity for the processor. Hence NSEAP would develop a global linkage for the rural economy. As a result, income of the farmer can be doubled without increasing the consumer paid price. That would be the real contribution of NSEAP towards transformation of rural economy.

MCX is in the process of spawning another company. This would help to make warehousing services more easily accessible for farmers.

Collaboration with the Mission:

The Mission can use this network to provide market information as well as other information like weather forecast, crop related information, etc to farming communities at negligible cost. The market will create one lakh trading terminals across the country where both capital and recurring costs will be taken care of by the market. There will also be an opportunity for entrepreneurs in the warehousing business. **(Mr Venkat R Chary, Chairperson, MCX and Ms Anjani Sinha, Managing Director, NSEAP)**

TCS's Computer Based Functional Literacy (CBFL) Programme

Tata Consultancy Services (TCS) has developed multi-media based software to impart functional literacy to adults in eight different languages. Material based on National Literacy Mission has been adopted for CBFL methodology. The system uses low-end PCs to run the software.

In Tamil Nadu, 6,000 communities have been given the software through panchayats. 96,000 people has been trained at 1400 centres across the country. TCS has also implemented the

project in collaboration with MSSRF at Nagapattinam and Kovalam (TN) and Tsunami affected areas as a long term rehabilitation programme. TCS has also partnered with NASSCOM Foundation to implement the programme in VKCs of six states.

According to an evaluation study carried out in Tamil Nadu, the programme is successful in making adults literate with 40-50 hours of inputs over a period of three months. The process calls for minimum skills from the teacher. Each teacher can handle a batch of 10-15 students. TCS is now in a position to scale up this programme and Mission'07 provided a good channel for achieving this.

Current literacy levels range between 40-65 per cent in most of the villages. Each VKC can be given a target to achieve 100 per cent literacy rates with the help of this software. Teachers can be recognized as NVA fellows and they can carry this scheme forward. There is already considerable enthusiasm and energy which needs to be channelized. Those Fellows and VKCs who are able to achieve the target of 100% literacy in their villages should be honoured.

The performance under national literacy mission has levelled off over the past few years. In this backdrop, this innovative programme has a lot of potential for convergence with the Mission's objective (see www.tataliteracy.com for details). **(Mr. M Somasundaram, Principal Consultant, TATA Consultancy Services)**

L&T Construction, Skill Training Institute

The productivity of skilled workers in India is 1/3rd that of workers in the first world. Besides, the industry standards are conspicuous by their absence. The objective of the institution is to create a world class work force through training of educated youth in rural areas. Its vision is to achieve global standards in safety, quality and productivity in the construction sector. The construction skills imparted include formwork, bar bending, masonry, scaffold work, plumbing and sanitation, electric wiring, etc. The training process includes development of standards and training curriculum, training of trainers, training of rural youth, administering trade tests and certification. A trained youth can progress through three levels of training and get certified accordingly.

Collaborating with Mission '07

The institute can partner with VRCs for:

- Mobilizing candidates and propagating information on the project.
- Imparting training to rural youth on construction skills in six training centres.
- Developing suitable training modules for VKCs on construction skills.
- Sharing appropriate technologies and information on latest developments in construction.
- Partnering with NGOs/Government agencies in propagating the employment potential in construction industry.

In this way, it can also contribute to livelihood augmentation. *(Mr S Natarajan, L & T Construction Skill Training Institute)*

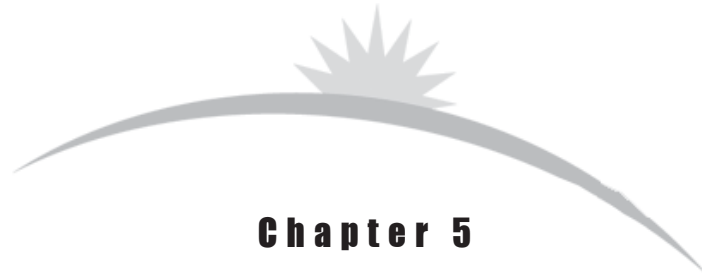
C-DAC's Quarterly Newsletter

C-DAC feels that the causes for lower penetration of ICT in rural areas include language barriers, paucity of applications and contents, low bandwidth, high cost, low entrepreneurship etc. There is a need to develop localized content in local languages. C-DAC's R&D programme focuses on (a) domain specific end-to-end solution and (b) domain independent enabling technologies. (Chapter 4 provides details of some of C-DAC's innovative solutions).

C-DAC has started a quarterly newsletter called "IC 4 D" in collaboration with Mission '07 with the following objectives:

- To test the scalability of existing solutions
- To transfer technology
- To network for collaborative research
- To build the capacity of rural technopreneurs.

(Dr. Selvakumar, C-DAC on behalf of Mr Ramakrishnan, C-DAC, ICT Research and Training Centre)



Chapter 5

Catalyzing Innovations and Initiatives

Content Grid for Rain-fed Areas

ICRISAT is a member of both the steering committee as well as the ISG of the Mission. It has adopted a virtual academy approach for taking content to the farmers. One of the key areas of concern is drought and desertification, which are becoming a threat to agriculture and rural livelihoods. The national rain-fed area project was a response to this threat in which a number of institutions are working together. Content will be developed and placed in the public domain. Microsoft is translating this into Hindi and is interested in making it available in literacy form. *(Dr. V Balaji, Head, Knowledge Management and Sharing, ICRISAT)*

NEGPs Common Service Programme for Gram Panchayats

The National e-governance Plan (NEGP) has been cleared by the Central Government. Information on 26 missions and five state level projects would be provided. A common service programme has been developed for gram panchayats, which is at the stage of cabinet approval. The programme involves an outlay of Rs. 5,600 crores. The state data centres would serve as depository of data. 22 state governments have approved the establishment of SWAN (State Wide Area Network) in their respective states. This connectivity will empower people through information related to government schemes and programmes. There is also a need for block level knowledge centres to be connected with SWAN. *(Mr. Ashish Saniyal, Centre for e-governance, DoIT)*

One Lakh CSCs under DoIT Scheme

There is a complete overlap between goals of the Mission and Infrastructure Leasing and Financial Services Ltd (ILF&S), which is implementing the CSC programme of DoIT. The CSC programme is a result of six to eight months of efforts and it is now waiting for cabinet approval. One lakh centres are to be established with broadband connectivity through SWANs and wireless technology. The centres are expected to become viable and sustainable economic activities.

