Investigation of a framework for impact assessment of ICT-led pro-poor information initiatives

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Investigation of a Framework for Impact Assessment of ICT-led pro-poor Information Initiatives

By

Basheerhamad Shadrach

A Doctoral Thesis
Submitted in partial fulfilment of the requirements for the award of
Doctor of Philosophy of
Loughborough University
2004

Supervisor:
Professor Ron Summers BSc, MSc, PhD, CENG, Minst MC
Department of Information Science

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Abstract

Despite the availability of numerous research that demonstrate the potential role of information and communication technologies (ICTs) in social development and in poverty alleviation, scepticism among the policy-makers, donors and the private sector remains. Without a major investment by the above in the developing countries, the world will inevitably witness a two-tier information society. The impact studies in ICTs so far have concentrated on how much cash will be generated, how much production will be increased, or how many jobs will be created, rather than the wider social and livelihood issues. The proposed ‘Pondicherry Framework’ in this research study is an attempt to address this gap in ICT research.

As an holistic framework combining both qualitative and quantitative techniques, the ‘Pondicherry Framework’ is a participatory approach to assess the impact of ICTs on the lives of the poor. Led by the poor people themselves, with an external researcher facilitating the process, the evaluation focuses on the four pillars of ICTs, namely, Access, Content, Partnerships and Sustainability. These pillars are not studied in isolation, but in the light of a community’s wider social and livelihood issues. The framework seeks to explore the role played by the stakeholders, especially the transforming structure that influence the poor people’s access to knowledge and information using the ICTs. The outcomes of the impact assessment are aimed at capturing the learning points for future action rather than measuring the success level of ICTs, and, placing the effects of ICTs on a impact assessment continuum.

The framework that evolved during the field study carried out in the seven project villages of the M S Swaminathan Research Foundation in Pondicherry, India, is a simplistic model and can be applied in both rural and urban settings, without the need for huge investments. The application of the framework by the poor people themselves as the main evaluations in Pondicherry produced encouraging results. The lessons learnt in the evaluation have helped the stakeholders to undertake corrective measures and follow-up action.
"Defend the cause of the weak and fatherless; maintain the rights of the poor and oppressed. Rescue the weak and needy".

-Psalms 82:3,4a
Acknowledgements

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I also acknowledge with thanks the faculty scholarship of Loughborough University awarded to me for this study.

But for the people of the seven project villages of Pondicherry where I tested my evaluation framework, this study would not have become a reality. My sincere thanks goes to them with the hope that their good work that has given birth to the 'Pondicherry Framework' will become a learning and empowering tool in the hands of the millions of poor people across the world. My sincere gratitude goes to Mr G. Jayakrishnan, the leader of the evaluation team, Mr K. G. Rajamohan, Mr R. Rajasekharapandy, Ms A. Ananda Lakshumi, Mr J. Gobu, Ms P. Packialouchmy, Mr S. Senthilkumaran, Professor Subbiah Arunachalam and their teams in Pondicherry and Chennai. My special word of thanks to Professor M. S. Swaminathan for his kindness that enabled me to work in the M. S. Swaminathan Research Foundation’s project villages for this study.

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<td>Building Information Community in Africa</td>
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<td>CIDA</td>
<td>Canadian International Development Agency</td>
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<td>DFID</td>
<td>Department for International Development</td>
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<td>FAO</td>
<td>Food and Agricultural Organisation of the United Nations</td>
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<td>GKP</td>
<td>Global Knowledge Partnership</td>
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<td>ICT</td>
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<td>IDPM</td>
<td>Institute for Development Policy and Management</td>
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<td>IDRC</td>
<td>International Development Research Centre</td>
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<td>ILO</td>
<td>International Labour Organisation</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<td>ITU</td>
<td>International Telecommunication Union</td>
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<tr>
<td>MSSRF</td>
<td>M. S. Swaminathan Research Foundation</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
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<td>PRA</td>
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<td>SLF</td>
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<tr>
<td>SME</td>
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<td>TASKNET</td>
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<tr>
<td>UNDP</td>
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<td>UNCTAD</td>
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<td>UNSCTD</td>
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<td>UNESCO</td>
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CHAPTER 1: INTRODUCTION

1.1 Background

Even as we enter the 21st century, the so-called ‘information revolution’ is upon us, subsequent to the industrial revolution of the 18th and 19th centuries and the agricultural revolution of the 20th century. This information revolution can be characterised by a proliferation of information and communication technologies (ICTs) at the enterprise level as well as at a personal level, and the exponential expansion of e-content. In the industrialised nations, ICTs can also be seen as a response to post-industrialised trends and the growth of information. The pace of change in the information revolution can be expressed as a function of Moore’s Law, that is, the cost of manufacturing computer components and their sizes are halving every 18 months, while their performance is doubling within the same time scale. Thus, while the first two revolutions were a response to scarcity, the latter is a result of abundance.

From the 1950s onwards, the communication infrastructure began a rapid and dynamic phase of expansion that saw a proliferation of the ICTs such as telephones, radios and television sets and the expansion of the media content. However, the penetration of these technologies remained mainly in the developed world from the 1950s until 1990. It has only been since the 1990s that the developing world has been catching up with the West, albeit at a very slow pace. Poor countries – and poor people – differ from rich ones not only because they have less capital but also because they have less knowledge, and also less access to knowledge. The ICTs not only enable the developing nations to acquire knowledge from the developed ones, but also facilitate the creation of new knowledge locally (World Bank, 1999a).

The recently concluded World Summit on the Information Society (WSIS) in December 2003 and the forthcoming one in 2005 are of great relevance and importance for spreading the benefits of the ICTs across all nations and communities.
The WSIS process recognises that the accelerating convergence between telecommunications, broadcasting multimedia and ICTs is driving new products and services, as well as ways of conducting business and commerce. The challenge facing the WSIS debate is how to develop a level playing field for managing the new global order that promises a fundamental change in all aspects of human lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment.

Addressing the inequalities

While attempts are being made through public-private partnerships to remedy the inequalities (Dotforce, 2000, 2001; UN ICT Taskforce, 2001; WSIS, 2003), recent studies show that the slow diffusion of ICTs in the least developed countries poses a threat of further isolating the poor (Kim, 2002; APC, 2003; Gerster & Haag, 2003). Even in this modern age, one third of the world’s population has never made a telephone call. More than half of the world’s population lives in rural and remote areas where access to ICTs is scarce or absent, and has no money to spend on communication services (Commission of the European Communities, 2001). These facts are disturbing, but do not as such provide sufficient reasons to incorporate the promotion of ICTs in development co-operation efforts.

The initial debate around the ‘digital divide’ has focussed a lot on the gap between the ‘have’ and the ‘have-nots’. But, later studies have revealed that the digital divide is not just a North-South phenomenon (ITDG, 2000). Even within the South, the poor and the disadvantaged communities are further marginalized (O’Farrell et al., 2000). To add to the above findings, some studies have revealed that Internet usage has a reverse effect by isolating individuals and decreasing their interpersonal interactions. This finding gains greater significance given Putnam’s (1995, 2000) observation regarding the decline of the social capital in physical communities in the world’s most developed country, the United States.

The widely accepted proxy measure of deprivation and poverty is ‘living on less than a dollar a day’. Taking this as a cross-country definition of the ‘the poor’, we have more than a billion people who can be classified as ‘poor’ (DFID, 1997).
Approximately 40% of them live in India, 22% in China, 8% in Nigeria and a further 14% of the live in Pakistan, Bangladesh, Ethiopia, Indonesia, Brazil, Mexico and Russia combined. The remaining 16% are spread throughout the rest of the world, primarily in Africa. Efforts are being undertaken in the developing nations, mainly through the non-governmental sector including their community-based organisations, to assist the poor communities to enhance their social capital and livelihood opportunities through the use of the ICTs.

The telecentre approach to bridge the digital-divide

Addressing the ICT gap, the evolution of telecentre models initiated by Non-governmental organisations (NGOs) and development agencies such as the Canadian International Development Agency (CIDA) in developing countries since the mid-90s has opened new doors for connecting the unconnected, and has been one answer to the prevailing condition of uneven and unequal access to ICTs in rural and/or remote areas (Qvortrup, 1998; Gomez et al., 1999; Latchem & Walker, 2001). Telecentres are generally defined as, “a location which facilitates and encourages the provision of a wide variety of public and private information-based goods and services, and which supports local economic or social development” (Acacia, 1999).

Telecenters are recognised to have the potential to help break down some of the largest barriers to development that are presently faced by low-income populations, particularly in rural areas (Khumalo, 1998; Gomez et al, 1999; Harris, 1999; Owen & Darkwa, 1999; Rose, 1999; Latchem & Walkers, 2001; Proenza et al., 2001). It is understood that use of a telecentre might enable a rural inhabitant, for example, to gain on-line access to: distant productive assets and services; opportunities to learn better practices through formal and informal sources; crucial market intelligence through informal networks that enhance bargaining power; information on projects, financing institutions and options and support for the rural population; to expanded distant job opportunities and telework; and to persons with similar interests willing to work for a common cause (Proenza et al., 2001).

Since 1999, the telecentre approach has encouraged experts to recognise the importance of the convergence of both new and traditional ICTs to empower these
communities that are characteristically poor due to the social-ills such as poverty, illiteracy, lack of access to finances, unemployment, greater dependency on farm labour and poor infrastructure (Girard, 1999; Skuse, 2001; Kenny, 2002). Although telecentres appear not to have a universally accepted definition, the general concept has been that of a physical centre to provide public access to long-distance communication and information services, using a variety of technologies, including phone, fax, computers, and the Internet. Telecentres have been publicly or privately owned, being a part of a public or private franchise, or been provided by international donors. They have run the spectrum from ‘phone shops’ through to ‘cybercafes,’ cottage telecentres for telework or telecommuting, and specially constructed multipurpose community telecentres (MCTs), some with advanced services, such as medical diagnosis and telemedicine.

The earliest telecentres in Europe started before people had access to the Internet, but access to the Internet became important for telecentres once they progressed beyond the status of the basic ‘phone-fax shop.’ Successful community telecentres in developing countries have learnt from these experiences and recognised the need to provide related services, such as user training, distance education, keyboard and business training, “job shops,” and community programs. Partly for this reason, some national programs have located their telecentres in existing institutions, such as libraries, schools, and chambers of commerce.

The International Development Research Centre (IDRC)-funded rural knowledge centre project (known as the “info village” project), implemented by the M. S. Swaminathan Research Foundation (MSSRF) in Pondicherry, India (Dagron, 2001); the UNESCO-sponsored Kothmale community radio initiative in Sri Lanka; and, the infodev-funded ‘infodes’ project in Lima, Peru are only a few of the thousands of telecentre initiatives around the world (Development Gateway, 2003) that aim to increase the income opportunities of poor communities using new and traditional ICTs. Similar to the scenario observed since twenty years now in the U.S. (Durrance, 1984), these initiatives in the developing world have now been focusing on providing three types of information to the communities they serve: human service information, local information and citizen action information.
Twenty years later, a survey carried out by Pettigrew et al. (2002), reveals that the information needs of the communities in the U.S. has not changed as they seek the following types of information: Business; Computer/technical; Education; Employment – sites, opportunities, requirements, forms, etc.; Financial support; Government/civic; Health; Housing; Library operations and services; and, Local events (Pettigrew et al., 2002). A recent survey carried out by the MSSRF (Senthilkumaran, 2002), suggests the information needs of the poor communities in the developing countries are similar to the above needs in the U.S.

ICT initiatives in India

There have been more than one hundred initiatives in India alone since 1997 that involve ICTs as a solution to the alleviation of poverty. Some examples are:

- Gyandoot¹ in Madhya Pradesh, initiated by the District Administration
- Bhoomi² in Karnataka and similar efforts by various provincial governments
- Sustainable Access in Rural India project³ in Tamilnadu, initiated by IIT-Madras; MIT Media Lab; Berkman Center for Internet and Society, Harvard University Law School; and the I-Gyan Foundation. It is carried out jointly with n-Logue Communications Pvt. Ltd.
- Wired Village project⁴ in Maharashtra initiated by the National Informatic Centre in partnership with the central, state and local governments
- InfoVillage project⁵ of M S Swaminathan Research Foundation in Pondicherry

These projects claim to have bridged the digital divide that allows information advantage for the poor in the remotest parts of rural India. The available impact studies and first impression of these initiatives have all been positive (IDRC, 2000), even claiming India as the laboratory for testing out new technologies that bring cheer to the lives of the poor (Ribeiro, 2002).

¹http://gyandoot.nic.in/
²http://www.revdept-01_kar.nic.in/Bhoomi/Home.htm
³http://edevlpment.media.mit.edu/SARI/mainsari.html
⁴http://www.mah.nic.in/warana/
⁵http://www.mssrf.org
Prevailing scepticisms and the need for evaluation studies

While these initiatives continue to remain as pilot and research initiatives, they have so far failed to interest the private sector in a substantial way. Most of their contributions have so far remained as market exploration studies and research experiments. This scenario raises the question as to why these initiatives have not been adopted on a large scale, and after six years of implementation, why not much progress has been made? Are these initiatives really proving to answer the problems of the poor? How are the ICTs instrumental in meeting the needs of the poor, and in-turn, in empowering communities and enhancing their livelihood opportunities?

The answers to the above questions will of course address a number of issues, and change the minds of the donors and the governments who hesitate to impress the venture capitalists to invest in ICTs as opposed to other developmental priorities such as clean water, roads, electricity and food supply (Valantin, 2000). After all, the donors do question the relevance of talking about access to computers, when the poor lack the basic developmental needs mentioned above. Development budgets are limited and development policy is a matter of setting priorities. It is essential to invest time to understand the ICTs, their characteristics, their behaviour and above all, the people’s ability to use the tool.

While critics in the public sector need more evidence and many more impact studies that demonstrate the usefulness of ICTs, the private sector is equally concerned about how the global information technology providers may be able to extend their benefits to the 4 billion people who live in relative poverty at the bottom of the economic pyramid (Prahalad & Hammond, 2002). The challenge facing the private sector in this respect is: is it possible to expand the global market system to include those who have no stake in it – to expand market provision for the poor, thereby providing direct benefits and expanded opportunities for poor communities? Thus, the growing concern for demonstrating the impact of the ICTs therefore seems to be primarily driven by the need to justify urgent and massive investment in these areas. Menou (1999) has long ago argued that the above approach may be short-sighted and unproductive as the impact itself is floating in a continuum of assessment perspectives ranging from mere penetration to sustainable social transformation and beyond.
The available literature on ICTs and their impact on the poor focuses more on the role of information in development, rather than the ICTs themselves. The literature that does focus on the impact of ICTs deals extensively with quantitative issues such as how many people accessed, identified information, what technologies were used, performance measurement and how many jobs were generated, rather than a broad range of human and livelihood issues. As indicated previously, it is surprising that of the ICT assessment studies undertaken, the vast majority reveal solely positive outcomes. Attempts to capture and document information on unsuccessful or failed initiatives have gained little or no success (Heeks, 1999, 2003).

Gaps in evaluation studies

The reason behind ICT assessment studies revealing only positive outcome are mainly due to the fact that most of the impact assessments of pro-poor ICT projects have been carried out either by visiting academics from the West, or by the project staff to fulfil donor requirements. A number of such reports have appeared in the recent past concerning various ICT initiatives in India (IDRC, 2000). Further, a number of papers have been presented at international conferences reflecting the positive components of ICTs by the programme implementers (Arunachalam, 2002). Almost all these assessments have followed the route of traditional questionnaire surveys or interviews carried out by the visiting scholars among the rural population.

For these urban-based professionals and academics from developed countries, the primary experience of rural conditions is touring of specific areas. Chambers (1983) terms this “rural development tourism” and it is as popular currently as it was when the term first coined. Chambers goes on to suggest that the assessments of the above category of ‘experts’ are based on biases such as:

a) Spatial bias: concentrates rural visits near towns and especially near capital cities and large administrative centres.

b) Project bias: is most marked with the showpiece of the nicely groomed pet project or model village, specially staffed and supported, with well-briefed
members who know what to say, and which is sited a reasonable but not excessive distance from the urban headquarters.

c) Person biases: often the elite, male contacts made during these visits, concentrates on those who are active and more visible than those who are not.

d) Dry season biases: knowingly or unknowingly avoids difficult journeys and the fear of finding sick and unfed people during the wet season.

e) Politeness/timidity bias: often deterred by combinations of politeness and timidity from approaching, meeting, listening to and learning from the poorer people.

f) Professional biases: for all its advantages, more generally, makes it hard for observers to understand the linkages of deprivation.

Chambers (1983) provides an important source for the research methods employed in this thesis, as he has introduced the participatory approach that has led to the introduction of approaches such as the Participatory Rural Appraisal (PRA), Urban Rapid Appraisal (URA), and the Rural Rapid Appraisal (RRA).

Need for a participatory approach in evaluation studies

The conventional project impact assessments tend to look inward on internal management issues, focussing on project objectives, through planned activities. To gain a broader picture of the wider development and poverty reduction impact of projects, evaluation experts feel that assessments must take a long-term view, looking at both intended and unintended consequences of projects across a variety of livelihood concerns that affect the people (Carney, 1999; Ashley & Hussein, 2000). This can be achieved only when the people in question are involved in the design and implementation of evaluation studies, after all, it is their reality that counts (Chambers, 1997; UNDP, 1997). A number of groups have raised this issue in the past and are increasingly demanding both participative as well as transparent approaches to impact assessment of ICT programmes (APC, 2000; Badarudin, 2001; LEAP Workspace, 2001). However in practice, this seldom happens, and is a major driver for the approach taken up in this thesis.
A number of examples can be cited to indicate that the evaluations carried out by the outsiders or 'experts' with no or little consultation with the people in question have brought forward misleading findings. Although approaching two decades old, the following five examples from Chambers (1983) still illustrate the situation today:

- R. S. Arole (1977) found in Maharashtra in India that when professional project staff surveyed a village to establish the incidence of abortion, not a single woman admitted having had one; but the village health worker, who was close to them, regularly reported abortions, legal and otherwise.

- A careful investigation in Nepal (Campbell et al., 1979) showed that the Nepal Fertility Survey understated the knowledge of rural people in medical and family planning matters. A separate investigation compared the response given in the survey with those obtained by a more careful survey, including a follow-up to crosscheck negative responses. The results were striking. The low responses in the Nepal Fertility Survey can be attributed to factors such as: unintelligibility of the questionnaire, which used a highly literate variety of the Nepali language; the sensitivity of the subject; and, the social setting of the interview.

- Mahmood Mamdani, in his book, The Myth of Population Control, found a survey team recording misleading information on the acceptance of family planning data on the basis of the local people accepting the tablets that were distributed free of cost. Mamdani found out that the tablets were never used, however, the survey results reported otherwise (Mamdani, 1972).

- The result of sociologists' survey in Peru revealed that the people in the village invariably worked together on each others' individually-owned plots of land. But, later findings proved the phenomenon wrong (Conlin, 1979).

- A rechecking carried out by the local people found out that a survey carried out by enumerators in Tamil Nadu in India on the acreages under crops was misleading (Chinnappa, 1977).

To avoid the errors such as the ones above, a number of participatory research experts strongly recommend the careful application of participatory approaches to development (Chambers, 1997; Clayton et al., 1997; Hart, 1997; World Bank, 1999b; Cornwall, 2000; Narayanan et al., 2000). They argue that participation both as an
element and instrument of change implies three premises. First of all, participation is assumed to be a most appropriate tool to implement, enforce and/or encourage change for/in development (Cleaver, 1999). Secondly, participation is assumed to be able to make a difference compared to the former strategies and approaches of development or the development initiatives, which do not rely on participation. It is considered to represent a paradigm of reversals, such as the turn top-down processes into bottom-up processes, to replace 'blueprint' by 'learning' approaches', and 'growth-centred' by 'people-centred' approaches (Korten, 1990; Long & Villareal, 1994; Chambers, 1995; Hart, 1997). Finally, the participation paradigm relates its potential for making a change or a difference to its engagement with questions of change and difference and diversity (Chamber, 1997; Cornwall, 2000).

1.2 Research aim and objectives

It is evident from the analysis above that there is clearly a gap in evaluation studies. Evaluation studies carried out by third party professionals or by the project staff themselves have been found to be flawed due to discriminatory bias and warrant a closer look at the approaches to evaluation of pro-poor rural projects. ICT initiatives have no exemption from this process and there is a evolving need for involving the beneficiaries as stakeholders in any evaluation process. The poor must express information about their needs and conditions themselves, and also be given a chance to design and implement solutions. The role of the beneficiaries in an evaluation study that focuses on learning lessons from experience is scarce. The present study recognises this gap and the acute demand for unbiased assessments of pro-poor ICT initiatives in rural areas.

Research aim:

The aim of this research study is to investigate an ICT programme so as to point to structures for a new evaluation framework that is rooted in the participatory approach, while at the same time allowing for the integration of traditional evaluation techniques wherever possible. It is anticipated that the research aim will serve to address the question of whether there is a demand for methodological holism in assessing the impact of ICTs in people's lives.
Research objectives:

To achieve this aim, the following objectives were formulated to understand some methodological issues in evaluation studies concerning the inception of ICTs in pro-poor rural projects:

Objective 1:
To analyse existing evaluation approaches and practices with a view to develop a new evaluation framework for evaluating pro-poor rural ICT projects.

Objective 2:
To involve beneficiaries as principal protagonists in an evaluation study in order to understand the perspectives of the participants on social and livelihood concerns associated with the introduction of ICTs in pro-poor communities.

Objective 3:
To build on the existing literature with regard to the assessment of the impact of information on development and the impact of ICTs in the lives of the poor.

Objective 4:
To explore the possibilities of combining participatory evaluation techniques with other approaches in order to understand the constructive roles that could be played by the third party evaluators and beneficiaries themselves in the evaluation process.

1.3 Plan of the report

The next chapter looks critically at the literature on ICT and the policy directions driven by academia.

The third chapter deals with the methodology that has been applied in the present investigation with statements about the research design, the rationale behind choices of methods selected in different phases of this research.
The fourth chapter focuses on approaches to evaluating development projects with a view to understand if and how pro-poor ICT impact assessment studies are being carried out. In addition, the chapter explains the concepts, principles and the rational behind how the new evaluation framework is introduced and developed for the purpose of evaluating an ICT project in India.

The fifth chapter presents the data collected to assess the need for the new evaluation framework, and subsequent application of the framework at the ‘info village’ project sites of the MSSRF in India.

The sixth chapter discusses the data obtained using the evaluation framework in the light of existing literature and compares it with traditional evaluation methods. The chapter also looks critically at the researcher’s evaluation framework, providing pointers to its strengths and weaknesses.

The last chapter presents the conclusions of the research study as well as makes further recommendations for future work.
CHAPTER 2: ICTs AND THE INFORMATIONAL MODE OF DEVELOPMENT: A CRITICAL REVIEW

2.1 Background

The information technology revolution, popularly known as the third revolution, is one with a difference. While the first two revolutions or the modes of development, industrial and agricultural, happened due to scarcity and the lack of demand for new productivity, the information revolution, or in other words, the informational mode of development is due to its abundance.