The structure adopted is a simple one, but the challenge is to build the business model. E-governance applications will be available across the country through this programme. It will

provide cost-saving services for the people and will, therefore, have huge relevance. It will also facilitate collection of census data because of the computerized data offices at the grassroots. The Department had established pilot projects with 100 entities to find out how to help them, and to build business models. The challenge is to create the right kind of content and services.

The CSCs are positioned as “Last mile, IT-enabled, shared access points” for Government, Private and Social Sectors.

The key focus is on the sustainability of the village level entrepreneur. To this end, IL&FS has identified 50 B2C service models for CSCs. These include both IT as well as non-IT services. Separate service models have been developed for agriculture, banking and financial services, health, education and livelihood building, entertainment, etc. For each of these sectors, the key organizations that will contribute have been identified.

However, a number of challenges have to be addressed in various areas, such as connectivity, content, training etc.

Integration with the Mission can help in addressing a number of these challenges by:

- Establishing National and International linkages in sectors like agriculture, education, health, microfinance and drawing upon innovative ideas to strengthen.
- Integrating community radio model in the CSCs.
- Developing Models to integrating social sector organizations into the CSC Scheme either as Service Centre Agencies or Service Providers.
- Accessing training and Capacity Building support at local level.
- Accessing knowledge, best practices, research and development support in the areas of gender development, literacy, localization, community participation, etc.

(Mr Alok Bhargava, Executive Director, IL&FS)

Open eNRICH and other Software Initiatives from NIC

The DoIT’s objective is to supply government content to the people and facilitate supply of people’s content to global networks. National Informatics Centre (NIC) has developed content management software called Open eNRICH in collaboration with UNESCO. This has been placed in public domain and more than 59 countries have downloaded it. It is being used in rural tele-centres (see www.enrich.nic.in). NIC has used this tool to generate a website for Panchayati Raj Institutions. Training to PRIs is being imparted on the use of this portal (see <http://Panchayat.nic.in>).

Some of the other software packages developed by NIC are indicated in the table below:

Many of these have strong potential for being converted into payable services. For details

Table 5.1

Title	Purpose and adoption levels
Rural Soft	Scalable software for rural development and poverty alleviation schemes; can be installed at Panchayat, Block, DRDA and state levels to facilitate exchange of reports through e-mail.
Rural Bazaar (http://ruralbazaar.nic.in)	For online marketing of rural products: adopted by states of Goa and Tripura.
Pria Soft (http://priyasoft.nic.in)	Umbrella software catering to the administrative needs of PRIs; helps monitor accounts, thereby bringing transparency in PRI accounting. Adopted by Orissa, MP, TN, Karnataka and AP.
Bhulekh Soft	For land records; adopted by all states.
NREGA MIS (This (http://nrega.nic.in))	For transparency in employment guarantee schemes; has potential to be converted into a payable service)
Rural Housing (http://rural.nic.in)	Software for on-line monitoring of Rural Housing Programme, Bharat Nirman Component.
Drinking water sanitation (http://ddws.nic.in)	Provides habitation-wise data on drinking water and sanitation.

of other applications, see <http://Home.nic.in> (*Dr. D C Mishra, Technical Director, NIC, DoIT*)

JN Tata National Virtual Academy, MSSRF

The JN Tata NVA project has its origin in a pilot-project initiated in 1998 by MSSRF with a small grant from IDRC, and CIDA, in which the concept of *information village* was first tested. With ISRO providing satellite connectivity, the "Hub and Spokes" model was evolved in 1998. The project won the **Motorola Dispatch Solution Gold Award** for innovative use of ICT technology for a socially relevant goal. It further went on to bag the **Stockholm Challenge Award** in the Global village category for promoting social inclusion through the use of ICTs.

The NVA was set up in 2003 with generous support of Sir Dorabji Tata Trust. With this, the idea of training rural youth as knowledge workers, who would become the torchbearers of the knowledge revolution in rural India, began to take shape. A Fellowship programme was developed to orient rural leaders and local experts for mobilising communities and preparing them for the ICT revolution. On July 11, 2005, 135 such rural animators from 15 states were conferred fellowship of the Academy and on 6th January 2006, another 155 became Fellows with the blessings of the President of India, Shri APJ Abdul Kalam.

The NVA project has a three-tier structure with a national hub at MSSRF, Chennai, a block level hub called Village Resource Centre (VRC), which services a number of Village Knowledge Centres (VKCs) through a hub and spokes model. As on May 2006, MSSRF had set up 14 VRCs and 47 VKCs in five states and one union territory.

The NVA serves as the secretariat of the Mission and has organized various events on behalf of the National Alliance, including the Policy Maker's workshop (July, 2004), Second Annual Convention (July 2005) first National Virtual Congress of Farmers (2006) first meeting of International Support Group for the Mission (2005), etc.

It has also organized learning events, such as

- Fourth South-South Exchange Traveling Workshop, 28th November-5th December 2005
- National Participatory Knowledge Management Workshop of Jamshedji Tata National Virtual Academy Fellows, July 2005
- National consultation on the role of Panchayati Raj institutions in spearheading a rural knowledge revolution June 9, 2005
- Consultation on Learning from Rural Connectivity Projects in Asia (2004), etc.

(Mr. Senthikumar, Director NVA, MSSRF)

MSSRFs Knowledge Centres for Distress Hotspots.

MSSRF has taken the lead in setting up knowledge centres in Vidarbha region of Maharashtra, which has recently witnessed suicides by farmers due to failure of agriculture. At these centres, the family members of such farmers among others are being trained as knowledge workers. The knowledge centres aim to provide timely knowledge and information services that would enable the farmers to make their agriculture viable. This is in tune with the Prime Minister's recent initiatives to address the problem of distress hotspots in 31 districts all over the country. *(Mr. Senthikumar, Director NVA MSSRF)*

NASSCOM Foundation's Initiatives

The Foundation runs an ICT4D programme with financial support from Microsoft, connectivity from Tata tele and technical support from QUALCOMM. So far, 65 VKCs have been established with the support of 20 grassroots organisations. The Foundation aims to set up about 100 such centers in 9 states of India. Over ninety percent of these centers are community centers. The programme has been a huge learning experience for the facilitators and made them realise the value addition of inclusiveness.

Social empowerment and inclusion is a basic tenet of the Mission, which should not be compromised at any cost. The CSC scheme of the DoIT was likely to end up excluding existing entrepreneurs and grassroots level organizations as they did not have access to

resources and capacity to handle the number of centers stipulated under the scheme. NASSCOM was in dialogue with DoIT to address this issue.

Technology Pavilion

NASSCOM Foundation as a key Alliance partner and member of the executive committee of Mission 07 was called upon to organise the Technology Pavilion at the Convention. Considering the objectives of the Mission, it was proposed that a platform be provided

to invite participation from various organisation from among the Alliance members and outside of it, especially in the field of ICT4D and showcase the products and services with specific reference to rural India. (see Box 5.1 for details) (*Ms Rufina Fernandez, CEO, NASSCOM Foundation*)



Box 5.1: Technology Pavilion

The Technology Pavilion was organised by NASSCOM Foundation and sponsored by QUALCOMM, a leading CDMA technology provider. The objective was to bring to the forefront, selected technologies designed, developed and implemented across the country under one roof so that all stakeholders of the Mission would get an opportunity to get a first hand experience and explore options of deploying the same in their specific geographical contexts.

Thirty one innovative products/ services from 34 different organisations were on display during the two days of the Convention at IIT Chennai. Some of the highlights of the exhibition were:

- Health care (Medical Information Dissemination System, X-ray digitizer)
- Integrated Personal Computers ideal for use in rugged conditions of rural India
- Interactive applications in agriculture
- Applications in e-commerce
- Knowledge dissemination through community radio

Annexure 1 provides the list of participating institutions and their key exhibits and pictures from the Pavilion

QUALCOMM's BREW Programme and Other Initiatives

Some of the challenges before the Mission and possible approaches to overcome these are shared:

1. Sustainability: The best way to achieve this is by leveraging existing infrastructure and through convergence of various schemes.
2. Scalability: The ubiquitous coverage through handheld devices would make this possible. Concurrence of voice and data is also beginning to happen. Recent studies show that data connectivity has twice the impact of voice connectivity.
3. Empowerment: Flexibility of data scheme, diverse applications and personalization through ownership of device would help to bring about empowerment.

In terms of the available technology, CDMA based technology is very important to empower rural India. It is also compatible with other technology, which can complement it. The third generation CDMA technology is already mature and achieving scales dramatically. This is bound to drive prices down. Recent worldwide studies have shown that hand-held devices have dramatically outgrown the growth of PCs. The main advantage of CDMA is that it can handle a variety of applications. Under its BREW programme, QUALCOMM has put in a one million dollar fund to promote applications. *(Mr. Parag Kar, Director, Government Affairs, QUALCOMM)*

Box 5.2: Launching of e-warehouse by UNICEF

UNICEF's e-warehouse was formally inaugurated by Prof. M S Swaminathan at the convention by clicking on the site: www.unicefiec.org. in the presence of Mr Bijaya Rajbhandari, State Representative, UNICEF Office for Bihar and Jharkhand. The warehouse includes information on the following themes:

- Reproductive and Child Health
- Child Development and Nutrition
- Child's Environment
- Elementary Education
- HIV/AIDS
- Child Protection
- Strategic Planning, Monitoring and Evaluation
- Behaviour Change Communication
- Advocacy and Partnerships
- Emergency

IEC materials under these topics can be located with search options. UNICEF believes in promoting health, education and equality protection for every child.

Intel's Innovations for Rural Communities

Intel sees ICT opportunities in the areas of Education, Health, Commerce and Social Participation. It tries to introduce new ICT technologies in these focus areas through the pedagogy of "Discover-Innovate-Enable-Standardize-Integrate."

Intel feels that technology has to precede perception of needs. The company has designed a PC that can withstand the rugged needs of rural areas including heat, dust and poor power supply. It can even run on car batteries and bicycle power. It has successfully developed WiFi and WiMax technologies after carrying out trials at Pinjore, Uttaranchal and Baramati. It has invested 600 million dollars to make the technology mature. A community PC has been developed, which has been launched through 43 pilots to test the performance under diverse environmental conditions.

In the area of health, it has successfully tested its health system modules at AP-Karishma.

Box 5.3: Intel Learn Program

The Intel Learn Programme (ILP) is part of the Intel Education Initiative, a global commitment in collaboration with educators and government leaders worldwide – to inspire innovation in teaching and learning.

ILP was launched in India in June 2004 by former Intel CEO Craig Barrett. The programme was first initiated in Malappuram district of Kerala as a pilot project in collaboration with Kerala State IT Mission, Government of Kerala. It is a community based programme where learners learn technology literacy, critical thinking and collaborative skills necessary to work and compete in the 21st century. The programme uses trained staff to guide learners, 8-16 years old, through its 60 plus hours of structured curriculum.

Intel also collaborated with the *Navodaya Vidyalaya Samiti (NVS)* in July 2005 as a part of the expansion programme. NVS is an autonomous body under the Ministry of Human Resource Development (MHRD), which was set up to establish and manage fully residential co-educational schools, *Jawahar Navodaya Vidyalayas (JNVs)*, one in each rural district in the country and providing educational facilities to children from rural areas. ILP curriculum has been chosen for the **MHRD, Gol's Pace Setting Programme**. All JNVs, during the vacations, conduct the Pace Setting Programme as a part of providing quality education to children with little or no access to technology and the target group comprises of children from nearby villages.

In October 2005, Intel entered into a new relationship with DoIT and Department of Public Instructions (Schools), Chandigarh Administration, by initiating ILP as an in-school programme for the children of government schools. Under the programme, a total of 24,168 learners have been touched till the end of August 2006.

The ILP maximises the impact of available technology on young people through its powerful learning model. Children learn by exploring computer applications through activities and projects that they undertake with fellow learners and are given an opportunity to showcase their projects focusing on community issues. (www.intel.com/education)

In the area of capacity building, it has initiated *Intel Learn Programme* in collaboration with MSSRF. In this programme, teachers are provided intensive training on themes like “Technology at Work” and “Technology and Community” etc. (see Box 5.3 for details about the programme) (**Mr Goutam Mukherjee, Programme Manager, Community PC, Intel**)

HP’s Community Initiative at Kuppam

HP initiated a community based ICT project at Kuppam in Chittoor District (see www.Kuppamhpiccommunity.stph.net). Kuppam is a part of Chittoor District with a population of 2.85 lakhs spread over 231 villages. Historically a backward and neglected area, it has witnessed rapid development activities through this initiative. HP’s vision was to make Kuppam into a thriving, self sustaining economic community where ICT solutions significantly improved many facets of citizen’s life. Interventions were made in five domains, viz.: education, health, e-governance, economic development, citizen empowerment. The project lifecycle went through four stages of quick start (year 1), ramp up (year 2), consolidate (year 3) and transition (year 4 onwards).