Development is better understood since the second World War to involve economic growth, increases in per capita income, and attainment of a standard of living equivalent to that of the industrialised countries (Mansell and Wehn, 1998). However, this concept of development gives too little consideration to the non-material aspirations of people in developing countries (Bezanson & Sagasti, 1995). Since there is no agreed definition of the meaning of development, it is understood that each country would reach its own consensus on the changing meaning of development based on the social setting and people's capabilities. We have witnessed in the recent past the attempts by UNDP to regionalise their efforts around development indices. Castells (2000) summarises that the emergence of new social structures, manifested in various forms, depending on the diversity of cultures and institutions throughout the planet is associated with the new mode of development.

Following the well-established traditions in theories of post-industrialism (Touraine, 1969; Bell, 1976; Woodward, 1980; Roszak, 1986; Lyon, 1988; Touraine, 1992), the new mode of development, in Castells’ words (1994, 1996, 2000), informationalism, historically has been shaped by the restructuring of capitalist mode of production towards the end of the 20th century to a process around human-centred processes structured by relationships of production, experience and power.

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6 http://hdr.undp.org/reports/view reports.cfm?type=2
The historical sequence of the information technology revolution has been well recorded through the works of Forester (1980, 1985, 1987, 1989, 1993); Braun & MacDonald (1982); Naughton (1994); Ceruzzi (1998); and, Abbate (1999). Although the scientific and industrial predecessors of information technology can be found decades before the Second World War and its aftermath, it was only during the two decades from the late 1960s to the late 1980s, a series of scientific and technological innovations have converged to constitute a new technological paradigm (Guile, 1985; Forester, 1987).

The scientific and technological core of this paradigm lies in microelectronics, building on the sequential discoveries of the computer in 1946, the transistor in 1947, the integrated circuit in 1957, the planar process in 1959, and the microprocessor in 1971 (Braun and McDonald, 1982). Computers, spurred on by exponential increases in power and dynamic decreases in cost per memory unit7 (Moore, 1965), were able to revolutionise information processing, in both hardware and software. In only three years between 1959 and 1962, the price of semi-conductors fell by 85 percent, and in the next ten years production increased twenty times (Braun and MacDonald, 1982). As a point of historical comparison, during the industrial revolution, it took 70 years (1780-1850) for the price of cotton cloth to drop by 85 percent in Britain (Mokyr, 1990).

In the last twenty years of the 20th century, increasing chip power resulted in a dramatic enhancement of micro computing power. The extraordinary versatility and the capacity to add memory and processing capacity by sharing computer power in the electronic network decisively shifted the computer age in the 1990s. Not only did the whole technological system change, but its social and organisational interactions as well. Thus, the average cost of processing information fell from around $75 per million operations in 1960, to less than one-hundredth of a cent in 1990 (Castells, 2000).

7 Popularly known as the Moore's law was based on his work in 1965
Telecommunications have been revolutionising also by the combination of node technologies and new transmission technologies. Major advances in opto-electronics and digital packet transmission technology dramatically broadened the capacity of transmission lines. The convergence of electronic technologies into the field of interactive communication led to the creation of the Internet. Telecommunications and the Internet thus became the key vector and perhaps, the most revolutionary technological medium of the information age for the diffusion and full utilisation of the information systems (Naughton, 1994; Abbate, 1999).

Aided by the massive macro-research programmes and large markets developed by the state on the one hand, and decentralised innovations stimulated by a culture of technological creativity and the role models of fast personal success on the other hand, the new technological revolution blossomed in the last decades.

2.2 The new technological paradigm

Manuel Castells (1989, 1994, 1996) and others such as Kranzberg (1985), Landau and Rosenberg (1986) and Rosenberg (1986) argue that social, economic and institutional factors have been decisive in the coming together of these different scientific innovations under the form of a new technological paradigm. As the specificity of the new technologies plays a major role in the structure and evolution of this paradigm, they further characterise the paradigm by two fundamental features: a) information processing; and, b) the transformation of the processes, rather than the resulting products. The core of new technologies is focussed on information processing, reiterating that information and knowledge have been crucial elements in all technological revolutions, since technology ultimately boils down to the ability to perform new operations, or to perform established practices better, on the basis of the application of new knowledge.

The first characteristic of the current process of technological paradigm is that its raw material itself is information, and so is its outcome. (Rosenberg & Birdzell, 1986; Mokyr, 1990; Castells, 1996, 2000). The second major characteristic of the new technologies as common to all major technological revolutions, is the effects of their innovations on processes, rather than on products (Kranzberg and Pursell, 1967;
There are, of course, major innovations in products, and the surge of new products is a fundamental factor in spurring new economic growth. However, the deepest impact of innovation is associated with the transformation of processes. The third characteristic refers to the networking logic of any systems or set of relationships using these new information technologies (Kelly, 1995), and the potentials it offers in terms of greater productivity, and efficiency. The morphology of the network seems to be well adapted to increasing complexity of interaction and to unpredictable patterns of development arising from the creativity power of such interactions.

With the networking logic, it is imperative to consider the fourth characteristic of this new paradigm as the complete flexibility it offers in terms of production, consumption and management (Piore & Sabel, 1984; Boyer & Coriat, 1987; Castells, 1996). By increasing the flexibility of all processes in a networked environment, the above authors believe that new information technologies contribute to minimising the distance between economy and society.

2.2.1 The new technology paradigm and its effects on the society

Authors such as Perez (1983), Rosenberg & Birdzell (1986), Mokyr (1990), Mansell & Wehn (1998) and, Mansell & Steinmueller(2000) believe that the unique characteristics of the informational technological paradigm have fundamental effects on society. A fundamental consequence is derived from the essential process-orientation of technological innovation as it enters into all spheres of human activity. The transformation of human activity by such technologies focusing on omnipresent flows of information, leads to modification in the material basis of the entire social organisation. Thus, new information technologies are transforming the way we produce, consume, manage and live, not by themselves, certainly, but as powerful mediators of the broader set of factors that determines human behaviour and social organisation (Castells, 1989; Morales-Gomez & Melesse, 1998; Cisco Systems, 2001). Their value in social organisation beyond geographical borders is also well recognised (Mansell & Wehn, 1998; Hamm, 2001; Young et al., 2001). Their consequences in fields such as agriculture, health, education, human resources,
environmental management, transport and business development could be revolutionary.

The fact that new technologies are focused on information processing has far-reaching consequences for the relationship between the sphere of socio-cultural symbol and the productive basis of society (Castells, 1989). Information is based upon culture, and information processing is, in fact, a symbol of manipulation on the basis of existing knowledge that is verified by science and/or social experience. Castells further argues that the predominant role of new information technologies in the process of innovation is to establish ever more ultimate relationships among the culture of society, scientific knowledge, and the development of productive forces. The more a society facilitates the exchange of information flows, and the decentralised generation and distribution of information, the greater will be its collective symbolic capacity (World Bank, 1999a). In this sense, the new information technology paradigm emphasises the historical importance of the Marxist proposition on the close interaction between productive forces and social systems (Castells, 1996).

The terminological origin of notions of information society, based on post-industrialism derives from balanced presentations of theories in the past two decades by authors such as Beniger (1986), Katz (1988), Williams (1998), Salvaggio (1989), Ito (1991), Postman (1992), Webster (1995), Winters & Williams (1998) and, Mansell & Steinmueller (2000). While the above traditions offer historical and theoretical perspectives of the post-industrial information society, for the first time at the policy level, in Europe in 1993, the European Commission visualised an information society in which it recognised the advance of new technology as inexorable (European Commission, 1993):

'it would be fruitless to become embroiled in a fresh dispute about the "machine age", as was the case with the industrial revolution. World-wide dissemination of the new technologies is inevitable'.

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8 United Nations Secretary General Kofi Annan in a speech to the United Nations Commission on Science and Technology for Development in 1997
At the same time, the European Commission's (1993) White Paper recognises that the new paradigm is also one in which some form of social regulation may have a role. The key mechanism for the development of productive forces in the new technological paradigm is the ability of a given social organisation to educate and motivate its labour force while at the same time setting up an institutional framework that maximises information flows and connects them to the developmental tasks (Castells, 1989; European Commission, 1993).

To sum up, the new information technology paradigm has five distinct features:

a) information as a raw material to act upon;

b) the pervasiveness of information technologies used;

c) the networking logic of any system using them;

d) flexibility; and,

e) the convergence of technologies.

The information technology paradigm thus leads to a new mode of development called 'informationalism' (Castells, 1989; Mansell and Wehn, 1998). This is the attribute of a specific form of social organisation in which information generation, processing and transmission become the fundamental resources of productivity and power.

2.2.2 Industrialism to informationalism

The fundamental spheres of industrial mode of development, under the influence of economic and social factors have largely been structured by the mode of production (Landau and Rosenberg, 1986; Rosenberg, 1986; Castells, 1989). However, the main process in the informational mode of development is not the shift from goods to services, but the emergence of information processing as the core, fundamental activity conditioning the effectiveness and productivity of all processes of production, distribution, consumption and management, as seen in the post-industrial society (Castells, 1980). The hard core of these services is composed of knowledge, which structures and provides adequate meaning to the mass of information required to manage organisations and to increase productivity (World Bank, 1999a).
Informationalism results on one hand, due to the constitution of mass markets, and the increasing distance between buyers and sellers. Clearly, this trend has created the need for specific marketing and effective distribution by firms, thus triggering a flurry of information gathering, analysing and distribution systems, to establish a connection between two ends of the market. On the other hand, under the pressure of social demands, often expressed by social movements, a growing share of information dissemination activity has been undertaken by the state as a right rather than as a commodity, giving rise to the welfare state.

In the sphere of state intervention, the world has witnessed in the past half-century a huge expansion of government regulations of economic and social activities that has generated whole new administration, entirely based upon information flows and information-based decision taking processes. Thus, the formation of a welfare state has produced gigantic information systems affecting most people and most activities, spurring growth of bureaucracies, the formation of service delivery agencies and consequently creation of millions of jobs in information handling (Petit, 1986). In the U.S. alone, in 1986, services accounted for 71 percent of total employment and 68 per cent of GDP (Quinn, 1987). This transformation did not result in the decline of manufacturing activities, rather the dramatic increase in service jobs occurred mainly due to job transfers from agriculture, a trend witnessed in the US in 1970s (Singlemann, 1977), and one being witnessed in the developing world today.

Similarly, in Europe, the 1993 European Commission White Paper proved to be the most influential and enduring policy statement articulating the vision of the information society (European Commission, 1993). The White Paper linked reducing unemployment to building the information society by noting the significance of information and communication technologies for stimulating growth and employment. Almost all the European governments have pronounced programmes since then for innovation and jobs in the information society (European Commission, 1998; BMBF, 1999) in order to combat unemployment, and to secure a high and sustainable level of employment.
However, the above trend also forces change in form and the functions of the state in relation to the globalising, knowledge-driven economy (Jessop, 2001). It is slowly emerging that informationalism and networking logic are transforming the understanding of a welfare state (Bell, 1979; Messner, 1997; Willke, 1997; Kelly, 1998; Melka et al., 2003). The state monopoly of information services has led to the intervention by civil society movements and in increasing demand for information pertaining to citizens' needs.

Castells (1997) in the second volume of his trilogy concludes that power is no longer concentrated in institutions (the state), organisations (capitalist firms), or symbolic controllers (corporate, media, Churches). It is diffused in a global network of wealth, power, information and images, which circulate and transmute in a system of variable geometry and dematerialised geography. Yet, it does not disappear. The new power lies in codes of information and in images of representation produced by people's minds and constructed in identities. Castells (1989) grounds the above argument by stating that rapid innovations in information technologies has created facilities for two-way information flows, making it possible for the civil society to control the state on democratic principles without paralysing its effectiveness as a public sector entity. Thus, the information mode of development has created opportunity for a greater role for the civil society in institutional reforms and in forcing governments to be more responsive and accountable to the people (Heeks, 1998; Paul, 1998; Unesco, 2001; Wescott et al., 2001; Shadrach & Ekeanyanwu, 2003).

2.2.3 ICTs and the civil society

As the ICTs become an essential medium of communication and organisation in all realms of activity, it is obvious that social movements and the political process use, and will increasingly use, the Internet as well, making it a privileged tool for acting, informing, recruiting, organising, dominating and counter-dominating (Castells, 2001). It is now increasingly recognised that the concepts of 'community informatics' provide new ways of approaching old problems of community development and enhancing civil society (Durrance, 1984; Kempson, 1990a; Benjamin, 1997; Pettigrew et al., 1999; Pigg, 2001; Liff & Steward, 2003).
Cohen and Rai (2000) have identified six major social movements that have engaged in a global form of co-ordination and action: human rights, women's, environmental, labour, religious and peace movements. McConnell (1998), in his research in Africa found out that the Internet-equipped NGOs were able to use the technology as a tool to assist their unconnected stakeholders. In all cases, the need to build global coalitions, and their reliance on global information networks, make the civil society movements highly dependent on the Internet. Baker & Ward (2002), on the basis of their assessment of three case studies, point out that one of the reasons for ICT-linked formation of communities is geographical linkages. Madon & Sahay (2001; 2002) have found out that the intervention of NGOs using information-based models have opened up communication between citizens and the government.

An oversight function to government processes

A number of national governments have made it possible by law that information pertaining to execution of budgets, to the lowest level of disaggregation; purchase orders and public contracts; payment orders submitted to and issued by the national treasury and other treasuries of the national public administration; financial and employment data concerning permanent and contracted staff, and those working for projects financed by multilateral organisations; an account of the public debt, including terms, guarantees, interest costs, etc.; inventory of plants and equipments and financial investments; outstanding tax and customs obligations of companies and people; regulations governing the provision of public services, and the regulatory organizations themselves; and, all information necessary for the community control of social expenditure (Heeks, 1998; Peruzzotti & Smulovitz, 2001; Subasic, 2002). With the opportunities offered through ICTs, the oversight function of civil society to help governments perform effective functions is being recognised now.

An intermediary role to bridge the gap between the government and its citizens

There is abundant anecdotal evidence that the public’s respect for governments is eroded by political and bureaucratic corruption. A survey (Council for Excellence in Government, 2002) indicates that citizens often times have more confidence in public servants than in politicians. Still, there is only modest comfort in this finding. Citizens
tend to rate the ethical standards of both public servants and politicians less highly than other professions. In Canada, for example, 87% of citizens have high trust in nurses, compared to 46% for business leaders, 30% for federal public servants, and only 13% for politicians (Ekos Research Associates, 1999). The same survey found 83% of Canadians rank the ethical standards of NGO volunteers as high, compared to 65% for small business people, 42% for public servants, and 17% for politicians. Available evidence and common sense suggest that reducing official corruption can enhance respect for governments.

Rebuilding the lost trust among its citizens is vital for governments to continue to perform in the present day. Government reform agenda have geared up the change processes in various countries albeit at a pace that needs acceleration. Governments need to interface with citizens through innovative ways and consult with them for not only providing the required public service, but also for creating a sense of ownership and responsibility in the reform process.

There is therefore a renewed call for a strong partnership between the civil society, public and private sectors, this time to harness the potentials of the ICTs (Yeomans, 1999). Such a partnership may result in helping the communities in overcoming the cultural barriers to information and communication (Skuse, 2001); enabling them to access locale-specific, demand-driven content through the use of appropriate technologies (Swaminathan, 1993; Arunachalam, 2002); aiding in the development of local applications in a participatory way (Richardson, 2000); reiterating the need to be gender-friendly, inclusive and transparent, even if they find the new ICTs to be a threat to their corrupt practices (Heeks, 1998; Hafkin, 2000); and sensitising and reinventing the governments in the information age to be more responsive, listening and accountable to their citizens (Heeks, 2001; Wescott et al., 2001).

Civil society participation in ICT decision-making

At the global decision-making level, although the Valetta Action Plan (VAP)\(^9\), formulated at the Second ITU World Telecommunication Development Conference in

\(^9\) [http://www.itu.int/ITU-D/unic_access/TEST%20-%20BDT%20Connectivity.html] - Link provides background information and the implementation plans [accessed 29.04.00].
March 1998 sought to promote universal access to basic telecommunication, broadcasting and Internet as tools for development in rural and remote areas, the decision-making process is still found to be restricted to the global organisations. It was only when the Focus Group 7 submitted its report that the need for involving the civil society in the rollout of ICTs and telecommunication infrastructure was recognised. (ITU, 2000).

At the G-8 Summit in Genoa, the Digital Opportunity Taskforce (DOTforce) was mandated to draw up proposals to promote more effective universal participation in International ICT decision-making (MacLean et al., 2002). Others such as Adam (2002) and Dzidonu & Quaynor (2002) have also put such a demand forward. It is worth noting that the first World Summit on Information Society in December 2003 at Geneva has opened up opportunities for levelling the playing field for international ICT policy making and has allowed the civil society to feed their input by participating as observers as well as feeding into the mainstream discussions (APC, 2003). As discussed later in this Chapter, the role of the civil society in the ICT arena is more apparent with the telecentre model that has been promoted for a few years now.

2.3 Informationalism and the developing world

As the information age matures and its impacts strengthen, both critical and opposing points of view have arisen. One hypothesis is that informationalism causes inequality. It argues that there will be different classes of citizens in the future created by access to and knowledge of IT, a new form of inequality as witnessed in all previous societies. Indeed the information society may preserve and deepen old inequalities and move poverty and other societal problems and inequalities from one place and arena to another rather than redress social inequality (Hietanen 2001).

The following list shows some of these inequalities witnessed in the present day:

- Ownership Vs. non-ownership of digital technology
- Access Vs. no or little access to the Internet
- Skills Vs. ignorance of digital technology
• Individuals able to use Vs unable to use IT
• Individuals involved in creating IT Vs those who are not involved in IT creation.

While the inequalities exist, the developing countries are predicted to gain on two fronts (Braga, 1996): a) they are able to increase their exports of services and b) they gain access to services not available domestically, provided they reform the regulatory environment and develop the necessary human and physical capital. Further, it is reported that all developing countries, even the poorest, are improving their access to and use of modern ICTs, some at a dramatic rate. In virtually every country in the world, more individuals enjoy access to ICTs today than ever before (Rodriguez & Wilson, 2000). At the same time, the gap between the rich OECD countries and the poor developing countries is growing, both in terms of ICT products as well as in terms of incomes. Countries with similar levels of per capita and economic structures exhibit wide variations in their ICT performance. While some developing countries are surging ahead, others are falling behind (OECD, 2001).

Despite the above opportunities, the informationalism of the developing world faces huge risks, especially due to inadequate legal and commercial frameworks, shortfalls in education and knowledge development and poor network services and infrastructures (infodev, 2000). The next set of risks faced by the developing world is in the form of weak domestic service sectors such as finance, business and professional services. However, the major risk facing the developing countries is their inability to realise the potentials of the new technologies and integrate the same into their national poverty alleviation programmes.

2.4 ICTs for sustainable development and poverty alleviation

Policy studies, even in the industrialised nations, very clearly link the promotion of information society to the issues of solidarity between the employed and unemployed as well as between the genders, generations, regions and the poor (European Commission, 1993; Mansell & Steinmueller, 2000). In the developing countries, there is a growing but more fragmented and often restricted literature that
demonstrates the usefulness of ICTs for sustainable development (Mansell and Wehn, 1998). Although many studies have emerged in the recent past (Asker et al., 1999; Richardson et al., 2000; Skuse, 2001; DFID, 2002; Kenny, 2002; Navas-Sabater et al., 2002; Prahalad & Hammond, 2002), it is very difficult for the policy-makers to access systematic information about the potential applications that are being developed and implemented. Even more so as to consider how could they be applied to meet their own developmental needs, especially in alleviating poverty. On a more radical note, Friere (1974) states that with every technological introduction, the oppressed are further oppressed.

Case studies on ICTs and poverty (Butcher, 1998; Schon et al., 1998; Duncombe & Heeks, 1999; O'Farrell et al., 1999; Owen & Darkwa, 1999; Ado-Sankwa, 2000; Hazan, 2002; Mureithi, 2000; Delgado et al., 2002) do provide some evidences to the positive claims of ICTs in alleviating poverty. While Butcher's (1998) study in South Africa extracts some learning points as well as key questions in the field of education as a spearheading developmental activity, Schon et al. (1998) explore the issues in sociotechnical and economic contexts and how these issues affect the low-income communities in developing countries. The study in Botswana reveals the need for differentiating intervention mechanisms between the entrepreneurs and supporting agencies (Duncombe & Heeks, 1999), while at the same time, a study in Ghana discusses the growth, development and the potentials of small business using ICTs (Owen & Darkwa, 1999). Mureithi (2000) raises the issue of African youth participation in community development using ICTs. A number of similar case studies (Bhatnagar, 2000; Bhatnagar & Schware, 2000) and success stories are highlighted in the ICT stories site, maintained by the IICD and Infodev\textsuperscript{10}.

The most-cited example is the Grameen Bank's village phone experiment (Ahmed, 1998; Bayes et al., 1999; Camp & Anderson, 1999; UNCTAD, 2001) that brings out the issues of empowerment of women and selling of telecom services by the poor. However, this experiment has failed to take off in the other parts of the globe.

\textsuperscript{10} http://www.iicd.org/stories
Literature in ICT and gender-related studies focusing on women's use of ICTs have been quite visible in the recent past. For example, Mitter & Rowbotham (1995), Odedra-Straub (1995) and Mitter (1998) review the changing pattern of employment in the third world due to women's access to technology. Huyer (1997) presents a case for supporting women in their access and use of ICTs. Other notable studies include Obijiofor (1998); Hafkin (2000); Khasiani (2000); Kole (2000); Marcelle (2000); Munyua (2000); Opoku-Mensah (2000); Rathgeber and Adera (2000); Hafkin & Taggart (2001); and, Sharma (2001). These studies, while exposing the ICTs as male-dominated technology, attempt at advocating the need for pro-women ICT policies and for concentrated efforts to promote the use of ICTs among women.

Studies in ICTs and their role in rural development have mainly been driven by the Food and Agricultural Organisation (FAO) of the United Nations and the International Development Research Centre (IDRC) in Canada. These include the papers of Swaminathan (1993), Richardson (1996, 1997), Neelameghan (1998), Truelove (1998), Chaparro (1999), McConnell (2000), Munyua (2000), Richardson (2000), and ITU (2001, 2002), and the presentations made by project implementers such as Balaji et al. (1999) and Arunachalam (2002). Most of these studies attempt to prove the usefulness of ICTs in the lives of the rural poor by providing them with information on market prices of agricultural commodities and weather report. Most of these studies do not raise any negative implications of ICTs in the rural societies.