Entrepreneurs in Residence Programme:

An innovative method is used to develop new generation of entrepreneurs enabled by ICT. The programme helps to lower barriers to entrepreneurship by creating access to capital and technology and, providing training. Under the village photographer initiative, for instance, the company gave cameras to groups of women on a cost sharing basis. Forty ERP volunteers were trained and placed at Panchayats. ICT services provided by them were availed 83000 times through 7000 hours of computer usage. Volunteers used *Sisu Samrakshakna* Services of UNICEF and collected revenue for its usage.

Digital Rural Theatre:

This enables the participant to create his/her own virtual characters and drama. It generates revenue of 6 dollars per show. During the last quarter, 200 shows were held generating revenue worth \$ 1200. Village festivals are being leveraged to reach out to potential audiences.

Mobile Solution Centres:

These are mobile knowledge centres, which are used for provision of a variety of services such as eye testing, literacy testing for new-literates, digital photography, soil testing, on-line processing of government schemes and certificates, employment exchange, farmer information system, etc. Three mobile solution centers were deployed, which carried out 30,000 transactions in 22 months reaching 35,000 people. However, in spite of their effectiveness, these are costly and not easily replicable. (**Mr P Ravindranath, Director-Strategic Development /Govt. & Public Affairs, Hewlett Packard**)

Media Lab Asia's (MLA) Efforts to take ICT to the Common Man

MLA is involved in research and design to take ICT to the common man. It has been set up as a not for profit organization with initial collaboration of MIT, USA. It is supported by DoIT and works in the areas of health, education, livelihood, disability and rural connectivity. It takes ideas and suggestions from Mission '07. MLA believes that applications developed by it should be *affordable, appropriate, scalable and sustainable*.

Table 5.2 provides an idea of the range of applications developed under different themes. Its project on livelihood generation has developed *e-sagu*, which reaches out to 5000 farmers in 30 villages providing agricultural advisory services as a paid service. Many of the other applications are being field tested in the states of UP, Haryana and AP.

For rural connectivity, MLA deploys low cost multi channel wireless router cards. This helps to establish peer to peer wireless mesh networks for rural communities. In its project called *Ashwini*, MLA has established broadband wireless connectivity for vertical delivery of quality services. The project will cover 5 lakh people in 115 villages. The project is designed on the lines of PURA (Providing Urban Amenities in Rural Areas) and has been appreciated by the President of India in his recent visit. In the 15 centres started so far, services on education, health, agriculture, spoken English are provided. A multi site video conferencing facility has been established. A rural BPO has also been started. *(Mr G. V. Ramaraju, Research Director, Media Lab Asia)*

Low Cost Broadcasting Technology for Remote Areas

First Voice International is an American NGO leveraging a range of technology from FM radio to VSAT for use in most remote populations through Asia and Africa. The organization owns space in the world space satellite system. It has developed a handheld satellite dish and terminal, which is very inexpensive (100 dollars per terminal) and which can be used in remote areas. The only limitation of the system is that it can support one-way broadcast only. However, it can supplement other technologies and serve as a stopgap arrangement until full internet connectivity is achieved everywhere. It is also a good supplement to reduce cost. *(Mr Anil Mundra, Program Associate, First Voice International)*

The NCDEX Market Information Initiative

National Commodity and Derivatives Exchange Ltd. (NCDEX) has similar objectives as MCX (refer chapter 4). It trades in fifty one commodities of which 80% are farm commodities. The price at different *mundies* is made available to the farmers. Market information is also provided to farmers through trackers on TV screens. Apart from this, information on weather station reports, e-learning, etc. is also provided. It is also in the process of establishing warehouses and end-to-end services for farmers. The organization feels that future prices would help farmers migrate to a demand based cropping system. Such a system also helps the farmers in the aggregation process. Lands have been fragmented over the past three decades. In this system, farmers can pool their produce for marketing. *(R. Balasubramaniam, Vice-President - Social Initiatives, NCDEX)*

Table 5.2: Various Applications Developed by MLA

Application	Features
Livelihood generation	
eSagu	Personalised agricultural advisory system
aAQUA	<i>Almost All Questions Answered</i> is a web based discussion forum in which experts respond to queries from farmers
DEAL	<i>Digital Ecosystem for Agriculture & Rural Livelihood</i> is a multimedia platform for creation, sharing and dissemination of agricultural information among farmers and experts
Digital Craft Revival	Low cost and localized CAD based system for designing carpets by local carpet industry and one for <i>Chikan</i> embroidery for developing new <i>Chikan</i> designs
Primary health care	
Sehat Saathi	Rural telemedicine system
Cash	<i>Community Access for Sustainable Health</i> is used for strengthening health care information system through health data collection by deploying handheld computers in villages
Polysensors	Portable and low cost drinking water quality testing systems based on conducting polymers
Digital Health at Every Door Step	Consists of affordable, biomedical and public healthcare diagnostic devices for mobile telemedicine systems
Education	
<i>Samvidha</i>	Personalization of Internet Contents and Education Tool for Rural Schools
VPL	<i>Virtual Physics Lab</i> enables school children to carry out virtual experiments to learn Physics
Sanyog™	Augmentative Communication System for the People affected with Cerebral Palsy
Shruti	An Embedded Indian Language Text to Speech System
Shruti Drishti	Enables Visual impaired to access web-sites
Shravan	PC for Visual impaired
VAANI	Communication aid for speech Disabled

Kamyab Agri-Infotech's Individual Package of Practices (iPoPs)

Agricultural production in India is much lower than that in many of the countries. Among the various reasons is the lack of knowledge, increasing cost of inputs and falling prices of produce. The company makes a distinction between information, content (which is structured information) and knowledge. It seeks to provide farmer advisory services, which lead to capacity building through knowledge. The approach has been to develop individual package of practices (iPoP). This is done by listening to farmers to understand their preferences, deconstructing the available package of practices and then coming out with individual solutions. *(Dr. Simon Holland, Director, Kamyab Agri-Infotech.)*

Virtual Platform for Rural Artisans

International Foundation for Fairtrade And Development (IFFAD) is a not-for-profit organisation working for the benefit of the disabled producers, rural women and traditional artisans of India. Its mission is to promote social and economic development of disadvantaged and marginalized people through production and marketing of goods and services through just and fair trade practices.