There are studies dealing with the use of ICTs in public services, calling for the involvement of citizens and private sector participants (Tang, 1997; Hamelink, 1999; Shadrach & Ekeanwanyu, 2003) as neither the government nor the market forces are able to guarantee adequate services to the public at large. Specific studies in sectoral applications range from the use of smart cards for public transport (Frotschnig, 1997) to creating awareness on specific health programmes (Driscoll, 2001). A growing amount of literature deals with ICTs and education, arguably the illiterates and poorly educated people cannot absorb ICTs, hence the formal and informal educational curricula must embrace ICT-oriented education (Calderoni, 1998; Osin, 1998; Truelove, 1998; Elmer, 1999; Perraton, 2000; ILO, 2001; Hawkins, 2002). Studies on the use of ICTs among the Small and Medium Enterprises (SMEs) suggest that present technology is largely useful only at the processing level, not very much so at
the production level (Alcorta, 1992; Lefebvre & Lefebvre, 1996; Heeks, 2001; Matambalya & Wolf, 2001; Southern & Tilley, 2001; Shadrach & Summers, 2002).

Literature focusing on the negative impacts of ICTs mainly revolve around the access issues. Studies at the global level under the auspices of the United Nations carried out between 1995 and 1997 have stressed that the social and economic characteristics, emerging from the transformations associated with ICTs, should benefit all people rather than the privileged few (UNCTAD, 1995; UNCSTD, 1997a, 1997b). Scholars recognise the fact that the effective use of ICTs and services involves more than just the expansion of telecommunication systems. Overemphasis on access issues lead to insufficient attention to developmental needs, preparedness, affordability and skills development, hence applications for economic sectors, the public sector and for individual access need to be at the centre of national and regional ICT strategies (Melody, 1995, 1996; Sanatan & Melody, 1997).

There are those who believe that 'cultural beliefs' are major challenges if not hindrances to the adoption of ICTs in many poor areas (Janczewski, 1992; Ryckeghem, 1995; Manji, 1998; Qureshi, 1998; Morales-Gomez & Melesse, 1998). Freire (1974) argues that every technology controls the common people, and thus oppresses them. Supporting Freire's arguments, the findings of Lucas & Sylla (2002) indicate that developing countries are left behind as the transformation to the new economy takes place in wealthier countries. Lucas & Sylla (2002) further go on to warn that if such a trend continues, there may be dire consequences for world economic inequality and political stability. Mansell and Wehn (1998) indicate that if the least developed countries do not develop innovative models of their own, the likelihood of these countries waiting for 50 to 100 years to catch up with the industrialised ones is very high.

2.5 ICTs and their negative impact on society

The reports on ICTs also raise questions on the negative consequences that result in their introduction among communities. The Dotforce report (2001) concluded that ICT would have a negative impact on developing economies, however, with the right policies and practical actions, ICT can be a powerful enabler of development.
2.5.1 An urban phenomenon?

Noyelle and Stanbeck (1984) have systematically studied over a number of years the relationship between the expansion of service economy and its impact in American cities, and their findings clearly show that information-based service industries have concentrated within the central business districts of large metropolitan areas. The above findings gain greater significance with the following arguments of Moss (1984): "The emerging telecommunications infrastructure is an overwhelmingly urban-based phenomenon. Although most discussions of new communication technologies emphasise the opportunities presented for decentralisation, large cities are the hubs of the new telecommunications systems in the U.S. and are the sites for the most advanced applications of information technology... Although new communications technologies permit geographical dispersal, the economics of the new infrastructure are oriented towards those urban regions that are major information centres....Contrary to much of the popular folklore, new communications technologies have not led to the decline of cities."

Castells (1989) emphasises that the decision-making operations continue to be dependent upon the milieu on which metropolitan dominance is based. It is evident by the fact that service delivery must follow dispersed, segmented markets; and that large-scale operations in back offices are highly dependent upon scientific pools of labour that are concentrated in some suburbs of large metropolitan areas. Thus, each component of the information-processing structure is place-oriented. The European Commission (1993) White Paper places emphasis on the role of ICTs in overcoming distance. Of the seven services emphasised in the White Paper as providing the basis for diversification and growth, three are principally concerned with remote access - teleworking, telemedicine, and teletraining. The centrality of these applications is surprising given the historical development of ICTs in which workplace, medical, and educational applications are first implemented at the local level. However, if these applications are seen only as local developments, the case for European-level programmes is found to be weaker (Mansell & Steinmueller, 2000).
Castells further (1989) suggests that local governments must develop a central role in organising the social control of places over the functional logic of the space of flows. It is only through the reinforcement of this role that localities will be able to put pressure on economic and political organisations to restore the meaning of the local society in the new functional logic mediated by information technologies. In the informational mode of development, the local governments, by fostering citizen participation, must mobilise local civil societies to support a collective strategy towards the reconstruction of the meaning of the locality in conflictive dynamics with the placeless powers.

2.5.2 Informationalism and the creation of the Fourth World

In Castells' own words in the third volume of his trilogy (2000), the information technology paradigm has contributed to the rise of the Forth World, in which the author looks specifically at three disastrous effects of this new society – African impoverishment, urban poverty of the United States and the global exploitation of children. Castells points to four main interrelated processes all consequences of globalisation and informalisation. The first is de-industrialisation, which has eliminated manufacturing jobs and has weakened labour unions. Secondly, is the individualisation and networking of the labour process, which demands highly specific working skills and thus, makes the employment conditions of workers increasingly unstable. Thirdly, is the incorporation of women into paid labour under conditions of patriarchal discrimination, allowing the economy to operate at a lower cost. Lastly, is the “crisis of the patriarchal family”, which has contributed to such trends as the rise in single motherhood and the increase of children in poverty. Similar views are expressed by Gage (2002) when he says that the ICTs can not stop person-to-person money transaction for drug trafficking or for financing terrorist cells.

2.5.3 The digital divide

The information technology revolution has aroused much interest among policymakers, the business sector, the media and the academic world in the industrialised nations, however, little is known about the obstacles to accessing information
technology and the diffusion and use in developing countries, particularly in the low-income economies (UNCSTD, 1995).

Castells' trilogy (1996, 1997, 1998) clarifies that the new media characteristics of transcending time and place, to be called 'timeless time' and a 'space of flows', lead to social classes and movements which are living in different times and places. These movements, (a) capital and labour, (b) global institutions, and, (c) socially-oriented, according to Castells, live in different temporalities. While the capital movements live in the instant time of computer networks and in the highly mobile cosmopolitan jet set spots of information elite, the global institutions live in the clock time of everyday life. The social movements however live in the dichotomy of social inclusion and exclusion of people, communities, economies and countries, appearing as rising social and informational inequalities in the whole world.

In his third volume, Castells (1998) analyses both the collapse of the Soviet Union as a mode of production, which was not able to enter the information and network society, and the rise of the Pacific region, which clearly was. He describes the exclusion of the 'Fourth World', that is large parts of the third world in Africa, Asia and South America whose development stagnates and the poorest parts of the developed world forming under classes. These parts have become completely irrelevant to the global economy while contributing more than average to a global criminal economy of drug traffic, smuggling, illegal arms trade, money laundering and prostitution (Gage, 2002). The criminal economy is a heavy user of information technology building a 'perverse connection'. Castells (2000) calls them the black holes of informational capitalism and insists that with the rise of the informational global capitalism, the rise of the fourth world is inseparable. Mansell and Wehn (1998) indicate that the convergence between the industrialised countries and some of the least developed countries is decades away; while for northern African and the Oceania region it will take some 30 years.

In the year 2002, the European continent enjoyed 40.93 land line telephones per 100 inhabitants, while African and Asian continents had only 2.7 and 12.13 respectively. The share of the United States and many other rich countries exceeded 60 telephones per 100 inhabitants. The figure for the mobile telephones were similar at the
continental level. Out of 100 inhabitants in Africa, only 4.19 of them owned a mobile telephone as compared to 50.21 in Europe and 48.81 in the United States. In the same year, ownership of personal computers in Africa and Asia was estimated to be 1.2 and 3.95 respectively per 100 inhabitants while in Europe, the ownership level stood at 20.01 and in the United States at 62.50. The disparity of Internet access level was even more revealing with only 1 out of 100 inhabitants in Africa having some access to the net as compared to 54 in the United States, 5.5 in Asia and 20.7 in Europe (ITU, 2002).

2.5.4 ICTs and social exclusion

The potential for social exclusion is fundamental to the deployment of advanced ICTs and services that create or sustain the information society (Mansell & Steinmueller, 2000), evident by the deeply divisive trends in the comprehensive survey carried out by Freeman and Soete (1994).

"a division is taking place between the 'information rich' and the 'information poor'. A fairly large number of people, even in the richest countries, are unable or unwilling to use the new technologies or gain access to facilities where they might be used. 'Information poverty' corresponds fairly closely to material poverty but is not identical... Social exclusion and the growth of a large underclass are thus becoming characteristics features of the information society, reinforced by the decline of the welfare state and the growth of regressive taxation" (Freeman and Soete, 1994).

The provision of community e-gateways providing public access to computers and the Internet has been seen as a way to address the 'digital divide', particularly for people in deprived neighbourhoods. However, as observed in the U.K., unless greater attention is given to the significance of weak ties, two-way boundary spanning and the resource requirement of social networks for the policy objectives will be unmet (Liff & Steward, 2003). Quite often this is linked to the fact that the developers of new technologies and services find it difficult to involve users at an early stage in their design and it is especially challenging to draw such users from the excluded groups (Silverstone & Haddon, 1997; Haddon, 1998).
2.5.5 Access to ICTs in rural areas

There is an extensive body of literature on the market value of information in decision making and improving the quality and quantity of information available to the poor which can significantly affect the sustainability, productivity and profitability of livelihood decisions. The rural poor depend primarily on agriculture and related activities for their livelihood; agriculture provides the bulk of their income and their main source of nutrition (IFAD, 2001). Improved systems for the management and communication of agricultural information can thus help poor farmers make informed choices about the opportunities and constraints associated with agricultural development strategies (FAO, 1998). Tripp’s (2001) assessment of future agricultural technology policies for rural development emphasises that most of the new technologies that will become available to farmers will be ‘information-intensive’. In addition to basic technical knowledge, the rural poor thus increasingly need to be able to operate in increasingly sophisticated input and output markets.

The potential of ICTs to support the improvement of currently inadequate extension and education services, and ensure farmers have access to reliable information about agricultural technologies and markets, is the subject of considerable interest (Zijp, 1994; FAO, 1998). However, access to ICT in rural areas is an issue, which reflects both business priorities of national and multi-national telecommunication companies, and policy interventions, the predominant argument being that telecommunication companies are unwilling and unlikely to invest in sparsely populated areas, due to low critical mass and therefore a low customer base for their products (Valantin, 2000). This is well illustrated in the deployment of broadband technology, which is currently focused on areas of high population density, typical in urban and urban fringe areas. National and in some cases regional governments have put programmes and policies in place, at the Geneva summit, which purport to increase ‘inclusion’ and ‘cohesion’ for all in the Information Society, regardless of geographical remoteness (WSIS, 2003). However, the realities of such initiatives appears to be that geographical focus remain on those areas of sufficient critical mass, and/or the policy action comprises access provision such as broadband to all UK schools by 2005.
Disparities of rural access to ICTs are also beginning to be noticed at national and international levels. International donor consensus on poverty reduction objectives belies the complexity of the challenges facing rural development. The central importance of agricultural growth in reducing rural poverty is well established (Irz et al., 2001) but important debates remain as to how best to ‘create conditions of growth’. In particular, establishing appropriate levels of public and private investment and achieving the right balance between market and public interest are major concerns. Agricultural liberalisation continues apace but private sector alternatives have been slow to develop in many rural areas and donors are placing growing emphasis on the need for more sustainable, democratic and equitable growth (DFID, 2000a; World Bank, 2001).

It is argued that rural communities, comprising individuals, networks, micro-businesses, and SMEs will be both disadvantaged socially and economically, and disenfranchised from society and evolutions in that society, particularly in an era of increasing e-government and e-delivery services (ITDG, 2000). Further, that existing urban-rural divides will be exacerbated. In addition, the intra-rural digital divides, between information ‘haves’ and information ‘have-nots’, will increase. The continuation of such trends may mean that ICT as the avenue for community empowerment is many years from being realised.

On the content front, the generation of local content seems a very challenging issue. Experiments such as the Open Knowledge Network (Armstrong, 2002) have just begun to happen. There are locale-specific initiatives using web-based media to enable the collation and portrayal of local issues to local people (Arunachalam, 1999; Kipalaang’at, 1999; Vijayaditya, 2000). Available examples include village broadband initiatives, village community websites and other web-based initiatives which build in and on notions of community, belonging and identity and create separateness which distinguishes them from their surroundings, and from the otherwise globalised environments. But, these remain at the experimental level. Therefore, Mansell and Wehn (1998) warn that if the least developed countries do not develop innovative models of their own, the likelihood of these countries waiting 50 to 100 years to catch up with the industrialised ones is very high.
2.6 Informationalism for the poor: the telecentre approach

Realising that one person - one telephone - one Internet access point model will not work, various models are emerging in the ICT roll-out in the least developed countries, so also in the rural and less advantaged areas of wealthy countries (Gillespie & Cornford, 1997, IDRC, 1997; Taylor et al. 1997, Mansell & Wehn, 1998).

Community-based networks are diverse in their constituencies and in their orientation, but share distinct characteristics. First, they provide information from local authorities, as well as from a variety of civic bodies. Secondly, they organise the horizontal exchange of information and electronic conversation among the participants in the network. And, thirdly, and most importantly, they allow access to online information to people and organisations that are not into the emerging ICTs, and would otherwise not have been connected for quite a long time. But, as observed in the U.K., for these networks to be successful, there is a need to have strong social connections and the ability to provide opportunities for interactive learning and content creation (Liff & Steward, 2003).

Experiments such as the Open Knowledge Network (Armstrong, 2002) that aim to circumvent the use of the Internet without being connected online all the time are rare. The usage among the intermediary NGOs in the South, according to Armstrong, was for seeking information pertaining to the local needs, and seldom the Internet offered such information. Hence, the diffusion and use of digitally based ICTs offers the opportunity to redefine and reconceptualise 'community' both in terms of delineating the boundaries of community as well as the modes of communication between members.

2.6.1 The potentials and the usefulness of ICTs in rural economy: impact of telecentres in social development

Despite the plethora of discussions on the potentials of ICTs for development, efforts to bridge the so-called digital divide have suffered from the lack of convincing
evidence of the positive impact of the new technologies, especially in rural areas and households.

Recent studies recognise that ICTs are an indispensable force for rural development. A study in China provided a quantitative analysis of determinants of telephone subscription, and the relationship between telephone adoption and income at household level, based on the data of a large farm household survey (Wang, 2002). Similar studies in Bangladesh and Peru have demonstrated similar correlations (Chowdhury, 2002).

Another study aimed at identifying and measuring the positive impact of ICTs on rural households through a holistic approach integrating national, project and target group level analyses, with a case of the Rural Telecommunications Project in Lao PDR, the impact of telephone, the most basic ICT, was investigated at three different levels (Song, 2003). The project level analysis revealed that the Rurtel service was efficient and sustainable, and has benefits for rural residents comparable to other infrastructures. The target group level analysis applied propensity score matching and regression analysis, and the results confirmed the positive and pro-poor impact of telephone use on household welfare. Despite these contributions, investment in telecommunications has not been substantial as the government's commitment to expanding the network to rural areas by setting up universal access of telephone service was vital, but missing.

The potentials of ICTs in developing countries, especially in the rural economies are only now being understood. Introducing the INEXSK (Infrastructure, Experience, Skills, Knowledge) approach, Mansell and Wehn (1998) point out that the aim of the measurement technique was to provide insight into how infrastructure, experience and skills may contribute to knowledge-based economic growth and development. This technique applies various indicators building from infrastructure to knowledge, taking note of production level, skills to produce, consumption level and skills to consume serving as strong factors.
2.6.2 Need for demonstrating the effectiveness of ICTs in rural areas

Mitter (1998) argues that ICTs need holistic evaluation in order to establish their appropriateness. Although universal access to information in an ideal world creates a global information society, knowledge is hardly global and the mode of interpretation of any knowledge circulated through ICTs depends deeply upon the culture or tradition of the people and the societies who access it. The success of ICTs should be measured in terms of their accessibility and contribution to social progress (Hamelink, 1997; ITDG, 2000) and how they contribute to livelihood opportunities (Montealegre, 1999) rather than the sheer statistics of connectivity.

Some more recent studies emphasise the need for including the social impact of ICTs from an interdisciplinary approach (Adam & Wood, 1999), focussing on attitudes, expectations, organisation and management of ICTs in local settings (Opoku-Mensah, 1998).
CHAPTER 3: METHODOLOGY

3.1 Introduction

The main aim of the research was to develop a framework that was rooted in participatory approaches which would enable an independent assessment of the claims made by the ICT experts about the usefulness and the potentials of ICTs in changing and empowering the lives of the poor. This meant that the poor people for whom the ICT initiatives have been intended to benefit have had to be empowered to use their stake in the evaluation. In order to achieve this, the research study had to apply multiple-methods, and had to be carried out in the following two phases:

a) A needs assessment study, followed by the design and development of a new framework to evaluate ICT projects; and,

b) A case study research to test and validate the approaches and strategies by applying the developed framework.

The study was action-oriented following Kemmis and McTaggart’s (1998) action research model of planning, acting, observing and reflecting upon each action carried out in the research. While the first phase of this action research study applied the qualitative research methods and techniques, the second phase was based on the participatory action research methods and approaches. The theoretical foundations of the research study have been derived from the basic action research in the first phase and the community-based action research in the second phase of the study.

3.2 Action research

Action research has links to and is informed by a variety of intellectual traditions, though none of them clearly define it (Dick, 2000). Operationally, it is usual to acknowledge the seminal work of Kurt Lewin (1946), and more recently, Reason and Rowen (1981) and Carr and Kemmis (1986). Among the various interpretations of action research, the ones provided by Anderson, et al., (1994), Reason (1994) and
Kemmis and McTaggart (1988) have common themes and enable us to link Moreno (1956), Freire (1974), and the critical theory associated with Habermas (1979).

According to Carr and Kemmis (1986), action research is a "form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of (a) their own social practices, (b) their understanding of these practices, and (c) situations in which these practices are carried out."

3.2.1 The basic action research routine

As shown in the Table 3.1 below, the basic action research can be easily explained in the "look, think, act" routine (Stinger, 1996).

<table>
<thead>
<tr>
<th>Look</th>
<th>Think</th>
<th>Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Gather relevant information (Gather data)</td>
<td>- Explore and analyse; what is happening here? (Hypothesise)</td>
<td>- Plan (Report)</td>
</tr>
<tr>
<td>- Build a picture; describe the situation (Define and Describe)</td>
<td>- Interpret and explain; how/why are things as they are (Theorise)</td>
<td>- Implement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Evaluate</td>
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</table>

Table 3.1 The basic action research routine

The "look, think, act" routine is but one of a number of ways in which action research is envisaged. Kemmis and McTaggart (1988), as mentioned above, present action research in terms of a spiral of activity: plan, act, observe and reflect. Different formulations of action research reflect the diverse ways in which the same set of activities may be described, even though the processes they delineate are very similar. As researchers work through each of the major stages, they explore the details of their activities through a constant process of observation, reflection and action. At the completion of every set of activities, they review (look again), reflect (reanalyse), and re-act (modify their actions). As experience shows, action research is not a neat,
orderly activity that allows participants to proceed step by step to the end of the
process (Stinger, 1996). Researchers quite often find themselves working backwards
through the routines, repeating processes, revising procedures, rethinking
interpretations, leapfrogging steps or stages, and sometimes making radical changes in
direction. In practice, therefore, action research can be a complex process.

3.2.2 Community-based action research

Drawing from the above definition, a community-based action research can be termed
as a collaborative approach to inquiry or investigation that provides people with the
means to take systematic action to resolve specific problems. This approach to
research favours consensual and participatory procedures that enable people (a) to
investigate systematically their problems and issues, (b) to formulate powerful and
sophisticated accounts of their situations, and (c) to devise plans to deal with the
problems at hand.

Historically, community-based action research is related to models of action research
that sought to apply the tools of anthropology and other disciplines to the practical
resolution of social problems (Lewin, 1946; Goodenough, 1963). Community-based
action research is also allied to the recent emergence of practitioner research
(Anderson et al., 1994), new paradigm research (Reason, 1988), and teacher-as-
researcher (Kincheloe, 1991), and is implied within the fourth generation evaluation
practices (Guba & Lincoln, 1989). Community-based action research focuses on
methods and techniques that take into account people's history, culture, interactional
practices, and emotional lives. Although it makes use of techniques and strategies
commonly applied in the behavioural and social sciences, it is a more user-friendly
approach to investigation than most (Bryman, 2001).

As an evolving approach to inquiry, community-based action research speaks to the
current crisis of research by envisaging a collaborative approach to investigation that
seeks to engage the "subjects" as equal and full participants in the research process
(Stinger, 1996). In the modern and democratic contexts, community-based action
research can be seen as a process of inquiry that has the following characteristics:
It is democratic, enabling the participation of all people;
It is equitable, acknowledging people's equality of worth;
It is liberating, providing freedom from oppressive, debilitating conditions; and,
It is life-enhancing, enabling the expression of people's full human potential.

In other words as explained by Denzin & Lincoln (1994), community-based action research provides a model for enacting local, action-oriented approaches to inquiry, applying small-scale theorising to specific problems in specific situations.

3.3 Research design framework

According to Coleman (1972), research design is "an opportunity to translate the ideas behind the academic discipline to the world of action. Major demands come from the world of action, including concerns with timeliness, action, use of everyday language and concepts, ever-present involvement of special interests, conflicts, and struggles over resources".

As the research study proceeded in two phases, it was crucial for the researcher to establish strong theoretical roots for the research objectives explained in the previous chapter and the theory. The research question was addressed through a continuous literature review in all phases of the study in order to get the choice of methods for this research right. While this requirement influenced the design and enabled the study to meet the basic research standards, the demand for practical policy guidance was felt to be a strong opposing pull, especially in the last part of the study. The research design framework for the research study was developed on the basis that the action research routine, explained above, may be found most suitable for enacting local-oriented, small scale research (Anderson et al., 1994; Denzin & Lincoln, 1994; Stinger, 1996).

As explained earlier, the main ideas and the rationale behind this academic research have been:
a) Involving the beneficiaries in the evaluation of an ICT project may bring forth a number of social and livelihood concerns associated with the introduction of ICTs in their lives; and,

b) Such an involvement demands the application of appropriate methodologies, such as the participatory one, and yields constructive further steps, such as effective implementation of the lessons learnt, redesign of the project, local capacity building and a sense of responsiveness and ownership among the beneficiaries, etc., provided, the external researcher in this study reverses the usual role from a ‘lead evaluator’ to that of a ‘facilitator’.

The objectives and the supporting ideas also meant that the empirical research had to proceed in a variety of settings and contexts. The choice of design setting was therefore of vital concern to the research study. The major underpinning question at the beginning of the study was: “what design will best ascertain associations or causal paths among all the relevant variables?” Resonating Coleman’s (1972) above statement, the following factors identified by Riley (1963) were crucial in determining the research design for the study:

- Access to organisations and respondents
- Degree of control over the social system being studied
- Types of data already available
- Samples and the size of samples to be studied
- Data sources, data gathering methods and a number of dependent and independent variables
- Duration of the study and the resources required to complete the study

Considering the complexities of this research study, as shown in Figure 3.2, the researcher chose both qualitative research tools and case studies to carry out the first phase of the research study. The second phase led to the application of a participatory action research combined with traditional research methods to evaluate the model developed in the first phase of the study.
Sommers & Sommers (1997) have developed some helpful rules of thumb for selecting research methods. They point out that, "observation is well-suited for what people do in public. For private behaviour, the personal diary is more appropriate. The experiment is an immensely powerful tool for deciding between alternative explanations of a phenomenon. It is less useful, however, for studying natural behaviour or opinions. With opinions and attitudes the questionnaire and interview are very efficient".

As explained in the following sections of this chapter, the above rules were found very helpful, however, it must be noted that methods used to seek answers for the research questions often depended heavily on the way each question was being asked and the content that provided the focus for the question.
Phase I: Needs assessment, methodology design and development
(Qualitative and basic action research methods)

Case study 1
Needs assessment
Basic action research - questionnaire survey, interviewing and observation

Methodology development
Conceptual (Pondicherry) Framework
eDiscussions and Peer review

Methodology design
Updated literature review
Theoretical framework
Analysis of evaluation methodologies

Phase II: Methodology evaluation
(participatory action research methods)

Case study 2
Participatory action research - focus groups, participant observation, questionnaire survey and interviewing

Methodology evaluation
Data analysis
Reiteration of (Pondicherry) Framework

Other case studies
Document analysis
Reports of third party researchers and academics

Theoretical methodologies
Conventional, sustainable livelihoods and participatory approaches
Other principles

Outcomes
Discussions on methodology design, development and evaluation
Research findings, lessons learnt and corrective actions

Figure 3.2: Research Design
3.4 Research methods

This action research study applied qualitative research methods in the first phase and the participatory action research methods in the second phase. As shown in Figure 2.2, the first phase of this research study investigated the need for a new evaluation framework for assessing the rural pro-poor ICT projects, and subsequently developed the said framework, termed in this study as the 'Pondicherry Framework'. The second phase of the research study evaluated the 'Pondicherry Framework' in a rural ICT project in India in order to understand the approaches and strategies in the application of the framework in pro-poor rural ICT projects.

3.4.1 Qualitative research methods

Qualitative methods can be classified in various ways, and each text book differs slightly in its approach. At the most general level, for example, Patton (1990) argues that qualitative methods all rely on just three underlying forms of data collection: open-ended interviews, direct observation, and review of documents. Whyte (1977), on the other hand, classifies an array of field techniques according to whether they are oriented towards: observation; questioning and listening; and, interventions and measurement. However, distinction between qualitative and quantitative approaches to rural data tends to be drawn as a sharp dichotomy (Cohen, 1973). On the qualitative side, the approaches found in literature are immersing in primary data either in documents or through participant observation and extended interviews, before the researcher formulates an inductively derived picture of a specific situation, institution or system. On the quantitative side, the main interests of researchers have been to obtain empirical measurements either directly or indirectly. Although it is possible to mention that the present study combined both qualitative and quantitative techniques in the first phase, it is more appropriate to mention that the study predominantly used qualitative inquiry methods.

The initial part of the first phase concentrated on validating the idea that there was a need for a new evaluation framework. During this part of the study, the main research techniques applied were a) preliminary literature review, b) email questionnaire
survey, c) field observation, and d) interviewing. The second part of the first phase led to the broadening and strengthening of the theoretical and conceptual framework for the proposed methodology. During this part of the study, the main techniques applied were e) updated literature review, f) email focus groups, g) design of the conceptual framework, and h) peer reviewing.

**a) Preliminary literature review**

As the first step towards this study in the first phase, the researcher aimed at understanding both the positive and negative roles played by the ICTs in the lives of the poor. While the reported case studies suggested a strong potential for ICTs for improving the livelihood opportunities of the poor, there have also been less positive implications and consequences of the application of ICTs in the lives of the poor and that these issues were less understood. It was deemed necessary for the researcher to discover whether such a phenomenon extended to the others parts of the world through a literature search.

The preliminary literature review therefore focussed on the following issues:

a) Whether the scepticism and ambiguity associated with the usefulness of ICTs still existed;

b) the extent of research carried out by the academics and practitioners in the area of ICTs in development; and,

c) to identify the major gaps in ICT research, especially in the area of impact assessment studies.

The above focus was in line with the research objectives, aimed at assessing the need for the research study, while at the same time, attempted at a quick review of ICT studies in the late 1990s. The outcomes of the review of about 100 papers are discussed in section 5.2.1.
b) email questionnaire survey

The outcomes of the preliminary literature review led the researcher to carry out a wider consultation to further explore the issues around ICTs and their potential benefits to communities. As the next step in the enquiry process, it was decided to conduct an email questionnaire survey in order to verify the findings with a number of selected individuals who were active either in implementing ICT-based solutions in development or researching the issue from an academic point of view.

Selection of participants:

As discussed in Section 5.2.2, a list of over 100 ICT expert practitioners was prepared using purposive sampling technique. The experts contacted via email were academics, ICT specialists in donor agencies, policy experts, ICT project managers in the NGO community and a selected few consultants from the private sector. The list of those who responded to the survey has been appended in Appendix 2.

Choice of the sampling technique:

The most common sampling techniques (Ackoff, 1953), random sampling, stratified sampling and judgmental and purposive sampling were studied. Since practical considerations precluded the use of probability sampling, the research chose to apply a representative sample by non-probability means. It was decided not to apply both Random and Stratified sampling. The random sampling technique was not applied, as there were no ready-to-use global lists of ICT specialists. Absence of such lists also meant that generalisation on any characteristics was not possible. Hence, the stratified sampling technique was also found to be inappropriate for the questionnaire survey.

The judgmental or purposive sampling technique allowed the researcher to identify a number of ICT events organised over a period of four years beginning 1996, and to prepare a list of specialists who had presented papers in those events. The events included the international ones organised by the International Development Research Centre (IDRC), the Global Knowledge Partnership, and the Global Knowledge
conference I (GK-I) in Ottawa. In addition, the researcher studied a number of national and regional events such as the TASKNET\textsuperscript{11} conference in South Asia, BICA\textsuperscript{12} in South Africa, the British Council events and the seminars organised by the Institute of Development Studies in the U.K.

**Sampling bias:**

It should be recognised that the above sampling technique limited the researcher to collect opinions only from those ICT experts who at the time of this enquiry attended one or the other event outlined above. Since the introduction of ICTs in the development sphere was a phenomenon many donor organisations were interested in comprehending, a good number of participants in this survey represented the donor world.

**Selection of questions:**

As shown in Appendix 1, the questionnaire was based on researcher's hypothesis and the outcomes of the preliminary literature review conducted prior to this survey. The questions were classified into the following six categories:

a) The rationale behind the need for further research in developing evaluation model for ICT initiatives;

b) The important factors that should underpin such an evaluation, if carried out;

c) The extent to which technology issues were important while evaluating ICTs;

d) The specific areas of focus such as gender and training issues while applying any evaluation technique;

e) The extent to which factors around partnerships were crucial for assessing the impact of ICTs; and,

f) Finally, the issues around sustainability and the impact factors underpinning the ICT-enabled information projects

\textsuperscript{11} Towards a South Asian Knowledge Network conference organised by host of South Asian organisations in November 1999

\textsuperscript{12} Building an Information Community in Africa conference organised by a host of global and African organisations in February 1999
The questions, divided into the six sections above, were also based on the approach used by McConnell (1998), and on the basis of the issues raised in both the TASKNET and BICA conferences held in 1999 in India and South Africa respectively.

**Techniques for increasing the response rate:**

The response to the survey was overwhelming within the first week of emailing the questionnaire. One of the academics who participated in the survey returned the questionnaire within hours offering valuable suggestions. However, the following guidelines compiled by a commercial organisation (Pearson NCS, 1997) on the basis of research carried out in designing, administering and increasing the response rates in mail surveys were taken into account:

- A well designed form, allowing the respondents to fill up the form and send it back by return mail
- Additional mailing such as reminder cards, re e-mailing the questionnaire with information about the percentage of responses received, and a statement about the value of the respondents’ input in the study
- Follow-up by phone in selected cases

The above steps meant that, as shown in Appendix 2, 35 out of the total list of 114 experts responded to the survey within the stipulated period of one month, making the response rate to about 30%. A couple of respondents chose to offer more suggestions over the telephone as a follow-up to completing the questionnaire.

**Outcome – development of a set of hypotheses:**

The outcomes of the survey as explained in Section 5.2.2 led to re-affirm the hypothesis held by the researcher that there had been very little work carried out to determine the impact of ICTs in poor people's lives. The hypothesis, consolidated as a result of both the preliminary literature review and the email questionnaire study, formed part of the enquiry throughout this research study.
Field observation

Following the formation of the above hypotheses that gave an impetus to the research study, a field study was undertaken in order to further investigate the need for an evaluation based on a participatory approach. A month-long visit to India included visits to the following ICT projects:

- The Warana Wired Village Project, jointly carried out by the National Informatics Centre on behalf of the Indian Government, the Government of Maharashtra and the Warana Vibhag Shikshan Mandal in over 70 villages of Sangli and Kolhapur districts of the Indian state of Maharashtra

- The infovillage Project, carried out by the M S Swaminathan Research Foundation in partnership with local groups in the villages of Pondicherry

Selection bias of field chosen for the observation:

Based on the results of the email questionnaire survey and the preliminary literature review, the following criteria were developed to identify project sites for the field observation:

a) Project sites that may not be classified under the spatial and professional biases raised by Chambers (1983);

b) Projects aimed at the poor and are inclusive to women, children and the marginalized;

c) Projects that are run in partnership with private and public sector entities;

d) Projects that are covering at least 5000 beneficiaries; and,

e) Projects that are recognised by the international community as projects of good standing based on the secondary reports.

Since issues such as partnerships, gender, access and content have been noted both in literature and the questionnaire survey as vital to ICT projects, the above criteria are
justified. Further, during the field study, a concentrated effort was made to avoid the biases highlighted by Chambers (1983) to gain an independent and at the same time, a critical understanding of the above projects.

The following sites under the Warana Wired Village project were visited during the first leg of the field trip:

- a) Sugar Administrative Building;
- b) Warana Cooperative Milk Producing Society;
- c) Warana Bazaar;
- d) Public information centres in three villages;
- e) Warana Goods Processing Society; and,
- f) Warana Engineering College.

During the second leg of the field trip, the following project sites of the M S Swaminathan Research Foundation were visited in Pondicherry and Chennai:

- a) M S Swaminathan Research Foundation in Chennai
- b) The information hub in Villianur, Pondicherry
- c) The women-run village knowledge centre in Embelem, Pondicherry; and,
- d) A family-run centre in the village of Kizhur, Pondicherry.

Key list of observations:

Again guided by the hypothesis and the key factors identified in the questionnaire survey as vital for sustaining ICT projects, the following aspects were observed. A diary of visitation and events was maintained during the visit on the following aspects:

- The people, their daily practices and collaborative work practices in the villages
- Type and number of other institutions in the village
- The accessibility, mobility and infrastructure level of the villages
• Availability and ownership of television, telephone and the traditional ICT tools in the village
• Location of the project sites in the villages and the vicinity to the households
• Type and number of people visiting the centre
• Nature, purpose and type of enquiries made to the centre
• People's ability to use computers and the other gadgets in the project centres
• People's sense of pride and ownership of the ICT initiatives in their villages
• Nature of content and the software application held and used in the project centres as opposed to the daily needs of the communities
• Project staff's responsiveness, commitment and enthusiasm towards the day-to-day running and maintenance of the centre
• The type and condition of equipments in the centre
• Involvement of local leadership in the projects

In addition to observing the above, the researcher undertook an information audit on the basis of the documents held in the project sites such as the user registers, comments, project documents, memorandum of understandings, income details for the services offered in the project sites and photographs taken during visits by dignitaries and on special occasions.

Choice of observation method:

Since selection of an observation method that would minimally disturb the subjects under investigation was crucial, the participant observation method (USAID, 1996c; Qualitative research methodology, 2001) was selected for this phase of the study as it calls for the researcher to exercise a non-obtrusive research style. The theoretically possible four types of participant observation methods for conducting a field work range from the complete participant at one extreme to the complete observer on the other. Between these, but nearer the former, is the participant-as-observer; nearer the latter is the observer-as-participant.

In this study, the complete participant method was not possible to employ, as the observation was not carried out over a lengthy period. Participant-as-observer method
although it is similar to the complete participant’s role, it differs significantly in that
the informant and the field work are aware of their roles and the relationships. This
mutual awareness tends to minimise problems of role pretending. However, this
method was also found to be inappropriate for a brief preliminary field observation.
The complete observer method, on the other end, entirely removes the researcher from
social interaction with informants. Hence, the observer-as-participant method was
chosen for the field observation part of this research.

The observer-as-participant role is used in studies involving one visit interviews,
calling for relatively more formal observation that either informal observation or
participation of any kind. It also entails less risk of ‘going native’ than either the
complete participant role or the participant-as-observer role (McCall & Simmons,
1969). However, as the observer-as-participant’s contact with an informant is so
brief, and perhaps superficial, the method has its own limitations. Further, the
chances of misunderstanding the informants and being misunderstood by the
informant is also high. Despite the above weakness, due to the nature of the field
study which was very brief, the observer-as-participant’s role was chosen for the
present study.

The purpose of field observation:

As indicated previously, the main purpose of the field observation was to determine
the following:

- Testing a number of questions in the hypotheses;
- Determining the important factors underpinning the effectiveness of an ICT
  project;
- Verifying the positive claims for ICT initiatives as found in the literature;
- Testing if the scepticism among the policy-makers existed at the project level;
- Ensuring for a second time the need for evaluating the ICT initiatives;
- Finding out if either or both of the projects would be willing to facilitate the
  researcher’s study applying a new evaluation framework; and finally,
• Verifying if the so-called “rural development tourism” still happened in rural projects.

Outcomes of the field observation:

As outlined in chapter 5.2.3, the field observation identified a number of issues surrounding the introduction of ICTs in the rural lives. Of the two projects visited, the M S Swaminathan Research Foundation-run rural knowledge centre project showed a tremendous amount of enthusiasm to collaborate with the researcher while the project stakeholders of Warana project were not very supportive of the idea of an in-depth research study.

d) Interviewing

As part of the field study, as shown in Appendix 3, a number of policy-makers, donors, ICT project practitioners and project staff were interviewed. Through face-to-face interviews, the researcher was able to meet most of them in their offices although a few of them who were originally intended to meet turned their appointment down due to other engagements. These interviews were carried out in the Indian cities of Delhi, Chennai and Pune.

Choice of interviewing method:

Interviews can range from a highly structured situation with a planned series of questions to a very informal talk with no structure except for some areas of discussion desired by the interviewer. The degrees of freedom pose both opportunity and danger: opportunity to explore many subjects with intensity, but with the danger that the interview may not yield the appropriate data. Among the commonly known three type of interviewing methods: structured interviewing; focussed interviewing; and, the free story method. For this study, the researcher chose to apply the last one in combination with some focussed questions detailed below. The method chosen can be termed as ‘unstructured interviewing’ technique.
For the following reasons, the researcher chose to apply 'unstructured' face-to-face personal interviewing technique to maximise the opportunity to assess the need for the research and to understand the issues surrounding the introduction of ICTs in rural areas during his field trip to India. The following arguments put forth by Miller and Salkind (1991) form basis for the selection of interviewing process:

- Personal interviews usually yield a high percentage of returns because most people are willing to cooperate
- Personal interviews can be made to yield an almost perfect sample of the population to be studied
- The information secured is more likely to be correct than that secured by other techniques because the interviewer can clear up seemingly inaccurate answers by explaining the questions to the informants
- The interviewer can collect supplementary information about the informant's personal and professional characteristics, and environment that is valuable in interpreting results
- The interviewer may note more spontaneous reactions than would be the case if a written form were mailed out for the informant to mull over

However, costs associated with the interview operation towards travel expenses is the downside of the interviewing method. In many cases, lower response rate have been reported, especially in large metropolitan areas (Groves & Kahn, 1979).

**Key questions and issues discussed**

Key questions and issues during these unstructured interviews among 15 key people in the ICT arena in India mainly revolved around the issues of scepticism among the donors and the policy-makers around the ICT initiatives. Issues around the need for private-public partnerships were discussed. One of the key questions was therefore: if and how the private sector create investment opportunities for the rural ICT market. On the capacity issue, the appropriate methods for building capacity among the rural population for benefiting from the ICTs were discussed. In addition, the researcher aimed to understand the sources that informed about the success/failure levels of ICT
initiatives in India and elsewhere. Finally, the question of if and how an evaluation of ICT projects should be carried out was discussed.

**Outcomes of the interview**

In a notebook, the researcher recorded the interview after each instance. The records were then analysed at Loughborough University after his return from his field trip. The outcomes of the interview as reported are section 5.2.3. On the basis of both the field observation followed by the face-to-face interviewing process, the rural knowledge centre project was chosen for further evaluation. The decision was made mainly due to the interest shown by both the beneficiaries in participating in the study so also by the project staff in collaborating in the research. On the contrary, such commitment or interest was not shown by the other project visited by the researcher.

e) Updated literature review

Literature reviews in most cases appear as introductions to reports of new primary data or as more detailed independent works. The scope of a literature review that introduces new data is therefore quite narrow. Research cited as an introduction to other primary research is restricted to those studies pertinent to the specific issue addressed by the new data. When a literature review appears independent of new data, it can serve decidedly broader purposes. Three types of reviews with different purposes are identified:

*Integrative review* summarises past research by drawing overall conclusions from many separate studies that are believed to address related or identical hypotheses. The integrative reviewer hopes to present the state of knowledge concerning the relation(s) of interest and to highlight important issues that research has left unresolved. From a reader's point of view, an integrative research review is intended to “replace those earlier papers that have been lost from sight behind the research front” (Price, 1965), and to direct future research so that it yields a maximum amount of new information.
Theoretical review presents the theories offered to explain a particular phenomenon and to compare them with regard to their breadth, internal consistency, and the nature of their predictions. Theoretical reviews will typically contain descriptions of critical experiments already conducted or suggested, assessments of which theory is most powerful and consistent with known relations, and sometimes reformulations or integrations of abstract notions from different theories.

The third kind of review is methodological review intended to examine the research methods and operational definitions that have been applied to a problem area. Methodological reviews are often critical of existing research, arguing that artefacts have produced results, that measurement has been trustworthy, and/or that conditions limit the conclusions that can be drawn (Cooper, 1984).

The research study reviewed through the available literature the following issues of importance:

- The positive and negative impacts of ICTs in the lives of the poor
- The role of ICTs in the developmental efforts
- The various research methodologies that enable evaluation of development interventions
- An in-depth analysis of evaluation studies of projects involving the ICTs as a tool for empowerment and poverty alleviation
- The need for demonstrating both the positive and negative imprints of ICTs through independent and qualitative research inquiry

The above issues were reviewed following each of the above three review methods in the following manner:

Through an integrative review, the issues underpinning the usefulness of ICTs in rural economy was reviewed. Further, through this method, the role of ICTs in the broader development efforts and justification for investments in ICTs as opposed to the other development priorities have been assessed (Grace et al., 2001).
Through a methodological review, the existing theories and practices of evaluation approaches were looked at. The study focussed primarily on the following methodologies applied in social research to evaluation programmes: Conventional methods applying both qualitative and quantitative techniques, Participatory action research, Sustainable livelihoods Framework and the evaluation principles promoted by donor agencies. In this review, both the advantages and the disadvantages of applying each of the above methods have been noted thereof. Further, the study also looked at the current practices and works in ICT impact assessment methodologies including the telecentre evaluations, with a special focus to the practices in Asia.

As a theoretical review, an attempt was made to combine the existing evaluation methodologies. Usefulness of such a combination model, it was envisaged will be revealed through a study that enabled the researcher to compare the outcomes with the ones carried out through the application of traditional evaluation practices.

The process of the review was intended to assist the following five stages of research: problem formulation; data collection; data evaluation; analysis and interpretation and discussion of data.

Each stage of the research review served various functions helping the researcher to take steps forward. For example, at the problem formulation stage, the integrated review helped in constructing definitions that distinguished relevant from irrelevant studies. Similarly, at the data collection stage, the methodological review informed the choices of methods and the rationale behind the choice.

Methods for locating studies included informal channels by identifying and approaching the peers in ICT research. Secondary channels included the bibliographical databases, OPACs of institutions that are carrying out research in ICTs and evaluation studies such as the Institute of Development Studies, Intermediate Technology Development Group, abstracting and indexing services, citations of past research studies in the subject area, and a number of internet based resource centres such as the development gateway, iconnect online, Digital Opportunities Channel, ELDIS, InfoRural, etc.
(f) eDiscussion lists

As part of the first phase, after the needs assessment stage, consulting a wider set of audience through an online focus group method was planned as one of the key steps towards developing a new framework for evaluating rural ICT projects. Focus groups have proven to be an excellent means of collecting qualitative research information from a group of participants, and are traditionally conducted in-person. With advancing technology, we now have the ability to conduct focus groups online and collect qualitative data over the Internet. Participants no longer have to physically come together to share in a focus group experience. Realising the benefits the technology offered, two specially moderated online discussion lists were established as part of this study. The advantages of using this type of research enquiry method are already well documented (NIH, 1999; Sweet, 1999)

As detailed in Section 5.2.4, the first study focussed on South Asia debating on how to accelerate an ICT-enabled knowledge society and bridge the digital divide. This discussion list was organised during the period between July-December 2000 for a period of fourteen weeks. The second study focussed on the information systems of the urban poor and the role of ICTs in facilitating their livelihoods needs. The discussions took place over a period of 12 weeks between the 24th of January and 2nd of April 2001. Key results of these two debates are outlined in section 5.2.4.

Key strategies for moderating the discussion lists

The following key strategies formed the driving force behind organising the two eDiscussions:

a) Lack of qualitative studies on ICTs and rural poverty in the southern region, and in India in particular made it worthwhile to consider approaching the scholars and the practitioners from the South for an online discussion on the critical issues;

b) A typical meeting would have brought participants together at a designated place. As it was expensive an option for this research study, asking the
practitioners and scholars therefore to use their web browsers or email systems to participate and share ideas seemed viable;

(c) Such a debate would raise issues not only around ICT issues but the wider issues relating to the formal information systems and help to identify emerging issues associated with the introduction of ICT initiatives among the poor population; and finally,

d) As one of the outcomes of the exercise, it was envisaged that a number of policy recommendation could be drawn out of the above discussions and communicated to a wider audience. The results would enable the researcher to understand the factors that influenced the ICT research.

The process involved conducting the online discussion lists

The following steps recommended by the NIH (1999) were considered while planning and implementing the eDiscussion lists:

- Determining and recruiting user population to participate in the discussion: Since the list was set up as an invited list, it was possible for the researcher to approach scholars and practitioners selectively for participating in the discussion. For the first South Asian discussion, the researcher used the already drawn list of participants of the TASKNET conference for inviting the participants. However, for the discussion on issues around urban poor information systems, as there was no ready-to-use list available, the researcher identified a number of sources including the UN-Habitat mailing list, the Urban Research Groups of various academic and donor institutions and the poverty experts who are interested to analyse the usefulness of ICTs in poverty reduction work.