Providing marketing support services, supply chain management and capacity building are the main activities at IFFAD. The target groups include **the physically and mentally challenged, traditional artisans, women Self Help Groups (SHGs) and rural people in general.**

IFFAD has set up a virtual platform to connect rural artisans with urban buyers. The project has been in operation for the last six years in collaboration with IIT Kanpur (see www.iffad.com) *(Mr S. C. Raghunathan, Programme Coordinator, IFFAD)*

e-scribe: Rural e-channel for CSC Programme

CSC programme will succeed only if commercially viable business models are developed. CSC is also visualized as a common point for multiple services. Hence it should be managed like a TV channel. The system should enable live interaction in order to ascertain what needs to be delivered where. Arakay InfoNet Private Limited believes that people will be ready to pay if they have an interactive service. Hence it has developed a software *e-scribe* which allows easy to use interactive interface. Since there is a poor paying capacity of the end users, donors, NGOs and Government suppliers may be asked to pay for using this channel for delivery of free services. *(R. K. Varma, Head, Arakay InfoNet Private Limited)*

C-DAC's India Development Gateway and Other Initiatives

C-DAC's Mission is to alleviate poverty and nurture sustainable development by bridging the digital divide. The objective of the research and training centre is primarily to address the gap that exists between the developed and developing world in ICT applications and explore technical solutions to narrow the digital divide. It is an initiative of the GOI jointly with Development Gateway Foundation (DGF) in collaboration with IIT-Mumbai.

C-DAC has developed a number of language technologies including *Mantra* (Machine assisted translation) and released three software tools and fonts in Hindi, Telegu and Tamil. It has

Table 5.3: Applications developed by C-DAC

Issues	Applications and their features
Localized Content Sharing	
<ul style="list-style-type: none"> - Access to ICT through local language - Sharing local and indigenous knowledge - People's participation 	<p>ECKO Framework for building and nurturing E-Communities.</p> <p>V-CAN Platform for Content Distribution Network. Helps to manage information from their own or from other communities</p>
Accessibility	
<ul style="list-style-type: none"> - Illiteracy - Educationally underprivileged - Language divide - Visually impaired 	<p>Matrubhasha - Speech technology solutions in Indian Languages. - Gnopernicus for Visually impaired.</p> <p>DAAL - Document Access Across Language. - Machine translation technology.</p>
Communication System	
<ul style="list-style-type: none"> - Experts and learners are separated - Language barrier. - Teaching quality in remote areas is a question mark. 	<p>Vartalaap - Cascade model of Training - Multilingual Virtual Classroom facility. - Bring expert and learner together. - Whiteboard - Presentation window.</p>
Enabling Environment	
<ul style="list-style-type: none"> - Adherence to their culture and technology hesitant. 	<p>Development Organization - Project Planning and Monitoring - Project Management.</p> <p>AMP - Aid Management Platform for e-government solution. - Streamline the plan, monitor and report on international aid flows and activities.</p> <p>NATAK 3D A tool that lets the user create three - dimensional plays</p>
Trade and Commerce	
<ul style="list-style-type: none"> - Economic sustainability of rural traders and entrepreneurs 	<p>Vyapar/Pradarshani - E-commerce application to cater the need of rural producers. - Information tool for exchange of services and goods.</p> <p>e-forms An easy-to-use powerful tool for creating forms and data collection</p>

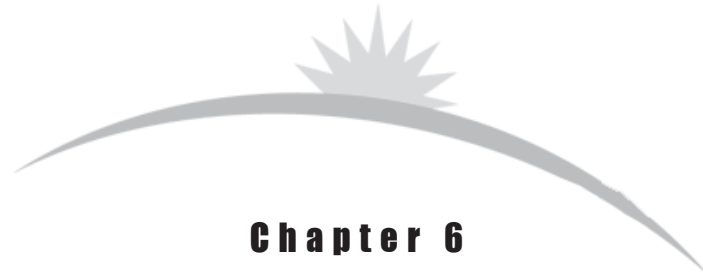
also developed a portal called **India Development Gateway** (see www.InDG.org) with the objective of reaching the un-reached, enabling partnership and collaboration and providing google (search facilities) for identified sectors.

C-DAC feels that the causes for lower penetration of ICT in rural areas include language barriers, paucity of applications and contents, low bandwidth, high cost, low entrepreneurship, etc. There is a need to develop localized content in local languages. C-DAC's R&D programme focuses on (a) domain specific end-to-end solutions and (b) domain independent enabling technologies. Table 3.2 summarises some of the applications developed to address issues/challenges identified by the organisation.

C-DAC has started a quarterly newsletter in collaboration with Mission '07 with the following objectives:

- To test the scalability of existing solutions
- To transfer technology
- To network for collaborative research
- To build the capacity of rural technopreneurs.

(Mr Ramakrishnan, C-DAC, ICT Research and Training Centre)



Chapter 6

The Issue of Sustainability

As the Mission has just entered the scaling up phase, the issue of sustainability came in for intensive deliberation at the convention. Perceptions of partner institutions varied considerably. While it was difficult to arrive at a consensus, the debate brought out the various dimensions of the issue. Partners agreed that an understanding of sustainability would evolve as the Mission activities gained momentum.

Alternative Routes to Sustainability

This chapter is based on the proceedings of a special panel discussion held on this subject. Views expressed by other partners elsewhere in the convention and in the second steering committee meeting are also included. The discussion revealed two distinct schools of thought: (a) the business model to sustainability (b) the social change and empowerment model of sustainability.

The Business Model Route

Proponents of this model believe that the rural entrepreneurial model, which brought about a revolution in the communication sector during the 80s through PCOs and STD services could be adopted further to bring about the knowledge revolution. This model assumes that:

- Demand driven services can be met by rural entrepreneurs
- The services will include both commercial and non commercial ones.
- People will be willing to pay for many of these services, thus leading to a revenue model and economic viability of the kiosk/ knowledge centre.

However, participants' views of economic viability also differed. One view holds that centres that are able to meet their operating cost may be considered economically viable. Here, the capital cost must be borne by the government or philanthropic institutions. The other view is that the cost of the entire kiosk should be covered through revenue generated by it, thereby making it a bankable project. Another aspect of economic viability is the time frame under consideration. It is argued that viability of projects with social and community

benefits could be viewed over a much longer time frame as compared to purely 'for profit' enterprise.

Even proponents of the entrepreneur model concede that the survival of the rural entrepreneur would depend on a variety of factors beyond their control, in particular:

- Development of content grids that can provide content relevant to the needs of local communities.
- Continued up-gradation of connectivity and continuous policy support of the government.
- Continued innovation by public and private R&D institutions to find applications that make knowledge centres/kiosks viable in the long run.
- On-going capacity building of knowledge workers and rural entrepreneurs.