- Setting up the discussion list: The first discussion was set up with the help of an ICT-based organisation called Oneworld International\textsuperscript{13} using open source software applications. The second discussion group was set up using the British Academic network, JISCmail.

\textsuperscript{13} www.oneworld.net
Selecting the themes for the list: For the first discussion among the South Asian practitioners, the researcher sought the help of the programme committee members who had organised the TASKNET conference in South Asia in 1999. For the second discussion list, the themes were chosen on the basis of a research conducted by the ITDG on urban poor information systems (Ruskulis, 2001).

Moderating the lists: Both the lists were moderated by the researcher with a helpful introduction to the discussions and a weekly summary of the ongoing discussion. Each message was moderated and posted for circulation, thus carefully avoiding the spam. At the end of the discussion, on either occasion the researcher brought out a summary report of the entire discussion. It was also important for the moderator to bring the discussion back to track whenever he felt that the discussions were unfocussed.

Develop online presentation material: Research papers and relevant reports on issues around both the discussion lists were posted on the site for the benefit of the participants. Introductory note to the themes introduced periodically during the discussions were also posted on the web site for archival purposes.

Preparation of written analytical report: As stated previously, summary reports of both the discussions were prepared and circulated among the participants and among a wider readership in the ICT domain.

Key issues discussed

The South Asian list was centred around the following themes suggested by the programme committee of the TASKNET conference mentioned previously:

- Access: solution to the multidimensional 'divides' such as monopolies, cost, infrastructure, urban Vs rural, and gender that minimise access to information by communities
- Content: people-centred approach to knowledge-sharing, creation of 'public spaces' and appropriate use of ICTs in the creation of knowledge societies
- Technology: use of convergent technologies and open systems to ensure the appropriate use of ICTs in the creation of knowledge societies
Empowerment: the role of ICT in poverty alleviation, community work, rural development, gender and grassroots empowerment and social inclusion

About 100 participants from the civil society, donor world, the academic and the IT arena, and private industries participated in the debate.

Similar to that of the South Asian list, the urban poor list debated the following issues:

- Where and how do poor people get information?
- The role of information in the development of settlements and livelihoods;
- Modelling/analysing information flows;
- Strengthening systems and processes;
- The role of information and communication technologies in urban poverty alleviation; and,
- The new opportunities as well as the threats faced by the urban poor women in accessing crucial information.

On the basis of the above key themes, a number of guiding questions were posed to the discussants and the outcomes were analysed as shown in Chapter 5.2.4.

Key objectives and outcomes of the discussion lists

The main objectives of the above discussions were to understand the emerging and long standing issues in ICT research and their impact in the lives of the poor, especially in rural societies.

One of the main outcomes of the eDiscussion lists was the design of the ICT triangular model as shown in section 4.5.1. Further, both the South Asian and the urban poor discussions lists enabled the researcher to develop a set of policy guidelines for the purpose of the G8 dotforce consultation (Shadrach, 2001a) and the DFID research (Shadrach, 2001b) respectively.
2) Design of the conceptual model

The theoretical and the conceptual foundations for this study derive from the following principles:

a) the poor should be involved as the main stakeholders in an evaluation process and be facilitated to conduct the evaluation in an efficient manner;

b) the outside professional researcher while acting as a facilitator may find opportunities to complement the evaluation study with special expertise and skills; and

c) such a process would potentially allow for considering wider social and livelihoods issues that are fundamental to sustainable development.

Theoretical framework

The theoretical framework underpinning the study was twofold as there were two main parallel themes for the study. It has already been indicated in chapter 1 and is detailed in chapter 4 that the participatory evaluation techniques have seldom been applied in projects that involve the ICTs. Consequently, this study was in part an exploratory one considering to learn from the application of such a framework. At the same time, the second theme of the study was to explore the role of the outside professional researcher who changes role to that of a ‘facilitator’ from the ‘main evaluator’ one. This in turn meant that it would be necessary to collect data that could be analysed in a way in order to allow for comparing the outcomes of this framework to that of those evaluations conducted in a traditional fashion. Therefore, the study borrowed concepts and ideas from the following theoretical approaches:

a) the participatory evaluation approach advocated by Chambers and a series of academics thereafter;

b) the conventional evaluation approaches that provide for a strong role for the researcher; and,

c) a whole range of other approaches such as the Sustainable Livelihoods Framework, DFID’s human rights principles, the World Bank’s comprehensive development framework, etc.
As a preliminary exploratory work, this study applied qualitative research techniques to develop the conceptual model for the research while participatory action research techniques were applied in the second phase of the study that tested the conceptual framework. The study also borrowed the concept of empowerment evaluation from Fetterman (1994) to denote that the form of inquiry sought to empower directly those who participated in it. Also, the study was utilisation focused, as emphasised by Patton (1978) and responsive (Stake, 1995) with the poor playing the main stakeholders’ role.

The ICT triangular model

As shown in Figure 3.2 below, the literature review and the email questionnaire study following the eDiscussions led to the understanding that the issues that influence the ICT world today revolve around the four main components, namely: Access, Content, Partnerships and Sustainability. It can also be argued that these are the issues that enable or disable people’s access to information using ICTs.

![Figure 3.2: The ICT triangular model developed by the researcher](image-url)
As described in chapter 4.5.1, the issues relating to access may include factors such as social inclusion, gender, economic conditions, age and proximity while at the same time technology-related issues such as infrastructure, connectivity and stability are equally important. Among the content issues, factors such as volume of content, subject coverage, local specificity and the meeting of the demands are important. Similarly, partnership issues between government, private and public authorities for enhancing access and strengthening the content in ICT-led information initiatives are key factors in ICT assessments. It was therefore decided that these issues should be brought together in a triangular format to demonstrate the fact that each of the three issues is independent, and at the same time interdependent on the others for performing its functions.

But, at the core, an inner triangle has been placed to represent a whole range of sustainability factors, which is considered the bottom-line for achieving social transformation. Therefore the triangular model represents the first three issues, namely access, content and partnership which alone can lead to sustainability. Only then, it is believed that the ICT initiative can be 'real' and meaningful to the communities.

**Conceptual framework**

As shown in chapter 4, a number of evaluation techniques and approaches provided for the development of the conceptual framework (Figure 3.3). The following elements can be termed as the binding force for the development of the framework.

a) The conceptual framework, termed in this research as the 'Pondicherry Framework' places the researcher's ICT triangle at its core and suggests that an impact assessment study should focus on the four pillars of ICTs: Access, Content, Partnerships and Sustainability;

b) The 'Pondicherry Framework' combines the essence of the Sustainable Livelihoods Framework (DFID, 1999), Participatory approaches (Chambers, 1983, 1994, 1995, 1997), ICT triangular model (as shown in Figure 3.2), Menou's ICT continuum (Menou, 1999) and the human rights principles recommended by the DFID (1997);
c) The ICT triangle is seen as an entity that is co-owned and co-managed by the poor themselves while being supported by the transforming structures that influence the people's access level of ICTs; and,

d) These transforming structures that can include non-governmental organisations (NGOs), government departments, private sector entities and local bodies such as schools and hospitals bear the responsibility of following the key human rights and good governance principles in ICT projects.
Figure 3.3: The 'Pondicherry Framework' for assessing the impact of ICTs developed by the researcher.
h) Peer-reviewing of the conceptual model and the framework

The issues behind the model and the framework were discussed with the peers on two separate occasions:

a) A presentation on the conceptual model was made to a peer group at an IIS/ISD seminar in London in June 2001. Based on the comments received from the peer-group, the model was reviewed and the relationships between and among the components of the 'Pondicherry Framework' was strengthened.

b) Following the above presentation, a visit to the infobus project in the outskirts of Harare was made in July 2001 to test the model. Since the model had to be tested in a developing country context in a place other than India, the researcher seized the opportunity to meet up with the project manager of the infodes project while discussing the results of the second eDiscussion list among a group of information experts there.

Based on the suggestions by the above two groups, the researcher chose to proceed with planning and the subsequent implementation of the developed model and the framework in the project villages of M S Swaminathan Research Foundation's infovillage project in Pondicherry. As explained in Section 4.5.7, the framework developed by the researcher was put to test at the seven project villages over a period three months in Feb-April 2002.

3.4.2 Participatory action research methods

As indicated previously, the second phase of the research study was aimed at testing and evaluating researcher's framework developed in this study. The evaluation framework developed by the researcher draws on the principles that the beneficiaries must be the question-makers and the main stakeholders of an evaluation process (Rahman, 1993; Chambers, 1997; UNDP, 1997). In order to fulfil the research objectives explained in chapter 1, a number of methods and approaches were considered. Among the available choices, the participatory action research method, as explained below, was found to be the most appropriate in this phase of the research.
study. Participatory action research allows for the application of research methods such as document analysis, questionnaire interviews, focus groups and participant observation techniques that were employed in this study.

The developed model and the framework was tested at the following seven project villages of the Rural Knowledge Centres (infovillage) project of the MSSRF:

- Women-run project in Embelem village;
- Family-run project in Kizhur village;
- Project in the dalit village of Thirukanchipet;
- The project in the fishing village of Veerampattinam;
- The project in the village of Pooranamkuppam; and,
- The project in the village of Kalitheerthalkuppam.

The field trip during this phase also included the project implementation offices in Chennai, the project hub in Villianur, Pondicherry and to the above project villages over a period of three months in February-April 2002. In addition, visits to selected government offices in Pondicherry to interview the officials there was made.

As stated previously, the main objectives for evaluating researcher's evaluation framework were aimed at:

- Testing the components of the model, especially the capacity among the beneficiaries to act as the main evaluators of an ICT initiative;
- Testing the linkages in the model – between and among the ICT entity, the other transforming structures and the beneficiaries;
- Rediscovering the role of the researcher as opposed to the beneficiaries acting as the main evaluators; and,
- Finally, if and how the framework facilitates a learning process for the beneficiaries to own and put forward corrective measures in the ICT intervention.
Participants action research

According to Whyte et al. (1991), “In participation action research (PAR), some of the people in the organisation or community under study participate actively with the professional researcher throughout the research process from the initial design to the final presentation of results and discussion of their action implications.”

PAR thus contrasts sharply with the conventional model of pure research, in which members of organisation or communities are treated as passive subjects, with some of them participating only to the extent of authorising the research, but it also contrasts sharply with the most common type of applied research, in which researchers serve as professional experts, designing the evaluation/research, gathering the data, interpreting the findings, and recommending action to the client organisation.

As strongly suggested by the participants of the email survey as discussed below in Section 5.2.2, and as indicated in the ‘Pondicherry Framework’ above, participatory action research was found to be appropriate in this phase of the study. This approach to the research study favours consensual and participatory procedures that enable people (a) to investigate systematically their problems and issues, (b) to formulate powerful and sophisticated accounts of their situations, and (c) to devise plans to deal with the problems at hand (Whyte et al., 1991; Stringer, 1996).

Further, this approach was selected as the researcher model focuses on methods and techniques of inquiry that take into account people’s history, culture, interactional practices, and emotional lives along side the issues around the ICTs. While at the same time, this approach demands a higher level of people’s participation, as it is most effective only when it (a) enables significant levels of active involvement, (b) enables people to perform significant tasks, (c) provides support for people as they learn to act for themselves, (d) encourages plans and activities that people are able to accomplish themselves, and (e) deals personally with people rather than with their representatives or agents.
Choice of PAR as a method in this research study

Impact assessments at the project level and other forms of poverty-oriented research have moved increasingly from single method to multi-method approaches (Herbert & Shepherd, 2001), and greater use of participatory approaches in impact assessment has expanded the toolbox (Hulme, 1997). Although sample surveys are still common, they are now often combined with participatory and other qualitative approaches, and qualitative methods such as rapid appraisal, participant observation, PLA, etc., are often used on their own, particularly for NGO implemented projects (Herbert & Shepherd, 2001).

As the researcher's evaluation framework demands significant level of beneficiaries' involvement in designing and implementing the questionnaire survey, conducting the interviewing process, data collection and interpretation of results, this form of inquiry is justified. Conventional approaches to evaluation do not provide for involving the beneficiaries as the main stakeholder of the evaluation process.

An evaluation team was therefore constituted. The evaluation team constituted for the purpose of this study consisted of four project staff, fourteen volunteers and the researcher himself as the facilitator of the evaluation exercise. The team was comprised of eight women and eleven men including the researcher. At this meeting, a volunteer from Kizhoor village, Mr G. Jayakrishnan was elected as the lead evaluator for the purpose of this study. From this time onwards, he was responsible for convening the meetings and coordinating the evaluation process.

As outlined below, a number of data collection methods were employed in this research. This included, the questionnaire survey, participant observation, interviewing, focus group and document analysis methods. While the beneficiaries themselves performed the questionnaire survey and organised the focus group meetings, the researcher carried out the participant observation and document analysis methods to collect data. All the data sets were analysed as shown in chapter 5.4.1, and discussed in a meeting with the volunteers.
Data analysis techniques included the use of spreadsheets for feeding and interpreting data, and for creating visuals for easy demonstration. In some cases, the audio transcripts were transcribed and analysed manually as such recordings took place only in the focus group meetings.

**Triangulation method**

Triangulation is simply using different methods to research the same issue with the same unit of analysis, thus cross-checking one result against another, and increasing the reliability of the result (Denzin, 1970; Ianni & Orr, 1979). Contradictory results often bring up important problems with question design, as well as fundamental issues surrounding researcher’s understanding of a topic. The argument for employing this method is that the researchers are able to combine multiple observers, theories, methods, empirical materials, to overcome the weaknesses or intrinsic biases that come from a single method of data collection and analysis. Often, the purpose of triangulation in specific contexts is to obtain confirmation of findings through convergence of different perspectives. The point at which the perspectives converge is seen to represent reality.

Figure 3.4 Data Triangulation
The triangulation method of validation was found to be appropriate for this phase of the study for the following reasons:

- Employing the beneficiaries to collect data may result in biases
- The different data collection methods employed in this study such as questionnaire survey among three groups of stakeholders together with participant observation allowed for comparing the data collected in different intervals and through different sources.

Among the four types of triangulation, which are: data triangulation, theory triangulation, methodological triangulation and multiple triangulation, the first one was deemed to be appropriate in this study. As shown in Figure 3.4, the data triangulation method was employed to understand and derive common understanding on the contribution made by the project to the wider social and livelihoods issues in the perspectives of the beneficiaries, the project volunteers and the project staff.

Analysing the codified data was not very difficult. But, coding responses obtained in the open-ended questions was found to be very time consuming as each response had to be read in order to develop the codes. The simplest method adopted was to locate certain common comments while going through the responses one by one, and by coding those comments. Thus, using the excel data coding technique, a number of common responses were analysed. This technique allowed for coding every single response and categorising each response under one of the pre-determined codes. Interpreted data were prepared in tables and visuals for easy demonstrations as shown in Chapter 6.

a) Questionnaire survey/data-collection by participants

One of the most common data collection methods in any form of rural enquiry is the questionnaire survey. Qualitative field methods have been tried in the past to collect data in a participatory manner (Feuerstein, 1988; Activists for Social Alternatives, 1991; Goyder et al., 1998). However, in this study, as mooted by the UNDP (1997), the local volunteers were the main stakeholders and thus, they framed the questions. The local volunteers were the question-makers and the main evaluators of this study.
The researcher reversed his role from an evaluator to that of a facilitator as stated earlier in the thesis.

In order to make this method of data collection effective, the researcher explained the following concepts behind self-evaluation as indicated by Rugh (1986):

a) Making sure that all respondents understood why the survey was being taken
b) Further invite them in deciding what else could be asked as part of the investigation
c) Avoid unnecessary questions, and questions which are too direct and personal
d) Ask as many open-ended questions as possible
e) Involve community volunteers in actually taking the survey

Three types of questionnaire were developed in this study. The first two questionnaires developed by the local volunteers were targeted at the beneficiaries (Appendix 4) and the project volunteers themselves (Appendix 5). The final questionnaire was developed by the researcher in order to survey the project staff, but the questionnaire (Appendix 6) was based on the questions asked by the volunteers in the other two questionnaires. The researcher administered the last questionnaire among the project staff. This helped to overcome the weaknesses or intrinsic biases that come from a single method of data collection and analysis.

b) Focus group discussions

Traditionally embraced most enthusiastically by market researchers, the focus group technique has gained a high profile as a method for guiding political campaign advertising and governments' image-management. In academia, too, focus groups have attracted increasing attention (Kitzinger & Barbour, 1999). In participatory action research as well as qualitative research methods, this form of inquiry is well recognised and in use in the past decades (Hargreaves, 1967; Willis, 1977; Hammersley & Woods, 1984; Harrison & Barlow, 1995). It is gaining its significance due to the quality of data collected and at the same time, its openness to the impact of context on data (Buckingham, 1993; USAID, 1996d; Green & Hart, 1999).
Choice of focus group method in this research

In this study, this form of inquiry was applied for the purpose of a) research planning, b) designing the questionnaire, c) planning data-collection exercise, and, d) for story telling sessions as a process for learning and knowledge sharing. In addition, a debriefing meeting was also held to plan the next stages of the research. Applying the focus group method, the beneficiaries not only developed the questionnaire, but also peer reviewed it and later put it to use as the data collection instrument. Compared with most traditional methods, including the one-to-one interview, this method inevitably was intended to reduce the researcher’s power and control. This was found helpful as one of the key principles for applying the ‘Pondicherry Framework’ was to reduce the dominant role of the researcher significantly. Simply by virtue of the number of research participants simultaneously involved in the research interaction, the balance of power shifts away from the research. Thus, as pointed out by various scholars (Morgan, 1988; Frey & Fontana, 1993) the researcher’s influence was diffused by the very fact of being in a group rather than a one-to-one situation.

Also, as the researcher’s ‘Pondicherry Framework’ warrants application of a technique that would involve the insiders as moderators of the research consultation process, the focus group method was found suitable. In addition, this method was found suitable and appropriate for discussing sensitive topics as in the case of the past research (Morgan & Krueger, 1993, 1997; O’Brien, 1993; Carey, 1994; Kitzinger 1994, 1995).

c) Participant observation method

As mentioned in section 3.2.3, the observer-as-participant method exercised in the first phase of the study was exercised in the second phase also. The main objective of employing this method was to independently gain knowledge about the social and livelihoods issues in the villages and compare the same with the data collected by the beneficiaries in this research.

A number of factors were considered for the observer-as-participant method. Moris and Copestake (1993) lays the following factors for consideration while observing the
community, especially an agrarian one and these were considered in the researcher’s observation method:

**Community level variations**

These include, distribution of holdings by land type; existing services, rates of growth; size and characteristics of service centres; adequacy of communication; availability of water, fuel, power; settlement pattern — homesteads vs. village; degree of out-migration, backwash effects; volume of cash flow within the local system; input delivery in place and working; nature and strength of local leadership; past performance of local projects; degree of alienation of different groups; nature and importance of communal celebrations, events, rituals; how widely rewards are distributed; attention and assistance from higher level; degree of conflict, factionalism; degree of women participation in communal affairs and leadership; ethnic homo/heterogeneity; wealth and resource distribution; demographic characteristics; attitudinal and prestige systems; administrative staff characteristics; general incidence of diseases; and, general levels of security.

**Farm-level variation**

These include, ownership status; on-farm resource availabilities, size, zone, etc; quality of land and special characteristics; farm water supply: adequacy, reliability, distance; farm energy supplies: nature, adequacy, reliability; transportation and communication situation, remoteness; general climate, on-farm micro climates; mix of non-farm enterprises, size and requirement of cash; types of livestock enterprises, degree integration; quality of husbandry evidenced in major enterprises; degree of risk for major enterprises; innovativeness of farmers; degree of farm unification: physical, operational and financial; monetisation of farming practices; on-farm investments; household characteristics: size, age, sex, no. of children; household welfare load: aged, inform, alcoholics, young, diseases, etc; household labour resources and allocation; education and experience of farmers and spouses; degree of contact with extension workers; participation in community: leadership, groups, services; degree of media use; farmer’s level of knowledge on current affairs; social status, access to support; and, degree of indebtedness.
In addition to the above, a number of other factors were observed, mainly concentrating on the power relationships between communities, decision-making authority, leadership in local consultation processes, etc.

d) **Document analysis**

This is one of the areas where the outside researcher has some amount of control in a participatory evaluation method. Quite often, the project documents are available only to project designers, donors and outside researchers, and seldom made available to the project stakeholders. Project staff and the beneficiaries also can learn a lot from this exercise if the records are kept well. This may include analysing the project registers, pictures, black boards, tape recordings, maps, diaries, accounts and financial reports, etc. (Rugh, 1986)

In this research study, as explained in Section 5.6.1, the researcher analysed the project registers, the evaluation reports and various pictures and diaries held by individual project sites. This exercise proved to be helpful in data comparison, as explained in Section 6.2.1.

e) **Interviewing of stakeholders**

A number of unstructured interviews were carried out among the stakeholders in other transforming institutions such as the local schools, government departments, youth clubs and co-operative complexes. Although these interviews were very formal, the choice of this method was similar to that of the first phase of the study as explained in section 3.4.1. The arguments of Miller and Salkind (1991) were found to be appropriate for the choice of this method. The researcher chose to use the questionnaire he used among the project staff while at the same time raising wider social and livelihoods issues with them. Their replies enabled the researcher to reflect upon the linkages in the framework between and among the transforming structures, the beneficiaries and the ICT intervention. A detailed analysis of this can be found in Chapter 5.5.
1) Discussing the results

The data were analysed over a period of two months, and in the last week of May, the researcher met with the project volunteers to discuss the data results. A number of follow up face-to-face visit were undertaken thereafter to share the results and offer assistance to the project volunteers in taking corrective measures. As found in a research carried out by Loughborough University (Woodfield, 2001), the conventional method of knowledge transfer is linear. The appropriate form of information flow will have to be interactive, multi-directional and considerable efforts must be taken to diffuse information among the users. The data were discussed with a view to identifying the lesson learnt in the participatory evaluation process. As shown in section 6.2.3, with the project volunteers, a number of corrective measures and further actions were identified.
CHAPTER 4: THE ‘PONDICHERY FRAMEWORK’ AND ITS RELEVANCE TO ICT IMPACT ASSESSMENT STUDIES

4.1 Background

The growing concern for demonstrating the impact, assumedly positive, of ICTs, the Internet, information, etc., seems to be primarily driven by the need to justify urgent and massive investments in these areas, or benefit from them (Menou, 1999). This situation arises from the scepticism expressed by the donor community on the role of the ICTs in poverty alleviation at the meeting in Tokyo in 2000 (Valantin, 2000), which is also shared by many experts. The scepticism in fact implies that the ICT initiatives ought to be successful when the world leaders met to discuss issues relating to the information society\(^\text{13}\) and the successful initiatives were being showcased at the ICT4D platform\(^\text{14}\). The need to study the impact is also partly driven by the fact that critics feel that the investments in ICTs do not necessarily result in socio-economic development (Avegrou, 1998). It is evident that there is an urgent need to demonstrate the usefulness of ICTs.

Examples of good practice approaches to ICT projects are beginning to come through though failures are still being downplayed, while accurate costs of ICT programmes are rarely available (Heeks, 2003). Many recent studies reveal the need for a greater understanding of information infrastructure and systems such as how information is sought after, gathered, stored, shared, concretised and evaluated among the poor. Such an understanding, experts feel, will allow for developing appropriate applications of the ICTs (Menou, 1993, O’Farrell et al., 2000, Pigato, 2001, Pigg, 2001, Schilderman, 2002). The costs of acquiring and providing information to developmental efforts are high, thus unaffordable to many poor communities (Bedi, 1999), while at the same time, there are arguments that the mere availability of

\(^{13}\) The World Summit on the Information Society (WSIS), Geneva, December 2003;  
http://www.itu.int/wsis

\(^{14}\) ICT4D platform organised by the Swiss government and the Global Knowledge Partnerships at the WSIS meet in Geneva, December 2003.
information does no good unless shared (Stiglitz, 1989). An understanding of the potentials of ICTs to improve poor people’s welfare will require answers to the following questions (Bussolo & O’Connor, 2002):

- What are the principal sorts of information that poor people need to make them better off?
- Which of that information is currently not being supplied effectively on time in a readily usable format?
- Can ICTs remedy the deficiency cost effectively?

The above questions, in fact, are supplementary to the call for mainstreaming ICTs in developmental efforts combined with national poverty reduction strategies to overcome disparity within societies (DFID, 2002; WSIS, 2003). While sections of policy-makers have come to recognise the role of ICTs in poverty alleviation, at an international symposium on information technology and development cooperation in Tokyo, the following are a few of the many issues and concerns that were shared (Valantin, 2000):

- ICTs are not part of ‘real’ development as they do not directly address issues relating to basic human needs and poverty alleviation, and there still remains a great deal to be done on these issues in the developing countries;
- ICTs are not directly relevant to the lives of the poor as ICTs are just a technological ‘fix’ and technology cannot solve development problems;
- ICTs are expensive, a ‘luxury’ meant for the privileged;
- ICT-based applications are not locally sustainable and hence will fail as soon as donor support is withdrawn, and as the donors cannot afford to invest in significant infrastructure development or technology/applications roll-out, ICTs should simply be left to the private sector;
- Developing countries lack the necessary infrastructure, skilled human resource base, and policy environment to make effective use of ICTs; and,
- There is little empirical evidence of the impact of ICTs on ‘development’ generally or on specific target groups, e.g., poor communities, researchers, local entrepreneurs, etc.
The above views are complimentary to those of Avegrou (1998) who argues that the investment in new technologies does not result in economic growth. Freire (1974) long ago argued that every technological innovation and 'push' further alienated the poor and the oppressed.

The above sceptical views support the call and the demand for impact assessment studies in ICTs (McConnell, 1998; Gomez et al., 1999; Richardson, 2000; Wilkinson, 2003). Only a limited number of researchers have attempted critical appraisals and evaluations dealing with ICTs and their impact on development (Graham, 1997; Fuchs, 1998; Robinson, 1998). Apart from the above critical appraisals, a number of studies have emerged in the recent past. The evaluation of telecentres in South Africa (Khumalo, 1998) and Uganda (Mayanja, 2001); the Grameen experiment in Bangladesh (Bayes et al., 1999; Richardson et al., 2000); rural info shops in India (Harris, 1999), and e-commerce initiatives in North Africa (Hazan, 2002) are a few examples.

The need for evaluating ICTs in poverty alleviation as justified by Menou (1999) and supported by others can be classified into the following four areas:

a) At the national and international level, there is a growing concern and need for demonstrating the usefulness of these technologies so that policy-makers can frame policies that encourage utilisation of ICTs in developmental efforts (Valantin, 2000)

b) At the managerial level, NGOs, medium and small enterprises and IT organisations are very keen to assess the acceptance level of ICTs among the users so that they can develop a better understanding of the business dimensions of these technologies (ITDG, 2000; Duncombe & Heeks, 2001; Armstrong, 2002)

c) At the user level, the need for assessing the impact is established by the fact that ICTs do not just affect their day-to-day lives, but also their surroundings and the communities around them. And, the end-users need convincing too (Panos Institute, 1998)
d) Finally, at the design level, the designers of information systems need to have a thorough understanding of user behaviour to ensure that the technologies and information systems are appropriate to the context in which they are to be used (Marcella & Baxter, 1999; Schilderman, 2002).

4.2 ICT impact assessment studies

Starting with the IDRC’s efforts in measuring the impact of information on development over the last two decades, particularly since Menou’s (1993) work that provided the ground for many research efforts in the field, a number of studies have been carried out: impact of information on development (McConnell, 1995; Mchombu, 1995a); development of a framework aimed at assessing the impact of information on the SMEs (Lefebvre & Lefebvre, 1996); evaluation of information initiatives that involved the ICTs (Graham, 1997; Menou, 1999; African Information Society Initiative, 1999); and, assessment of community telecentres (Harris, 1999; Whyte, 2000; Espita, 2001; Reilly & Gomez, 2001).

UNESCO’s (1997) efforts in understanding the experimental rural information delivery systems by framing a Working Party, resulted in a manual that dealt with the following six broad set of indicators for measuring the impact of rural information provision: a) indicators of information availability; b) indicators of use; c) indicators of user satisfaction; d) indicators of local control over information flow; e) indicators of economic and social impact; and, f) indicators of participation in the government and its programmes.

Even today the above studies constitute an important component in the information policy research among the donors and academic institutions, and influence the way in which telecentres are established (Gomez et al., 1999). In fact, Menou’s (1993) ‘input-output-usage-outcomes-domains’ framework has provided the basis for the latter studies, such as the Lanfranco’s (1997) meta-level framework and its applications (Graham, 1997); the Shanghai model (Vaughan & Teague, 1997); and, the ICT-Impact Assessment Framework (IAP) conceptual map (Potvin et al., 2000).
Several other one-off studies have also emerged in the last decade which include: German *Zentrum fur Entwicklungsforshung* (ZEF)’s study of the impact of ICTs in development (Bedi, 1999); literacy needs for accessing ICTs (Mitra & Rana, 2000); impact of the Internet (Daly, 2000); and the Canadian International Development Agency’s (CIDA) evaluation framework (Young *et al.*, 1997) based on the core characteristics of ICTs — information, borderless connections, timeliness, and improving costs and benefits. The latest work by IDRC again, the PanAsia Telecenter Learning & Evaluation Group (PANTLEG) points to story telling as a means to evaluation (Harris, 1999), drawing mainly from the Participatory Action Research (PAR) methods.

In the recent years, there have been many assessment initiatives at the project and micro levels (Shadrach and Summers, 2002). However, recognising the fact that the successful adoption and effective use of ICTs is very dependent on the external environment and macro level policies, Wilkinson (2003) has proposed a set of indicators to assess the legal and regulatory policies; market policies; infrastructure; human capacity; and, national development policies.

### 4.3 Gaps in the current evaluation studies

To date, the evaluations of rural resource centres or information centres, with a few exceptions, have tended to be superficial and reliant on hearsay or anecdote. Instead of examining the performance or impact, they have looked at the number of documents acquired or staff employed, i.e. inputs rather than outputs (UNESCO, 1997). What has been recognised in the early 1990s was the need for a set of standards or indicators against which the performance of rural information systems can be measured (Kempson, 1990a, 1990b; Menou, 1993; Griffiths, 1996).

UNESCO (1997) have long ago recognised the following twelve types of informational needs pertaining to evaluation, synthesised from a variety of sources ranging from research undertaken on information needs and the information transfer processes, to the stated aims and objectives of support systems set up in
rural areas. These were carried out invariably whether they be rural libraries, reading rooms, information and resource centres, community facilities or information provision programmes, the activities of these programmes, data produced as a result of their evaluation:

i) Information about the informational needs of all members of the rural community (Mutunyatta & Mchombu, 1995);

ii) Information about the subject of interest of the community (Mchombu, 1993, 1995b; CODE, 1996);

iii) Information about the formats, information transfer modes and communication channels preferred by the community (Mchombu, 1995b);

iv) Information on mediation, referral, advise services and opportunities for the practical application of knowledge gained by the community (Varavarn, 1995; Mutunyatta & Mchombu, 1995);

v) Information on local culture and language and how community information centres can encourage, facilitate the capture, storage and use of indigenous knowledge;

vi) Information on how the centre can coordinate for all providers of information and facilitate its dissemination (Torrijos, 1994; Ndiaye, 1995; Benjamin, 1997);

vii) Information on how an information centre can provide feedback on community concerns;

viii) Information on how the centre can act as a focal point for community activities (Varavarn, 1995);

ix) Information on how the community controls the nature and the flow of information;

x) Information on how the information centre can improve the standard of living and quality of life of rural people (Raonizafirarivo-Rakotomahazo, 1995; Spiller, 1997);

xi) Information on how the centre can produce well informed citizens (Spiller, 1997); and, finally,
xii) Information on how such a centre can facilitate the participation of rural people in development programmes and in the national life of the country (Torrijos, 1996).

The above twelve broad indicators have been applied at various settings in the past, especially in exploring the cost-effectiveness of rural telecentres in Africa.

4.4 Traditional evaluation methods

Despite the billions of dollars spent in development assistance each year, there is very little known on the impact of these efforts in the lives of the poor. While the impact assessment studies enable one to draw broad evidence and trends, there are arguments that these studies are too expensive, thus should be avoided if possible.

The German Development Agency, GTZ after decades of its development work, found the need for shifting its focus from blindly following the German Development Ministry’s evaluation model, and rather focus on three newly found principles: Observe, Act and Decide (Valhaus & Kuby, 2001). The new model enables the GTZ to allow space for monitoring and self-evaluation of the project as well as independent evaluation carried out by non-project staff. However, it took the agency some decades to graduate to this level of understanding. This can be cited as a classic example to demonstrate the narrow thinking of donor and developmental agencies and the importance laid on impact assessment. Evaluation methods in social research include cost-benefit analysis (Menou, 1993), identification of cost-effectiveness, monitoring and evaluation of performance (Sturges & Wallis, 1999), generation of counterfactuals, qualitative techniques and quantitative methods. Usually, a combination of two or more of these techniques has been applied to any social research setting (Shadrach & Summers, 2002).

4.4.1. The conventional qualitative and quantitative methods

The main focus in most impact assessment cases that follow qualitative methods is on understanding processes, behaviours, and conditions as they are perceived by
the individuals and groups being studied (Valadez & Bamberger, 1994). This method has the potential to allow the researchers to use open-ended methods during design, collection of data and analysis. It is quite possible to apply participatory approaches to design the collection of data and analysis. Qualitative data can also be quantified using various techniques. Techniques developed for rapid rural appraisal are also used in qualitative impact assessment methods. This approach relies heavily upon the participants' knowledge of the conditions surrounding the project or the programme being evaluated. Since qualitative methods allow open-ended methods for gaining more understanding of the stakeholders' perceptions and priorities, and the conditions and processes that may affect the project, this method is usually preferred in combination with one of the participatory techniques (Cramb and Purcell, 2001).

Among the quantitative methods tried out in the past, the most popular ones are the a) randomisation and experimental methods; and, b) non-experimental approaches. While the randomisation method takes place to define control groups and the samples for the study, the non-experimental approaches try to pick an ideal comparison that matches the treatment group with a larger survey. The most extensively used type of matching being propensity scoring, which has in recent years seen substantial advances (Rosenbaum, 1985; Jalan & Ravillon, 1998). Double difference and difference in difference methods and statistical control methods are other techniques that have come into common use.

The main criticism against the conventional methods is the linear relationship between the donors, evaluators and the beneficiaries (UNDP, 1997), where the purpose of evaluation becomes a donor-focussed exercise. To avoid such mistakes committed in the past, a combination of approaches is now recommended by some researchers (Carvalho & White, 1997; Bamberger, 2000). Further, to analyse poverty, the latest studies show that involvement of the poor is crucial (Chambers, 1997; World Bank, 1999a, 1999b; Shadrach & Summers, 2002). As it is very difficult for the poor to understand techniques around experimental and non-experimental system design, this approach would be appropriate only when an external evaluator leads the exercise, contrary to the thesis of the poor informing about their own well-being. Hence, the conventional
methods are suitable if the poor and an external evaluator form a partnership in any evaluation exercise.

4.4.2. Participatory approaches

Participatory approaches that are in practice for some decades now are people-centred. This approach is now widely advocated for all forms of development activity (Schonhuth and Kievelitz, 1994; Pretty et al., 1995; van Veldhuizen et al., 1997; Estrella and Gaventa, 1998). Five purposes for which participatory approaches are widely practiced:

a) Impact assessment;
b) Project management and planning;
c) Organisational strengthening or institutional learning;
d) Understanding and negotiating stakeholder perspectives; and,
e) Public accountability.

While project stakeholders and beneficiaries are key actors of the evaluation process and just not mere objects of evaluation, the researchers change roles as facilitators (UNDP, 1997). As a reflective and an action-oriented approach, participatory evaluation seeks to build capacity by:

a) Providing stakeholders and beneficiaries with opportunity to reflect on a project’s progress and obstacles;
b) Generating knowledge from the lessons learned that leads to corrective action and improvements; and,
c) Providing beneficiaries and stakeholders with tools to transform their environment.

Although there is a triangular relationship between the donor, the evaluator and the beneficiary (UNDP, 1997), in this framework, it is imperative to see the poor as the main stakeholders of the process of evaluation (Blackburn et al., 2000), assisted by an external expert as the facilitator (World Bank, 1999b).
Participatory evaluations typically share several characteristics that set them apart from traditional evaluation approaches (USAID, 1996a; Estrella & Gaventa, 1998; Blackburn et al., 2000) as shown below:

a) Participant focus and ownership: These evaluations are primarily oriented towards the information needs of the stakeholders of the programme rather than of the donor agencies;

b) Scope of participation: The range of participation included and the roles they play may vary, for example, some evaluation may target only programme providers, while others may include a full array of stakeholders;

c) Participant negotiations: Participating groups meet to communicate and negotiate to reach a consensus on evaluation findings, solve problems, and make plans to improve performance;

d) Diversity of views: The views of all the participants are sought and recognised. More powerful stakeholders allow the participation of the less powerful;

e) Learning process: The process is a learning experience for the participants as this process emphasises upon identifying the lessons learned and the targets achieved;

f) Flexible design: Design issues are decided in a participatory manner. Generally, determined by the participants, not by the outside evaluators;

g) Empirical orientation: Good empirical data collection techniques such as rapid appraisal are used to determine what happened and why; and,

h) Use of facilitators: The participants actually conduct the evaluation, not outside evaluators, however one or more experts act as the facilitators.

In spite of the above principles, in practice, some experiments have shown that the partnership aspects of participation are difficult to find as the donors usually prove to be very powerful and control the resources and decision-making powers (Johnson, undated), hence, defining partnerships, power, common ground and values that are key to their success. Those evaluations where the donors do enter into real partnerships have shown tremendous results (Estrella & Gaventa, 1998; Gill, 1998; Cramb & Purcell, 2001).
A number of techniques have been tried out ever since the participatory evaluation methods have gained recognition. These include, the participatory rural appraisal (Chambers, 1994); participatory rural communication appraisal (Anyaegbunam et al., 1998); and the participatory poverty assessment methods (Attwood, 1996; Goyder et al., 1998; Brock, 2000). Further techniques are being developed as the participatory techniques gain momentum in social research. These can be attributed to the innovative, at the same time, founding methods of the inquiry, such as, reversal of learning, rapid learning, offsetting bias, optimising trade-offs, triangulating, seeking diversity, self-critical awareness, responsibility and sharing (Activists for Social Alternatives, 1991; Chambers, 1994). In spite of a number of programmes, ranging from the grass-roots to the mega projects applying these techniques, critics feels that the evaluation method is used by agencies like the World Bank in their comprehensive development framework (Blackburn et al., 2000), as a rubber stamp to its rhetoric approach (Christian Aid, 2001; Oxfam, 2001). In other cases, it was noticed that participation by women has always been a challenge (Aziz & Halvorson, 1999).

<table>
<thead>
<tr>
<th></th>
<th>Conventional</th>
<th>Participatory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who</strong></td>
<td>External experts</td>
<td>Farmers, project staff, facilitators</td>
</tr>
<tr>
<td><strong>What</strong></td>
<td>Predetermined indicators of success, e.g., production, income</td>
<td>People identify own indicators of success</td>
</tr>
<tr>
<td><strong>How</strong></td>
<td>Focus on scientific objectivity; distancing of evaluators from other participants; uniform complex procedures; delayed. Limited access to results</td>
<td>Self-evaluation; simple methods adapted to local culture; open; immediate sharing of results through local involvement in evaluation processes</td>
</tr>
<tr>
<td><strong>When</strong></td>
<td>Usually upon completion; sometimes also mid-term</td>
<td>Merging of monitoring and evaluation, hence frequent small-scale evaluations</td>
</tr>
<tr>
<td><strong>Why</strong></td>
<td>Accountability, usually summative, to determine if funding continues</td>
<td>To empower local people to initiate, control and take corrective actions</td>
</tr>
</tbody>
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Table 4.1: A comparison of conventional and participatory evaluation
Participatory approaches to monitoring and evaluation entail the active involvement of local people. These would include farmers, field staff and local stakeholders. Their involvement is emphasised in the design, elicitation, analysis, and utilisation of evaluation information. This process is motivated by functional concerns such as improving the effectiveness of monitoring and evaluation as well as by concerns for the empowerment of disadvantaged groups. Table 4.1, adapted from Mikkelsen (1995) summarises the differences between conventional and participatory evaluation. In practice, the distinctions are not always so sharp and a blending of two approaches often occurs.

4.4.3 The Sustainable Livelihoods Framework (SLF)

Sustainable Livelihoods (SL) is a systematic approach that links issues of poverty reduction, sustainability and empowerment processes such as participation, gender empowerment, human rights and good governance (Carney et al., 1999; DFID, 1999; Ashley & Hussein, 2000; Pasteur, 2001). These include the following principles:

a) People-centred and participatory approach where the poor people become the central focus;
b) Making holistic and cross-sectoral changes across a range of livelihood aspects;
c) Linking micro to macro, making impact at both local and policy levels and links between them;
d) Ensuring that the dynamic and sustainable nature of livelihoods is reflected, and,
e) Supporting a process that enables a wider understanding of resource allocation and creating a continuous ‘learning’ approach beyond donor involvement.

The attractiveness of this approach lies in its applicability to different contexts, situations of uncertainty and its capacity as a consultative and participatory process for the cross-fertilisation of ideas and strategies between various stakeholders, be it in enterprise development or poverty alleviation (Carney, 1999;
Adato & Meinzen-Dick, 2002). The application of this approach has been found useful in areas such as agricultural research, water projects and in conservation management. Further, understanding of the above principles among different agencies that apply the approach has not varied much as they share much in common. Their understanding of it is much rooted in the works of Chambers and Conway (Carney et al., 1999). This approach demands a more holistic understanding of poverty, and of the linkages between different livelihood components while assessing the impact of any social or technological project (Adato & Meinzen-Dick, 2002).

As shown in Figure 4.1, a community is understood to contain various capabilities, assets and activities as their means for making a living. Assets include the human, physical, financial, natural and social capitals of the community. However, the people’s ability to access the livelihood assets depends greatly on their contexts, quite often, vulnerable if they are poor. But, the framework recognises that the factors which make people, vulnerable may be altered by strengthening the existing or new transforming structures and processes. It is believed that such structures would, in turn, influence the people’s ability to access their assets and formulate new strategies for enhancing their opportunities.
However, according to Ashley & Hussein (2000), the SL approach is quite often ignored or found unsuitable in small scale projects for the following reasons:

a) In small development projects, local development is usually assessed in rather narrow terms of the generation of cash, increased production or jobs. Wider social issues and livelihood concerns are often ignored;

b) Projects usually are assessed in terms of how many of their outputs have been achieved; the intended and unintended consequences for people’s livelihoods may not be revealed. Impact should go beyond target beneficiaries to consider all stakeholders; and,

c) Projects are usually assessed both for their commercial viability and their contribution to local income. While the latter is quantified, the former is found to be difficult to assess.

Also, there are some concerns and challenges which remain in the SL approaches as they have little to say about distributional issues, though there is an implicit assumption that the emphasis will be on the poorest (Carney, 1999). The approach also does not look at the resources degradation aspects fully well, particularly at some poor pockets where the people are extremely vulnerable and have few options other
than the increased use of resources. Further, to conduct impact studies using the SLF one requires interdisciplinary teams with different skills in data collection and analysis, with a shared commitment to the research and interest in each other’s contributions (Adato & Meinzen-Dick, 2002). The framework can then provide a basis for overcoming disciplinary boundaries; help build a more complete analysis of the impact of any project, research or social setting, and point to how technologies as the intervening tools can further improve the livelihoods of the poor.

The following main weaknesses of the SL approach identified in the African Wildlife project (Ashley & Hussein, 2000) can be viewed as the general problems faced by the evaluators as some other studies have also confirmed these effects:

a) Complexity: the approach attempts to manage complexity by creating particular categories within livelihoods

b) Gaps: there are issues that do not fall into one category or another. For example, power, politics and empowerment issues are not explicitly addressed in the framework, though they are critical in defining the livelihood options available to the people

c) Indicators: one problem that immediately arises in assessing impacts of livelihoods is ‘what to measure?’ What are the relevant indicators of improved livelihoods or sustainable livelihoods? Further, the framework makes it very difficult to make reliable projections of future impact

d) Subjectivity and lack of comparability: the critical factor in the framework is the people’s “sense of well-being”. This is highly subjective although participatory techniques can be applied to define and assess this factor. People’s perceptions can change dramatically due to many reasons. This would mean that the results are short-term in nature and it is very difficult to compare across sectors as people’s perceptions can vary from individual to individual and place to place.

4.4.4 Emerging approaches to impact assessment

In the last decade, the DFID spelt out its policies to achieve sustainable development in developing countries by addressing the poverty that those populations face (DFID,
Based on the belief that the promotion of human rights and fundamental freedom of individuals and communities can achieve the international development targets set out in the DFID's document, the following principles (DFID, 2000b) were introduced, and now these principles do form part of impact assessment studies:

a) Participation: enabling people to realise their rights to participate in, and access information relating to, the decision-making processes which affect their lives

b) Inclusion – building socially inclusive societies, based on values of equality and non-discrimination, through development which promotes all human rights for all people

c) Fulfilling obligations: strengthening institutions and policies which ensure that obligations to protect and promote the realisation of all human rights are fulfilled by the states and their other duty bearers.

It is possible to integrate these principles into a participatory approach and formulate these principles as the fundamental elements in any evaluation framework. While studying an ICT project, it is essential to evaluate whether ICTs, as transforming structures have indeed contributed to the realisation of the above three principles (Shadrach & Summers, 2001).