Some voices of the proponents of this model are given below:

- We need to develop business models that will ensure long term sustainability of the knowledge centres **(Ms Surekha Subarwal, UNDP)**
- Knowledge centres should be self sustaining and the only sustainable model is a bankable one. NABARD believe that the model should be individual driven as common assets are generally not taken good care of. **(Mr S M Sheokand, NABARD)**
- Sustainability has to come from economic empowerment. Even e-chaupal started with economic empowerment and now the movement is strong enough to take up social issues. An important issue of sustainability is who will manage the knowledge centre? The rural entrepreneur being the man on the spot is the best judge to decide on the local needs **(Ms Aruna Sundarajan, DoIT)**
- Kiosks will need to provide multiple/ integrated services as no single service will make it sustainable in the short run **(Dr. G V Ramaraju, Media Lab Asia).**
- Sustainable business value creation can happen only if it is anchored in developmental priorities of the community. **(Mr P Ravindranath, HP)**

The Social Development Route

According to this school of thought, there are many regions in the country where sustainability of knowledge centres cannot be viewed in economic terms alone. Such areas include, for instance, the distress hotspots where farmers have been compelled to commit suicides on account of failure of agriculture and the 150 most backward districts where people lack basic amenities and suffer from abject poverty. Such places are in urgent need of primary health care services, education and information/ knowledge services, but usually lack the ability to pay for these services. Ignoring such communities would lead to the propagation of digital apartheid.

However, here community based knowledge centres can be established as common property, which the community can own and sustain in the long run, provided the centre generates substantial social and economic benefits for the community. Initially the capital investment for such knowledge centres may have to be grant based, but eventually the community members who benefit will give back to the centre to ensure its economic and social viability.

Some interesting observations made by proponents of this school:

- Unpaid services are important – if the farmers can't afford to pay, we can get institutions to pay for these services **(Mr R K Varma, Arakay Infonet Pvt. Ltd.)**.
- The Mission aims at setting up VRCs to reach every village in the country. But village level entrepreneurs do not have the expertise, capability or traffic to sustain their enterprise. Neither technology nor software or hardware should be a burden on the kiosk manager, but it should be borne by the government. Thus, sustainable revenue schemes should be introduced in every village to encourage all the entrepreneurs. **(Dr. C Chandramouli, Secretary, DoIT)**
- The service sector represents a huge opportunity to make rural livelihoods viable. The poor are willing to pay if they get the right kind of services. For a knowledge centre to breakeven we need numbers **(Ms Namrata Bali, General Secretary, SEWA)**.
- Community ownership would benefit the people greatly as it would give a sense of dignity to the poor and bring about changes in social relations. Such social indicators are also one way of looking at sustainability **(Ms Namrata Bali, General Secretary, SEWA)**.
- Social sustainability and desirability should be kept in view while discussing the issue of sustainability. Providing these facilities to rural citizens is a basic obligation of the government. **(Prof. M S Swaminathan, Chairperson, MSSRF)**.

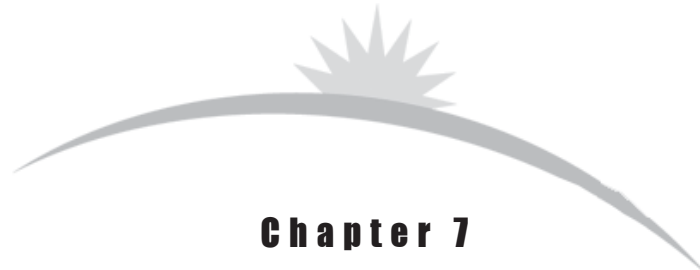
Hence to conclude, sustainability of knowledge centre must be viewed from the view point of the larger model under which it is set up. As the assumptions of each model vary so also will the assumptions of their sustainability. Since Mission '07 has adopted a policy of facilitating an ecosystem of approaches and initiatives, it is to be expected that what is good for one region may not be appropriate for another. However, all the approaches may be valid in their given context.

Sustainability as a Journey

While the doubts and debates about sustainability may continue, this should not distract the Alliance from its Mission. Several participants expressed the need to take a long term view and work towards sustainability through innovative applications and delivery models:

- Sustainability is a journey. It happens over a period of time with the right inputs – services, training and support, infrastructure, access to credit, marketing, etc. **(Mr P Ravindranath, HP)**

- The journey is important. It takes two years to set up a kiosk, but may take several more to make it viable. We must identify better chargeable and non-chargeable services. In due course, this should be able to sustain the cost of running the centres. **(Mr Ram Gopal, Byrraju Foundation)**
- We should first get the system in place and let people start using it without worrying about long term issues of sustainability. **(Mr D C Mishra, NIC)**
- When you lay a road you plan for future traffic. In the same way we must lay the infrastructure for ICT keeping in view the future needs and traffic. We must find those applications that will make kiosks sustainable in the long run. **(Mr Ram Gopal, Byrraju Foundation)**



Chapter 7

Work Plans and Way Forward

Small group discussions at the convention helped to work out future plans on key aspects of the Mission. The main ideas and action points brought out by the group facilitators under the four themes of content, capacity building, care and management and coordination are presented below.

Content

- A grid of content needs to be developed. Some progress has already been made in this area. After two rounds of consultations facilitated by ICRISAT earlier during the year, representatives of a group of SAUs, IITs and IT related institutions agreed to set up a grid of e-content in agriculture and allied sectors, to be called AGRID. The goal of the grid is to contribute to improvements in the livelihood, income and food security of farmers through provision of new generation knowledge, learning and information services and to offer enhanced capacity strengthening and continuing education services to course developers, extension workers, university students and rural learners. AGRID will be implemented by a Consortium of partners, who are willing to join it and sustain it through collective efforts. However, a lot more needs to be done in this direction.
- In developing content, a bottom up process is important because of the danger of leaving out local information and missing out on local needs.
- The demands of information are often highly time specific, for instance, meteorological information. The content grid should be tuned to provide such information in time.
- There is often too much content for the non-familiar user. Hence the mediator is required to sift through the information before passing it on to the end users.
- One of the challenges is to see how to use multiple media in channelling the content.
- GIS maps are found particularly useful for communicating spatial information and should be used where relevant.
- The system should allow data to flow up.

Action points

A group of six volunteers will work during the next few months to develop content on the agricultural sector. It was decided to focus on just one sector to start with, so as to develop the pedagogy before attempting other sectors. Agricultural sector was given priority as it is the most important sector from the view point of livelihoods. C-DAC has volunteered to host a *blog* for this purpose. It is proposed to start with a simple collation of useful websites. A National Digital Repository would be developed in due course, which would include all the sectors under WEHAB.