Similarly, the World Bank's poverty group in 1999 devised a methodological guide for consultations with the poor for the compilation of the World Development Report 2000/01 based on the following principles (World Bank, 1999b):

- Enable local people to serve as partners in data collection and analysis
- Link fieldwork to ongoing development activities and policy analysis
- Apply sampling framework with geographic representation and diversity
- Adopt a strong post-research dissemination effort
- Use local research networks, and,
- Link to quantitative poverty assessment reports.
To study chronic poverty and enterprise development, the Institute for Development Policy and Management, UK combines performance and impact assessments together with stakeholders’ involvement through effective participation and accountability to form an integrated approach to impact assessment (IDPM, 2000).

The IDRC’s PANTLEG methodology argues in favour of using stories as the methodology for assessing the impact of ICT interventions. Arguing that quantitative survey methods add only a little value to the process, the group supports the action research cycle involving a continuous learning process through action, evaluation, reflection and theory-building methods (Harris, 1999; Dick, 2000).

From the investors’ point of view, a study carried out by Nexus Associates provides a framework for evaluating the impact of donor-funded initiatives designed to promote the development of small enterprises. The framework applied in this study uses a set of logical models applied to structure the chain of causality between programme inputs, outputs and outcomes (Oldsman & Hallberg, 2002), more or less reflecting Menou’s (1993) original work.

4.4.5 Menou’s models for impact assessment of information in development interventions

Michel Menou’s publication in 1993 that serves as one of the best frameworks for measuring the impact of information in development is very flexible. The framework enables the assessment of any object of evaluation such as the programme, the project, information service, or even a service point for their cost effectiveness, cost-benefits, performance, impact and effectiveness (Menou, 1993). Further, Menou’s framework allows flexibility to evaluate the objects from different perspectives such as those of the information service providers, the users, the beneficiaries, the donors, etc.

It is possible to view the framework in the light of Ranganathan’s (1967) canons of classification principles that analyse any scientific working in four blocks: Actand-Action-Actor-Tool. Menou’s work lays emphasis on factors such as input, output, generic measures, derived measures, interactive effects and external factors. Each of
these factors is correlated to the others to measure the effectiveness, performance and impact of the object of evaluation.

One of the very few weaknesses of Menou’s (1993) model as far as this study is concerned is the emphasis on cost-effectiveness in its assessment. Most ICT projects aim at empowering people and quite often find it difficult to analyse the cost effectiveness in achieving the goals. As Stiglitz (1989) points out, the availability of ‘mere’ information does not result in any action unless the transmitted information results in empowering the individual served with that piece of information. It is also evident in Menou’s model that the partnership factors that are crucial in ICT initiatives are not easy to measure and quantify in terms of input, output and outcomes. External factors quite often play a crucial role in furthering that transacted information into concrete action. However, in the recent efforts, it is recognised that the effectiveness of partnerships and the sustainability factors are crucial to the continuity of an ICT initiative. Menou’s framework does not see the sustainability factor as an object of evaluation. Further, as it is imperative to involve information beneficiaries to ascertain the sustainability aspects, using Menou’s model it may be difficult to draw any helpful conclusions.

A few years later in his work, Menou (1999) refines the understanding of evaluation to develop an impact assessment continuum as shown in Figure 4.2. He goes on to caution evaluators on the growing concern for demonstrating the impact of ICTs. The notion of impact, according to Menou, is floating on a continuum of assessment perspectives ranging from mere market penetration to lasting social transformation and beyond. The ICT impact assessment continuum assesses the relative position attained by ICT interventions on the curve over a period of time rather than trying to quantify their success rate. Depending upon the local situations and a number of external factors, the growth path to learning from mere penetration may take longer. But, it is evident from Figure 4.2 that these interventions do not produce quick results and economic viability. Menou agrees that in recent ICT impact assessment studies, only vague attention is paid to the characteristics of the people and their own needs and views, and calls for a participatory approach to impact assessments.
Now, a decade after his initial work in 1993 on impact assessment, Menou together with his peers has identified the need for a new paradigm (Stoll et al., 2002) and emphasises the need for involving the stakeholders in the process of evaluation. These stakeholders include:

a) Active and immediate stakeholders who essentially come from the implementation agency, and local organisations that participate in the programme, and the project staff;

b) Direct stakeholders who include other staff members of the organisation in charge of the activity, other staff members of the local participating organisations and the social groups and individuals whose lives are directly influenced by the activity; and,

c) Indirect stakeholders who include the local social groups where the activity takes place, the local organisation active in that area, the government authorities and the scholars and the educators who want to learn about these issues.
Menou’s latest work in 2002 identifies the object of assessment to be the dynamics of social change where the emphasis is laid on the process rather than the end product of the activity. This approach very much reflects the philosophy of the Sustainable Livelihoods Approach while also resonating the fact that the evaluation should support the individuals in their collective transformation through continuous and collective learning, the principles fundamental to the participatory approaches.

To conclude, Menou’s contributions through his works of 1993, 1999 and 2002 provide a very basic platform for assessing ICT projects. But, it is essential to combine the above three efforts and also apply a number of techniques outlined in the popular evaluation approaches discussed earlier in this chapter. Further, it is also essential to state here that not all ICT projects can adopt participatory techniques by default. Any people-oriented evaluation should incorporate the participatory approach, but a number of issues within ICTs are non-participatory, which will in turn influence the methodology adopted for evaluation. For example, if the technology component of the project is studied from the technology provider’s perspectives, the people can only be mere objects of evaluation. There is hardly any possibility for the people to lead in an evaluation programme of this nature.

4.5 The ‘Pondicherry Framework’ for impact assessment

Based on the first phase of the enquiry as indicated in Section 3.4.1, the researcher developed the ‘Pondicherry Framework’. The researcher chose to name the framework, the ‘Pondicherry Framework’ as most of the components of the framework evolved during his stay in the villages of Pondicherry. The framework was subsequently tested and refined with the help of the project stakeholders of the rural knowledge centre project of M S Swaminathan Research Foundation’s programme in the villages of Pondicherry, a state in India.

As shown below, the ‘Pondicherry Framework’ achieves methodological holism by integrating project evaluation into rural Sustainable Livelihoods Strategies. As discussed earlier in this chapter, the popular evaluation approaches do offer the basic ingredients required for assessing the impact of ICTs in development interventions, however, little or no attempts have been made to combine one or more techniques
together with participatory approaches for understanding the role of ICTs in such interventions. A survey carried out in June 2000 by the researcher pointed to the application of participatory techniques in ICT impact assessment studies. As discussed in Section 5.2.2, 90% of the 35 experts who responded to the survey felt the need for a new framework rooted in participatory principles. The ‘Pondicherry Framework’ is rooted in the participatory principles, forming the basis for impact assessment, however, much deep rooted in the exposition to the ICT initiatives, etc.

The ‘Pondicherry Framework’ can be seen as a model that combines various approaches, but also as one that attempts to arrive at methodological holism with respect to the environment in which the assessment is carried out.

4.5.1 ICT triangular model, the integral component of ‘Pondicherry Framework’

As the evaluation framework is aimed at assessing the impact of ICTs in the lives of the poor, it is imperative to assess the factors that influence the people’s ability to benefit from development interventions. In chapter 2, the review of literature suggests that ICTs are transforming the way we produce, consume, manage and live, not by themselves, certainly, but as powerful mediators of the broader set of factors that determines human behaviour and social organisation (Castells, 1989; Morales-Gomez & Melesse, 1998; Cisco Systems, 2001). Their value in social organisation beyond geographical borders is also well recognised (Mansell & Wehn, 1998; Hamm, 2001; Young et al., 2001). Their consequences in fields such as agriculture, health, education, human resources, environmental management, transport and business development could be revolutionary. However, their role in mediating the social transformation can be broadly classified under the following four factors: Access, Content, Partnerships and Sustainability.

a) **Access factors that enable/disable the use of ICTs**

Many ICT studies underpin the importance of aspects relating to social inclusion as development interventions tend to have lower impact when social exclusion is witnessed one way or the other. ICTs are, by and large, seen as tools that can enhance the livelihood opportunities for the socially excluded (Silverstone & Haddon, 1997;
Haddon, 1998), however a study in Yorkshire revealed that the tools had the potential to further worsen the relative position of the excluded individuals and groups (Phipps, 2000). The above study looked at conditions such as deprivation of income, life expectancy, deprivation in knowledge and economic conditions as factors behind social exclusion. A multi-country study carried out by Infodev program links access-related issues with the success rate of ICTs in improving economic performance and welfare among the user population (Rodriguez & Wilson, 2000). Equitable-access is increasingly recognised to be an important factor, especially when the access rate is substantially lower among minority populations as well as among population with low incomes, even in the U.S. (Jue et al., 1999).

The need for listening to the poor in order to overcome the supply constraints to citizens' access and the need for pro-poor universal access policies are advocated for in recent literature (Kenny et al., 2000). Issues around social inclusiveness are as important as cost-effectiveness, infrastructure and connectivity issues. While the issues relating to connectivity and infrastructure are being handled by the private sector in developing economies, the civil society organisations are concerned with the inclusiveness issues. The social factors that influence the accessibility of ICTs are very important while studying the impact of ICTs among the poor.

b) Content issues in rural ICT programmes

It is generally agreed that information is a key component of development and that more knowledge shared more will widely enhance the opportunities for the poorest (Mansell and Wehn, 1998; World Bank, 1999a; Armstrong, 2002). Content for relevant communities can be created either locally or simplified to local context from outside sources. Much progress has already been made in developed countries in using information technology to link people and information, and people with people at a community level. A typical community network is an electronic network that enables communication, education, trade and empowerment, and with content that serves the living needs of the communities (IBM, 1999).

A decade ago in 1993, public library leaders and managers in the U.S. suggested that real 'down-to-earth' information services and products would be necessary if the
public was to use public libraries to access the Internet (Pettigrew et al., 1999). The same views were reflected in a study funded by the British Library Research and Innovation Centre in the U.K., suggesting that libraries provide the public with Internet access to ‘community-based’ information services in health care, community activities, unique local resources, government databases, employment information and practical listservs (Bishop et al., 1999; Marcella & Baxter, 1999; 2000). The following issues that have been persistent in the U.S., and the U.K., over the last decade are being witnessed in most of the community-based information initiatives in developing nations today:

- providing access to a range of services on the net by creating networked information activities;
- enabling citizens to access local-specific and demand-driven content on the Internet; and,
- developing right partnerships with similar service providers.

The implementers of ICTs do often emphasise the above factors to be in-built in their programmes (Sirimanne, 1996; Arunachalam, 1999; Armstrong, 2002). It is thus evident that content is supreme, and studying the appropriateness and the relevance of content held, processed and disseminated by pro-poor ICT initiatives is an important exercise. In addition, experts emphasise that the post-dissemination effects of content should also be measured in order to assess if the information passed on has had any impact on the community at large.

c) Emerging partnerships underpinning the survival of transformation

The ongoing debate on the digital-divide strongly argues for fruitful partnerships between the private and public sectors embracing the civil society actors. Such partnerships should result in huge investments in the development of advanced ICTs for achieving leapfrogging strategies (Mansell, 2002; Miller, 2002). UNDP (2001) strongly advocates creating innovative partnerships as the crucial element in bringing new technologies closer to human development. These partnerships may ensure socially inclusive information societies. However, this approach requires investment,
particularly in the mechanisms by which people gain access to equipment and to the information highway (IBM, 1999).

The information highway possesses what are known as ‘public good externalities’, in that it offers social benefits far beyond simply providing the connection of individuals to the network. Similarly, as discussed in the section above the widespread free availability of much information is very much a ‘property good’ as it has unpredictable spin-off benefits, leading to development. However, the technology comes across as relatively benign but people think that institutions do not trust them, and the people themselves do not trust institutions\textsuperscript{15}. It is therefore important for all these actors to come together and trust one another.

The same approach is much needed at the local level where the technology is put to use for enabling people to access information. Recent studies have resonated the above arguments calling for fruitful partnerships for the successful initiation of an ICT-led information project (Vaughan & Teague, 1997; Richardson & McConnell, 2000). Similarly, a study by CIDA has used ‘partnerships’ yardstick while assessing the effectiveness of its ICT activities in Tanzania, South Africa, Vietnam and Peru (Young \textit{et al}., 1997). Richardson (1996) points out that in a study of internet-led projects for rural and agricultural development, the issue of partnership between information providers and the communities is very crucial for achieving sustainability and success.

From the above experiences, it is evident that the issue of partnership is important not only for developing universal access and content policies at a global level, but also for sustainable service provision for communities at the local level. Effective and fruitful partnerships with both content and technology providers forged by the civil society is now recognised as crucial for communities to sustain their ICT initiatives. The government is a key ally in many developing countries.

\textsuperscript{15} Comment at the INSINC consultation seminar in Leeds, November 1995.
d) **Sustainable ICT solutions for pro-poor settings**

A number of case studies show that ICTs can enhance development projects. However, it has not been conclusively proven that an ICT activity directed at increasing income for the poor can, on its own, generate cost recovery inclusive of set-up and replacement costs. In other words, gaining economic sustainability (Batchelor et al., 2003). In such a situation, ICT experts and implementers argue that the sustainability factor should be seen in the wider context of institutional frameworks, local capacity, programme objectives and developmental benefits. Thus, sustainability can be seen as more than just 'ongoing financial cost recovery'. While widening the concept of 'sustainability', there is considerable debate over the term itself. Pretty (2000) terms 'sustainability' as a complex and contested concept, implying persistence and the capacity of something to continue for a long time. This property which arises out of the interactions among stakeholders, is the basis on which sustainability is negotiated. The notion of negotiating sustainability is noteworthy as it implies lack of need for sustainability.

The Sustainable Livelihoods Framework (Ashley & Hussein, 1998; DFID, 1999) explained in section 4.4.3 focuses on the capital assets: financial, human, social, physical and natural. In bringing together these definitions and approaches for sustainable ICT solutions in pro-poor settings, it may be appropriate to consider the report of Roling and Jiggins (1998) to clarify what is being sustained, for how long, for whose benefit and at what cost, over what area, and measured by what criteria. It is, in the light of the above arguments, important to consider the other three pillars of ICTs explained above, namely, Access, Content and Partnerships, as the objects of evaluation with sustainability as the underlying factor.

**The ICT triangular model**

As discussed above, it can be argued that the issues that influence the present day ICT debate revolve around the four main components namely: Access, Content, Partnerships and Sustainability. It can also be argued that these are the issues that

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16 Many of these can be browsed on the Digital Opportunity (http://www.digitalopportunity.org) Channel and the Development Gateway (http://www.developmentgateway.org)
enable or disable people’s access to information using ICTs. As shown in Figure 4.3, the access factors such as social inclusion, gender and economic conditions that influence access to information, age and proximity to ICT services are important issues, while technology-related issues such as infrastructure, connectivity and stability are equally important. Among the content issues, factors such as volume of content, subject coverage, local specificity and ability to meet the demand for information are important. Similarly, partnerships between private, government and public authorities for enhancing access and strengthening content in ICT-led information initiatives are key factors in ICT assessments. It is therefore proposed, as shown in Figure 4.3, that these issues are brought together in a triangular format to demonstrate the fact that each of the three issues is independent, and at the same time interdependent on the others for performing its functions and achieving its goal. But, at the core, an inner triangle is placed to represent the sustainability factor as the researcher considers it as the bottom-line for achieving social transformation. Only when the above three together lead to sustainable development, is the ICT initiative ‘real’ and meaningful to the communities.

![Figure 4.3: The ICT triangular model](image)

As discussed earlier in Section 3.4, the ICT triangular model fitted into the ‘Pondicherry Framework’ suggests that in an evaluation study, it is imperative to study the relationship between the above four components, as the effectiveness of an ICT initiative aimed at the poor is dependent on the above, and the desired output and actions may change as per the conditions that determine the above components. If an ICT project is to be successful in delivering information services to the poor, the
researcher strongly advocates the recognition of all the four components, with no single component being less or more important than the rest. While the core sustainability triangle forms the central part of the main analytical triangle, its three sides refer to access, content and partnership issues. This enables the formation of a tripartite structure where these three distinct issues are key to processes that affect the role of the ICTs in poverty alleviation work. The factors around the four components shown in Figure 4.3 may vary from project to project depending upon local circumstances.

4.5.2. People's participation in ICT initiatives

It is important to assess the ownership of ICT initiatives at the grassroots level. Quite often, ICT projects are termed as participatory, but a number of social and technological factors influence the ability to access the benefits offered by the ICT intervention. It is therefore important to assess the range of participation by the people, especially the poor and the vulnerable.

When people participate in an ICT intervention, they do so, as shown in Figure 4.4, within the parameters of the social dynamics of the community. It is therefore important to consider the social factors that enable people's participation. For example, if the community is a highly male-dominated one, it is quite unlikely that the women will be able to access the benefits, as well as participate in the ICT intervention. Simultaneously, if a strong caste system prevails in a community, it may quite likely affect the disadvantaged, underprivileged and the minorities in their ability to access the benefits, as well as to participate in the ICT intervention.

Similarly, a number of technological factors also affect people's ability to participate in the intervention. If technology is perceived as a male-oriented one, it is quite unlikely that women can find themselves at the centre of action. The connectivity, ease of use, language, etc., can be seen as technological factors that quite often if not planned well enough make it difficult for the people, especially women to participate, co-own and co-manage the ICT intervention (Huyer, 1997; Gender changers, 1999; Taggart & O'Gara, 2000; Shadrach, 2001a).
4.5.3. Transforming structures and their influence on the poor and the vulnerable

All ICT initiatives, although many of them are reported to be owned by the local people these days, emerge due to the existing transforming structures and processes. The local institutions such as the Panchayat, educational institutions, co-operative societies, self-help groups, religious bodies, health centres and micro-enterprises do constitute the transforming structures and processes in a village.

As shown in Figure 4.5, it is important to assess to what extent these institutions influence the local people’s day-to-day living. At times, the rich people in the village, or the local politicians and those who are connected to the power structures do influence the local poor and their ability to access their livelihood opportunities. It becomes important to assess if the local transforming structures that influence the people the most bear the responsibility of following the human rights and good governance principles laid out by DFID (2000b). If the local structures follow the basic human right principles, it is certain that the people also play a key role in supporting and strengthening the transforming structures.
In the rural settings, the local people quite often own, manage and sustain these institutions, hence, it becomes imperative to assess to what extent all people get to participate in the local transformations irrespective of their caste, creed, sex, age, economic status, etc. The human rights and good governance principles as discussed earlier in this chapter ensure social inclusiveness, values of equality, indiscrimination and development that promote human rights for all people.

4.5.4. The role of transforming structures in an ICT intervention

As mentioned before, almost all ICT initiatives have come into being due to the attempts made by one or more of the local transforming structures.

It is therefore important to assess the role played by these structures in managing the ICT intervention. The way these structures influence the local people will necessarily reflect upon the people’s ability to access their benefits through the ICT intervention.
In some cases, it is likely that the introduction of ICTs in local settings may have the potential to change the power structures. Information empowers people, and awareness about people’s rights facilitated through ICTs may offer opportunities for the voiceless to voice their rights, and thus, the transforming structures might be forced to practice the good governance principles. It is therefore important, as shown in Figure 4.6, to assess the relationship between the local structures and the ICT initiative.

4.5.5. Evaluating the tripartite relationship between the transforming structures, the poor and the ICT initiative

The ICT triangle envisages a strong partnership between the people, the transforming structures and the ICT initiative so as to ensure equal access, and value-added content pertaining to the needs of the target groups. Thus, the intervention has a fair chance of sustainability. While evaluating such a tripartite relationship, the ‘Pondicherry Framework’ argues that both the local people and the external evaluators should play their respective roles for arriving at effective evaluation outcomes. The roles for the
local people and the external evaluators suggested in the ‘Pondicherry Framework’ are that of evaluators and facilitators respectively. The ‘Pondicherry Framework’, as shown in Figure 4.7, places the local people as the main evaluators of the process. While the tripartite structure aims to improve the livelihood opportunities of the poor, it is they who should assess if the structure did in fact raise their livelihood standards. In the framework it is assumed that the poor have the best abilities to assess the impact of a local level ICT-led information initiative.

Figure 4.7: Facilitators and main evaluators of ICT intervention

While recognising the importance of fielding the local people as the main evaluators, in the ‘Pondicherry Framework’ the researcher argues strongly for the role of external experts, preferably from the transforming institutions as the facilitators. As shown in the above diagram, their role is to facilitate the evaluation process to be carried out by the local people themselves.
4.5.6. Assessment and learning against the ICT impact assessment continuum

As discussed earlier in Section 4.4.5, the notion of impact, according to Menou (1999), is floating on a continuum of assessment perspectives. The ICT impact assessment continuum assesses the relative position attained by ICT interventions on the curve over a period of time rather than trying to quantify their success rate. Depending upon the local situations and a number of external factors, the growth path to learning from mere penetration may take longer. But, it is evident from Figure 4.8 that these interventions do not produce quick results and economic viability. Menou agrees that in recent ICT impact assessment studies, only vague attention is paid to the characteristics of the people and their own needs and views, and calls for a participatory approach to impact assessments.

![The ICT impact assessment continuum](image)

**Figure 4.8: The ICT impact assessment continuum**

It is therefore quite fitting to quantify the participatory evaluation technique developed in the ‘Pondicherry Framework’ against the ICT impact assessment continuum. When local people assess the ICT intervention, with the help of experts, it may be possible for them to measure the impact against the qualifiers of time and effectiveness of the ICT learning curve as shown in Figure 4.8.
4.5.7. The ‘Pondicherry Framework’

Putting together all the above ingredients, the researcher has developed the ‘Pondicherry Framework’ as shown in Figure 4.9. As discussed earlier, a new impact assessment framework had to be considered based on the felt need for a holistic and comprehensive framework that enables evaluators to place ICTs as the objects of evaluation. As discussed below in Section 5.2.2, a survey carried out in June 2000 by the researcher pointed exactly to this idea as over 90% of the participants called for a new framework that was based on participatory principles.

The key principles highlighted in Section 4.6 below, can serve as the basis for a new framework, but the approaches suggested there are confined to capturing lessons learnt during the course of project implementation. Menou (1999) clarifies the purpose of an evaluation by triggering the concept of an assessment continuum, which is found to be very appropriate at present, as the ICTs themselves have not matured enough to be recognised as stand-alone solutions to developmental problems. Further, there is no evidence that the ICTs will ever prove to be stand-alone solutions to such problems. ICTs are one of the many means to alleviate poverty, since their role in the development process cannot be measured in quantitative terms. But, using Menou’s continuum, it is possible to qualitative place the position of ICTs on the learning curve.

To combine the above thinking, it is therefore important to consider the following key elements:

a) Various pillars of ICTs and their role in influencing the people’s ability to access, assimilate and use information;
b) Guiding principles of an evaluation process;
c) Various potential objects of evaluation and the evaluation perspectives;
d) Categories and roles of different stakeholders in the evaluation process;
e) Appropriate methodologies that can be applied;
f) Outcomes of the evaluation process and the ownership and usage of the results; and,
g) A model for a continuous evaluation process.