To address the issue of developing content that is dynamic rather than static and relevant to the needs of local communities, it is proposed to establish area-wise consortia of research institutions, which would commit to interact with local communities on an on-going basis.

(Dr. V Balaji, Head, Information Resource Management Office, ICRISAT)

Capacity Building

- So far, no baseline assessment of the training needs under the Mission has been carried out. However, the training needs represent a pyramid of knowledge and skills starting with a base of functional literacy and ending with managerial skills.
- Capacity building can be of two types: a) 'one to many' which can lead to mass awareness and education and b) 'one to one' which provides timely advise and support in addressing problems related to health, livelihood etc. The system should be able to address both these needs.
- The IDRC 'telecentres' provide a good building block for developing training material. In the area of functional literacy, training commons are already available (for instance with Tata, UNESCO etc.)
- The common service centres could serve as a national delivery channel for such training material.

Action points

There is a need to train one million people as knowledge workers at the grassroots level. A **telecentre university** in collaboration with Jamshedji Tata National Virtual Academy may be created to meet this challenge. **(Ms. Namrata Bali, General Secretary, SEWA)**

QUALCOMM, UNESCO and IDRC have offered to collaborate with NVA in different ways.

Care and Management

- In order to ensure good care and management and governance of the knowledge centers, organized groups or collectives are needed at the grassroots level.
- On the issue of sustainability, the participants felt that this could be achieved both through revenue models as well as social indicators. Continuity should be assured since new areas keep emerging. Hence capacity building should also be an ongoing process.

- Guidelines and indicators for monitoring progress should be developed. Standards are needed to compare performance and impacts.
- Mutual trust is seen as an important component of care and management.

Action Points

A tool kit had been developed by MSSRF for establishing VKCs and VRCs. This needs to be fine tuned.

The ISG has offered to help in developing a multi-level monitoring system (*Ms. Namrata Bali, General Secretary SEWA*)

Coordination

The role of the Mission in coordinating activities is evolving. It is becoming increasingly important as the Mission gets into the implementation stage. Coordination is needed at three levels as described below:

Grassroots level

At this level, it is necessary to maintain a plurality of models. VKCs may come up in a variety of institutions like colleges, NGOs and in public places. There is a need to promote village level entrepreneurship. Care should be taken to include small grassroots agencies and various social groups. External agencies have a role in assisting governance of VKCs and in making the system responsive.

The Mission can help to garland the islands of excellence with the help of intranet and mobilisation of institutional resources.

Intermediate level

At this level, it is necessary to ensure that responsive systems and processes are being set up and that the content generated is of use and relevance at the village level. There is a need to integrate the services of various agencies. There is also a need to lobby to get a lot of content available with public and private institutions placed in public domain. The Mission may need Regional coordinators / chapters to facilitate coordination at the regional level. Participation of the state governments is important.

Secretariat level

At the secretariat level, the following functions are critical:

- Facilitating and brokering meetings between government, private sector and civil society organizations.
- Forging partnerships with other Missions and government initiatives
- Creating opportunities for networking
- Facilitating knowledge and experience sharing and taking forward best practices

- Establishing a help desk, which can provide suggestions or referral service.
- Establishing a Mission website, which enables some of the functions listed above.
- Coordinating with the executive committee and the various task forces.
- Tracking the outcomes of initiatives catalysed by the Mission
- Policy formulation through approach papers, National Commission on Farmers, etc.

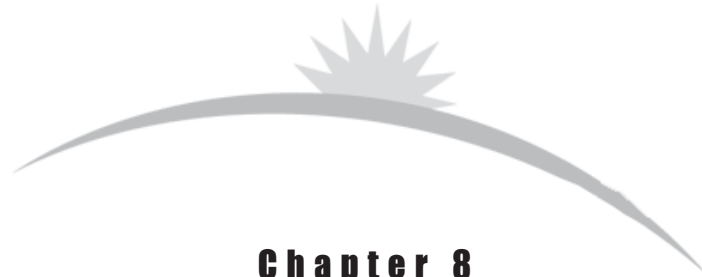
Action points

The partners' duties and roles should get clearly defined. More importantly, the future role of the Mission should be defined.

The Mission should evolve methods to track its own outcomes and develop practical mechanisms for sharing and taking forward best practices.

It should dialogue with various Ministries and departments for taking forward the potential ideas for convergence. **(Dr. Veena Joshi, Focus In-Charge, Rural Energy & Housing, Swiss Agency for Development and Cooperation)**





Chapter 8

Valedictory Function

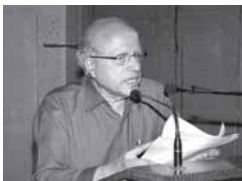
Panel Discussion organised by the Hindu Media Resource Center

The Hindu Media Resource Center of MSSRF organised a panel discussion on the Mission mainly for the benefit of students and other citizens at the Triple Helix Auditorium Chennai on 29th July 2006. In keeping with the objectives of the Center which was endowed by the Hindu group of publications in 1978, the session was organised to provide a public forum where the audience could interact freely with the panellists.

Ms. Rasheeda Bhagat, Associate Editor, Businessline who was the chief guest, inaugurated the function. Prof. M. S Swaminathan, Chairperson Mission 07, introduced the panellists and initiated the discussion.



Some of the key messages given by the panellists:



"15th August 2007 marks the 60th Anniversary of India's Independence. What kind of tryst with destiny do we wish to have on that day?"

- M. S. Swaminathan, Chairperson, Mission 07

"By the end of the 11th Five Year Plan ISRO intends to set up 4000 VRCs across the country such that there is one in each block of the country. These VRCs will be equipped with full video-audio interactivity."



- Dr. V.S. Hedge, ISRO

"The service sector (including ICT based services) represents a huge opportunity to make rural livelihoods viable. The poor are willing to pay if they get the right kind of services."

– Namrata Bali, General Secretary, SEWA



"The vision of what rural India could or should look like practically provides a way forward for all of us to share..... The plurality of (ICT) models has enriched the choices available."

– Aruna Sundarajan, DoIT



"The person who led that revolution (reference to green revolution of the sixties and seventies) we believe can lead the telecom one (ICT based knowledge revolution) as well." the whole world is looking at us!"

– Prof. Ashok Jhunjunwala, Faculty, IIT Chennai



"CDMA technology will be able to bring seamless connectivity in rural India."

– Parag Kar, QUALCOMM

Continued



"The expectations of grassroots organisations have been raised. They believe that ICT can help leap-frog their work at the grassroots level. We want to be one of those (organisations) that can facilitate this process."

– Rufina Fernandez, Chief Executive, NASSCOM Foundation



"People living in deprived conditions do not have the ability to mobilise. Only when they are mobilised do they realise that they have a voice! Once this realisation comes they need to learn what to voice and when; they need the ability and confidence to voice! When they are able to do this, opportunities begin to open up. They should be able to turn these opportunities into livelihood opportunities."

– Bhasheerhamad Shadrach, Senior Program Officer, IDRC





Annexure 1A

Technology Pavilion: Innovative Products and Applications on Display

Institutions and Resource Persons	Innovative products/ applications
IIT, Bombay Prof. Kirti Trivedi	Display of community computer, Rural PC, and Rural Information Kiosk, besides demonstrating various application programmes and content models with easy-to-use, universal, language-independent interfaces.
Amrita Vishwa Vidyapeetham (Amrita) Dr K Satya Sai Prakash	<ol style="list-style-type: none">1. J2ME based tool for Medical Information Dissemination System: This demonstrates the ease with which a paramedic can consult a patient at a remote location using his hand-held device and in real-time get the expert's opinion at a super-specialties hospital and give the prescription information to the patient.2. J2ME based tool for Information Visualization: This tool enables the web search using icons. Based on the given keyword/concept, end-user can navigate through iconized concept trees to get the desired information. This is one way of overcoming the language barriers in information dissemination.3. X-Ray Digitizer (Patent Pending): The tool enables the transfer of X-Ray frame

taken at a remote location through any network and enables the expert present at super-specialty hospital to view the same for his prescription.

Centre for IT Services Mr M. Nahas	Demonstration of Variety of tools and services ICT Tools: e-Office, Benefit Administration, Integrated Finance Management, Citizens Service Delivery Monitoring, Daak Administration, Office File Management, Work flow Automation, Plan Progress Monitoring, Data Management, Asset Management, Process Automation, MIS Solutions, Business Intelligence Solutions Data Management Tools Report depository, MIS Report Bank, ETL Tools, Electronic filing Tools, Output Management, e-Report – Data, Reporting Management and MIS Suite
UNICEF Mr CS Ravichandran	Demonstration of Content 1. SSK (Shishu Shiksha Karmasuchi) 2. IEC -e-Warehouse (Information Education Communication) 3. DevInfo 4. Meena Communication Initiative
Intel Mr Sunil Pathak	Intel Powered Community PC with Partner solutions
Vadalur Knowledge Centre Mr. John Nelson	Cable casting method in community Radio
TATA BP Solar India Limited Mr Mitesh Sharma	Display of solar power solution systems for interactive centers / information kiosks, replacing / supporting the unreliable grid power at remote rural locations with the following products a) JUGNU Solar Home Lighting systems. Packaged 12 V systems containing module, battery, regulator, high efficiency electronics & luminaries.

	<ul style="list-style-type: none"> b) Venus Home Lighting Systems. Ready-to-use kit containing solar module, battery, MCR charge controller & luminaries. c) TATADEEP Solar Lanterns. Ideal Portable Lighting systems d) ECOGENIE Solar Power Packs. Designed to power lights, fans & TV. e) Solar Man Packs.
TeNeT Group Dr. Ashok Jhunjhunwala	TeNeT Developments on ICT front.
TARahaat Mr Surender Rana	Display of Package for addressing illiteracy and unemployment
Multi Commodity Exchange of India Ltd. (MCX) Mr. S. A. Srinivas	<ul style="list-style-type: none"> 1) Presented the integrated commodity market platform offered by MCX-NSEAP-NBHC to the commodity eco-system participants. The three entities together provide complete post-harvest solutions – price-risk hedging, warehousing & logistical services & spot marketing of commodities. 2) Computer System displaying the virtual Traders Work Station 3) Ticker Boards displaying the spot/futures commodity market prices – showing how the problem of hoarding of information and resultant information asymmetry may be solved at the level of small/marginal farmers.
Jhai Foundation Dr. Lee Thorn	Display of JhaiPC/GlobalPC device
Network for Information & Computer Technology (NICT) Mr Mukesh Hajela	Demonstration of Gram-Panchayat automation software and Co-operative bank automation software
Aunwasha Knowledge Technologies Pvt Ltd Mr Sourav Chakraborty	<p>Display of software product using ICT to help in capacity building and knowledge management.</p> <ul style="list-style-type: none"> a) LMS - Learning Management System (SCORM Compliant)

- b) LCMS - Learning Content Management System (—do—)
- c) CMS - Course Management System (including Grade Book Generation)
- d) SCE - Synchronous Collaboration Environment (Virtual Classroom)
- e) TMS - Training Management System (for Skill set Gap Analysis)
- f) Assessor - IMS QTI Compliant Assessment (Testing)
- g) DKL - Digital Knowledge Library (building institutional repositories)

Kamyab Agri-Infotech Pvt Ltd Dr. Simon Holland	Agriculture & Business Solutions - ICT Tools to support farmers improve processes and enable decision making
Indian Institute of Information Technology and Management- Kerala (IIITM-K) Dr. K.R.Srivathsan	Display some of their agricultural related ICT projects and its activities.
TCS Mr. Rajesh Ganesan	Adult Education using ICT and others
MAKSAT Mr. Tarun Malhotra	Demonstration of Wireless Connectivity Hardware
QUALCOMM Mr Parag Kar	Demonstration of the BREW application for Mobile Technologies.
Novatium Solutions (P) Ltd Mr Yuvaraj Galada	Novatium Technology products: Thin Clients A thin client, sometimes also called a lean client, is a computer (client) in client-server architecture networks which depends primarily on the central (thick) server for processing activities. The word "thin" refers to the small boot image which such clients typically require - perhaps no more than required to connect to a network and start up a dedicated web browser or "Remote Desktop" connection.

Centre for Development of
Advanced Computing (C-DAC)
Dr. N. Sarat Chandra Babu

Software products for rural users

Apart from the above, the following institutions also participated in the Technology Pavilion and displayed their products/ services/ applications:

- Aarkay InfoNet Pvt. Ltd.
- Central Tuber Crops Research Institute
- Indian Society of Agribusiness Professionals
- International Computer Science Institute
- M. S. Swaminathan Research Foundation
- Media Lab Asia
- Microsoft Corporation India Pvt. Ltd.
- Naveen Gram Agrotechnologies Pvt. Ltd.
- NicheKen Technologies Pvt Ltd.
- Prayas
- Rasta
- South Indian Federation of Fishing Society
- Student's Welfare Association





Annexure 1B

Technology Pavilion: List of Participants

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