The suggested 'Pondicherry Framework' depicted in Figure 4.9, is an attempt to visualise the above-mentioned seven key elements in a single framework. The framework is a combination of the Sustainable Livelihoods Framework and participatory approaches knitted together with the ICT triangular model as the core entity of the framework. The framework then follows Menou's ICT continuum and establishes a path for assessing the impact of ICTs based on certain fundamental governing principles outlined in the DFID's human rights principles where the poor act as the main evaluators leading the assessment exercise. The framework provides equal roles for the main evaluators and the outside researcher(s) who facilitate the process.
Figure 4.9: The 'Pondicherry Framework' for assessing the impact of ICTs
4.6 The key principles of the ‘Pondicherry Framework’

The human right principles outlined by the DFID (2000b), the UNDP’s (1997) participatory evaluation guidelines, and the World Bank’s (1999b) methodology to consult the poor are interwoven to form the basic principles of the ‘Pondicherry Framework’. As few other researchers of ICT evaluation programmes have promoted similar principles in recent years (Richardson, 1999; Kenny et al., 2000; Marcelle, 2000). However, the following principles can be highlighted:

a) Recognise the poor as the main stakeholders right from the beginning

The first and the foremost principle considered in the ‘Pondicherry Framework’ is the recognition of the poor as the main stakeholders of the assessment exercise (UNDP, 1997). For a reflective and action-oriented evaluation, the participatory approach seeks to build capacity by enabling the local poor as the beneficiaries to reflect upon the benefits, progress and obstacles of the ICT intervention. The poor have the potential to generate ideas and learn from each other (Narayanan, 1993; Brocklesby & Holland, 1998; Gill, 1998). The poor in most developing countries are so vulnerable with limited access to resources that they develop a number of strategies to cope up with these limitations (Attwood, 1996; Barton et al., 1997; Brock, 2000, Blackburn et al., 2000; Shadrach, 2001b). It is therefore important to take note of these strategies that would inform the evaluation process of new approaches to address the obstacles in an ICT intervention.

b) Purpose and methodology of the evaluation should clearly be agreed upon between the stakeholders

The assessment process must be transparent and fair. The purpose of the exercise is not to assess if the project is a successful one or not, but to understand the social dynamics and outcomes as a result of the ICT intervention. In the process, the evaluation must aim at gathering and synthesising the lessons learnt, and at improving the programme implementation. The methodology can be based on the ICT pillars, however, it should be determined by the local people themselves. The stakeholders
should adhere to ethical and local social considerations and guiding human right principles (UNDP, 1997) so that the study can be respected.

c) Enable local people to serve as partners in data-collection

Qualitative field methods have been tried in the past to collect data in a participatory manner (Feuerstein, 1998; Activists for Social Alternatives, 1991; Goyder et al., 1998). It is absolutely essential to strengthen the poor with capacities to define, describe, analyse and express their perceptions of their own well being including their complexities and dynamics. Methods to enable rich interactions among a focus group should be applied in this process. The question-makers in a participatory evaluation programme are the stakeholders (UNDP, 1997). The local poor as the main stakeholders should thus frame the questions themselves. It is exceedingly important to make them understand that the outside evaluator’s role in the process will only be that of a facilitator and the actual evaluators would be the local poor themselves.

d) Provide the local poor with tools and techniques for data-collection

Techniques such as focus-group meetings, peer-reviews and mock-up interviews can be performed to design the questionnaire. While collecting data, the local people have the potential to bring out the right answers while interviewing their fellow citizens and make the data collection exercise a rich experience for themselves. However, during the evaluation, they should be well equipped to use the techniques identified for data collection. It is therefore the responsibility of the facilitator to develop such a capacity among the local people.

e) Apply both qualitative and quantitative techniques to consult the poor

A combination of both qualitative and quantitative techniques will greatly assist in gathering data (Carvalho & White, 1997; Bamberger, 2000). It is therefore important to discuss with the local people the techniques that might be appropriate in their local settings. Consistency checks can be built-in through the use of a triangulation process that permits two or more independent estimates to be made for key variables such as income, opinions about the project, reasons for using and not using the services, and
the specific impact of the project. It is possible to ask some of the questions to both the spouses separately in order to obtain the right answers or see the contrast in perceptions. As shown in figure 4.9., since the relationship between the evaluators and the researcher or the facilitator is on an equal footing, it will be possible for the facilitator to choose the evaluation techniques in consultation with the former.

f) **Study the dynamics of the community with an aim to link fieldwork to the ongoing ICT intervention**

It is important to study the community in a holistic manner to get a sense of the community. Existing secondary data will provide some indication on the income level, poverty level, population details, unemployment figures, caste division, etc. But, it is equally important to get a sense of the communities’ human, social, physical, natural and financial assets (Ashley & Hussein, 2000). It may be unlikely that the local people can study their own settings in such a way that the outcomes would inform policy, but they can definitely link up their community’s dynamics with the ongoing ICT intervention and assess its role.

g) **Enable the local people to apply the sampling framework with geographical representation and diversity**

In a data-collection exercise, it is important to apply a tested sampling technique in order to obtain diversified views and cultural and social representation (Fink, 1995; Fridah, undated). The sampling framework should be discussed in a focus group meeting in detail to make the data collection process an inclusive one. It is important in an ICT intervention to consult the elderly, the disabled, children, young people, students, women, housewives, and different occupational groups.

h) **Scope of the evaluation must be all inclusive**

As mentioned above, the evaluation process must not omit any group deliberately, rather should aim at including all. Assessment should therefore pay attention to individuals, families, communities and different social groups such as the elderly,
children, widows and the disabled in order to obtain a true and complete picture. Women and the minorities must be subject to special attention.

i) **Adopt a strong post-research dissemination effort and help the local people to plan future changes**

It is very important to share the findings of the evaluation study with the stakeholders soon after analysis of the data (Batjes-Sinclair & Khadar, 2002). Community synthesis reports must be produced which should be made available to the local public, the NGOs and private and civil society leaders. Such communication processes will serve to raise awareness of the barriers faced by the ICT initiatives and enable new partnerships to address those barriers and also act as the starting point for future activities. The results must therefore support learning and decision-making processes.

j) **Use local volunteers for both, the capture of the data and the dissemination of the results**

It is very important for the project to recruit local volunteers for capturing of data and dissemination of the results. These volunteers can act as the advocates of people's opinions and also ensure that future activities that may arise as a result of the findings do take up.

4.7 Indicators for measuring the ICT triangle

Many models and sets of indicators have enabled the measurement of ICT issues ranging from their penetration to poverty alleviation, economic advancement and people's empowerment (UNESCO, 2002; WomensHub Web Team, 2002; Batchelor *et al.*, 2003; Caspary & O'Connor, 2003; Wilkinson, 2003). In rural development work, certain indicators have been suggested while studying the community (Moris & Copestake, 1993). In ICT research, one of the early experiments suggested a measurement technique called INEXSK that stands for Infrastructure, Experience, Skills and Knowledge aimed to map ICT advancement (Mansell and Wehn, 1998). Similar attempts have focused heavily upon ICT access and penetration issues such as
personal computers, main phone lines, electronic production, electronic consumption, technical graduates, literacy rate, Internet hosts and television sets.

To conclude, an evaluation programme applying the 'Pondicherry Framework' will have to consider the following:

a) Participatory monitoring and evaluation process – a combination of conventional and participatory approaches to evaluation where the local stakeholders become the lead evaluators seeking to ask questions of their choice;

b) Participants' observation methods where the external researcher attempts to study the community in an independent manner;

c) Identification of indicators that fall within the framework of the ICT pillars outlined earlier in this chapter; and,

d) The use of triangulation methods for data verification and effective learning.

4.8 The Greek temple concept

In order to understand the ICT triangle fitted into the 'Pondicherry Framework', one can picture the ICT intervention like a Greek temple, a temple with a roof - the ICT intervention, supported by a series of pillars, each being an independent entity while at the same time, an inter-dependent element in an ICT initiative aimed at poverty alleviation (Figure 4.10).

At one end of the temple are the pillars that safeguard the interests of the communities' and enable one to see their ownership and the key stakeholders' status in the intervention (community ownership). At the other end of the temple are the pillars that provide the sustainable framework for the intervention (Livelihood opportunities). The factors that provide a reason for the community to own and stake its claim are represented in those pillars. But the pillars in between the two sides of the temple are the ones that energise the ICT initiative by providing locale-specific and demand-driven, appropriate content where the community does not just play a
passive consumer role, but also an active role in providing as well as demanding content.

Figure 4.10: The Greek temple concept for impact assessment

Resting on the roof are three round balls that represent the basic principles of sustainable development and human rights to enhance the quality of people's lives. The balls are round in order to emphasise the fact that it is crucial for the roof be kept level if these round balls and the values they encompass are not to roll off. In an ICT intervention, it is crucial to keep these principles live in order to safeguard the people from commercial and private interests.

The temple itself is built on and sustained by foundations, which comprise of societal values and people's key participation in the process. If the people do not participate in the process of any ICT intervention right from the beginning, the initiative is bound to be weak. At the same time, if the intervention is based on people's commitment, their ownership and their community values, the foundation will support the 'pillars', which rest on them, giving the intervention added strength. On the other hand, if the foundation is weak, the pillars will be empty and ineffectual, and the foundation will lack the underpinning necessary pillars of ICTs.
The 'pillars' are independent but at the same time interdependent. The strength of each pillar may vary from community to community. The evaluation can focus on the pillars to identify the weak pillars in order to strengthen them and to see the possible role the neighbouring pillars can play in supporting as well as strengthening the others. If this is not done, an increased load is thrown onto one or more of the other pillars. If several pillars weaken, their load will ultimately tilt, so that the "round balls" of "sustainable development", "people's empowerment", and "quality of life" will role off and crash to the ground leading to the failure of the whole intervention as shown in Figure 4.11.

**The Greek temple concept of impact assessment**

Figure 4.11: The Greek temple concept for impact assessment showing the collapse of the ICT triangular model if the pillars are 'weak'

Thus, the Greek temple concept clearly enables one to clearly visualise the significance and clarity of the researcher’s ‘Pondicherry Framework’. The conceptual framework in this study, termed the 'Pondicherry Framework' is a compilation of
concepts, approaches and methods in the existing evaluation studies applied to ICT interventions from the beneficiaries' perspectives. As stated above, the main outcomes of the exercise will be the learning points learnt by the poor themselves in a process that is owned by them. By owning the process, they will not only be responsible for designing and implementing the evaluation process, but will also be responsible for undertaking corrective actions as a result of the exercise. In the next chapters, the practical evolution of the 'Pondicherry Framework' will be described together with the first-hand experience gained by the researcher while facilitating an evaluation process using the framework in Pondicherry, India.

4.9 Operationalisation of 'Pondicherry Framework'

The operationalisation of the 'Pondicherry Framework' will differ from project to project, based on the objectives of the evaluation. However, the following steps can be observed while applying the 'Pondicherry Framework' for assessing the impact of ICTs in the lives of the poor:

4.9.1 Determining whether or not to carry out an evaluation

As discussed earlier, evaluating an ICT project using the ICT triangular model is different from other models. Given the complexities and costs in carrying out an evaluation, the 'Pondicherry Framework' provides for using simple, but robust techniques for evaluation. The four ICT pillars: Access, Content, Partnerships and the Sustainability factors should dominate any evaluation process. Consideration should be given at this stage to whether or not to choose another framework other than the one suggested in this research. The 'Pondicherry Framework' should be seen as a means to process evaluation and never be considered as an assessment study that will determine the success or the failure of a project. Instead, the framework places the project in the ICT learning curve as shown in Figure 4.10.

4.9.2 Clarifying the objectives of the evaluation

Once the Pondicherry Framework is accepted for evaluating the impact of ICTs, it is then essential to focus on the core objectives of the evaluation. Clear objectives will
help in identifying the information needs, in setting down the output and the impact indicators, and in constructing an evaluation strategy. As stated earlier, the goal is to assess the project in the light of its effort to alleviate poverty, and therefore, the evaluation scheme should place the people at its core. The impact output will enable the stakeholders to undertake corrective measures from the lessons learnt during and after the evaluation process.

4.9.3 Identifying the evaluation teams

The most important step in the 'Pondicherry Framework' is the identification of the evaluation teams. As shown in Figure 4.9, as the main stakeholders the people themselves carry out the evaluation. In other words, it should be seen as an exercise of the people, for the people and by the people of the community where the intervention is taking place. A number of local volunteers together with the project staff and the beneficiaries would form a good evaluation team. An external researcher with evaluation and data-analysis skills should be chosen to facilitate the process. Gender considerations must be given the highest priority while establishing the team.

4.9.4 Exploring the availability of data

Many types of data collection mechanisms can be used to carry out impact evaluation based on the proposed framework. These can include a range from cross-sectional questionnaire surveys to qualitative open-ended interviews. It is therefore important to explore the kind of data to be collected and how that could be achieved. Although in essence the framework is participatory, it is important for the external facilitator to sensitise the people regarding the need to collect certain relevant facts about the setting. This might include the income level of the community members, the composition of the population, the number of girl children as opposed to boys, the major ethnic divisions, and other relevant public initiatives such as the one under investigation.

It is important to ensure that there is enough data on the outcome indicators and the relevant explanatory variables. This step will include determining the sample size,
constructing the sampling frame, and selecting the sample. Although some of this information may already be available to the government, it is important to collect this data to ensure accuracy and currency, and to gain an in-depth knowledge of the community. Considerations must be given to either avoid or collect certain sensitive data directly from the community such as infant mortality, abortion rates, HIV information and family planning if the ICT intervention aims at disseminating health information to communities. If discussing this with the community would require special skills and reputation, it may be possible to obtain such sensitive data from the local NGOs that are active in those areas.

4.9.5 Designing the evaluation process

Once the objectives, the evaluation teams and the data resources are clear, it will be possible to design an evaluation study based on the 'Pondicherry Framework'. It is important to bear in mind that the evaluation will be primarily carried out by the people themselves, hence even if the external evaluator is capable of carrying out the entire evaluation on his/her own, he/she must ensure that they do not influence the evaluation. The evaluation exercise as mentioned is for the people, of the people and by the people. At this stage, it is important for the external evaluator to discuss the pros and cons of the 'Pondicherry Framework' with the evaluation teams.

Evaluation questions:

The questions to be asked should be directly linked to the design of the evaluation scheme in terms of the type of data, the unit of analysis, the methodologies used, and the data-collection techniques. It is important to allow enough space for discussing the questions, but the facilitator should take every opportunity to sensitise the people about the need for including certain evaluation questions. However, ultimately, the people considering their local realities should determine the final set of questions. In clarifying the evaluation questions, as suggested by the gender experts (FAO, 1999), it is important to consider the gender implications of the project, hence questions that would establish the gender dimensions must be included. Inclusion of certain open-ended questions would allow rich data analysis and the application of qualitative data analysis techniques.
Peer-review of the questionnaire:

Once the basic set of questions is determined, it is important to review the questions among a group of fellow researchers, the project staff and the local volunteers. This peer-reviewing exercise will enable the grouping of certain questions together and even modification of the questions at times. This element in the design phase would strengthen the evaluation outcomes as the questions are key for determining the outcomes.

4.9.6 Data-collection techniques:

Various participatory techniques such as social mapping and focus group meetings can be applied to collect data. In addition to the structured interviews, considerations must be given to use other techniques such as observational walks, story-telling sessions, collection of photographs, case study research, collection of anecdotal evidences, etc.

It is important to ensure that the data-collection exercise is carried out either by the members of the evaluation teams or the volunteers chosen by them. As indicated in Table 4.2, the team should decide the data-collection methods and ensure adherence to the design standards such as sample size, etc. This phase is very important, as the data-collectors should make the samples feel that they are a part of the process rather than mere subjects and respondents. It may be possible for the local volunteers to enter into a dialogue with their samples and obtain answers for the structured questions in a very informal manner. In addition to structured interviews determined in the design, other techniques such as observational walks, focus group meetings, on-the-spot studies, story-telling sessions and other participatory techniques may be used for collecting data. The external expert who acts as the facilitator may bring a combination of expertise such as sampling techniques, survey design, micro-macro policy linking and data processing into the evaluation scheme.
<table>
<thead>
<tr>
<th>Method</th>
<th>Data requirements</th>
<th>Use of qualitative and quantitative approaches</th>
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</thead>
<tbody>
<tr>
<td>Experimental or randomised control</td>
<td>Data on ICT project cross-section including the non-users</td>
<td>Sampling techniques</td>
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<td>Identification of indicators</td>
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<td>Identification of evaluation teams</td>
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<tr>
<td>Non-experimental design</td>
<td>Large survey, census, local budget, functioning of panchayat and municipalities; survey in neighbouring villages among non-beneficiaries</td>
<td>Design of survey instruments</td>
</tr>
<tr>
<td>a) Constructed control or matching methods</td>
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<td>Primary data-collection using</td>
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<td>- informal or semi-structured interviews;</td>
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<td>- photographs; and,</td>
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<td>- triangulation techniques</td>
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<td>b) Reflective comparisons</td>
<td>Baseline and follow-up on beneficiaries</td>
<td>Data-analysis techniques</td>
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<td>Recording the learning points</td>
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<td>Discussing the evaluation outcomes</td>
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<tr>
<td>c) Statistical control or instrumental variables</td>
<td>Cross-section data representative of beneficiary population with corresponding instrumental variables</td>
<td>Developing corrective measures</td>
</tr>
<tr>
<td>Participants' judgement and expert opinions</td>
<td>Data on the usefulness of the ICT project from the members of the community including the non-users</td>
<td></td>
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Table 4.2: Evaluation using the 'Pondicherry Framework' and the corresponding data requirements

The 'Pondicherry Framework' allows the usage of well-known and tested techniques such as analysis of case studies, focus group meetings and structured and non-structured interviews and so on to be carried out as a part of the evaluation scheme. It is important for the evaluation team of each programme to decide and select which of these techniques are useful and appropriate in their own settings.

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17 A village panchayat consists of a president and ward members. The members, between 6 and 15 are elected from each ward and all the electors of the village directly elect the President.
18 Adapted from Bamberger (2000)
## Definition and use

<table>
<thead>
<tr>
<th>Technique</th>
<th>Description</th>
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<tbody>
<tr>
<td>Case studies</td>
<td>Collecting information that results in a story that could be descriptive or explanatory, and could serve to answer the questions of how and why. This can be done through storytelling sessions organised by the evaluation team with the volunteers and the beneficiaries participating in it or by constant documentation by the project staff.</td>
</tr>
<tr>
<td>Focus groups</td>
<td>Holding focussed discussions with the stakeholders' groups on pertinent issues before writing a set of structured questions. This should include immediate, direct and indirect stakeholders discussed in section 4.4.5. The focus group could also recruit evaluation teams and take over the process from there onwards. The focus group could discuss the sample frame and identify the volunteers for the data-collection process.</td>
</tr>
<tr>
<td>Interviews</td>
<td>The interviewer asks questions of one or more persons and records the respondents' answers. The interviews may be formal or informal, face-to-face or by telephone, or closed- or open-ended. On-the-spot interviews are more effective in ICT evaluations. Interviewing the users at the information centres and the non-users in their homes and fields would be effective.</td>
</tr>
<tr>
<td>Observations</td>
<td>Observing and recording situations in a log book or diary. This includes who is involved, what happens, when, where, and how events occur. Observations could be direct where the observer watches and records, or participatory where the observer becomes a part of the setting for a period of time. Observational walks will yield effective results when the facilitator decides to have independent assessments of the livelihoods.</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>Developing a set of survey questions whose answers could be coded consistently. The questions could be structured differently for the project users, the project staff, the funding agency and the implementing agency. This will enable the research evaluation programme to compare perspectives and obtain a rich feedback from all the stakeholders.</td>
</tr>
<tr>
<td>Written documents</td>
<td>Reviewing documents such as records, administrative databases, training materials and correspondence is quite useful. In an ICT initiative, the maintenance of a user register is highly recommended where immediately after each enquiry, the user can record his/her comments reflecting the quality of information or service obtained.</td>
</tr>
</tbody>
</table>

**Table 4.3: Recommended data-collection instruments**
It is equally important to stress that these techniques should encourage a total participation by all the members of the community adhering to the human rights principles outlined in section 4.4.4. In addition to these techniques, it will be possible for the evaluation team to use a number of participatory techniques so to gain a better understanding of the situations, settings, perceptions, needs and expectations of the beneficiaries. However, it is advised that the evaluators be selective in choosing one or more of the techniques outlined in Table 4.3. The selection process must also be inclusive in order to ensure that the methods are chosen on the basis of the local reality, evaluators' capacity, time, the cost factor and the evaluation objectives.

4.9.7 Data synthesis

As in the case of all traditional evaluation exercises, it is important to carry out this exercise in collaboration with data-analysts, data-producers and the data-users. But, in practice, this may not be possible as the people who may both be the data-producers and the data-users will not necessarily have the skills to analyse the data. Analysing the data obtained through open-ended questionnaires will require high-level qualitative data-analysis skills and the use of software applications. It is therefore highly recommended that the facilitator of the evaluation process be chosen keeping all these practicalities in mind. However, a detailed discussion with the evaluators themselves would help in agreeing upon the appropriate data-analysis, data-cleaning and data interpretation techniques.

4.9.8 Community reports

It should be possible for the project to bring out community reports by synthesising the primary and secondary data at the end of the evaluation exercise. These reports will be highly helpful for future monitoring and evaluation studies, and to act as the check-lists for follow-up action. Content analysis techniques could be applied here to analyse the data drawn from the interviews, observations, and documents. Case analysis can be carried out based on the case studies to gain an in-depth understanding of the factors that led to the success or the failure of individual incidences.
4.9.9 Dissemination of the results of data-analysis

The analysis of the data may take a longer time period than expected, hence it is important for the data-analysts to disseminate the results as soon as they are completed. This may be helpful in post-evaluation discussions and also in undertaking interim actions to close the data gaps in evaluation. This may be quite important in situations where the data collectors vary in their quality and commitment to the evaluation exercise. It is important to disseminate the outcomes of the evaluation with all the three stakeholders identified. In addition, a number of fellow researchers, project managers and policy makers will benefit a lot in their work from the dissemination of the results.

4.9.10 Future actions

This is the last, but not the least important of all the steps involved in evaluating projects using the 'Pondicherry Framework'. Every evaluation is carried out with a set of objectives and anticipated outcomes. The 'Pondicherry Framework' is helpful for projects that aim to carry out their evaluation for learning lessons that could result in follow-up actions. The ICT impact assessment continuum enables the evaluators to place the project on the ICT curve. This may help the implementers and the funders to prioritise their future funding, but the lessons recorded as part of the process will enable the stakeholders of the project to draw a set of concrete action plans. Otherwise, the evaluation process becomes a mere ceremonial and a non-challenging exercise.

Based on the above discussions, the 'Pondicherry Framework' emerged as a concept of the researcher to achieve methodological holism in the evaluation work. Next chapter discusses the data results that led to the development of the above framework and the subsequent testing and evaluation of the framework in Pondicherry.
5.1 Background

As discussed in the chapter on methodology, the present research study was carried out in two phases:

c) A needs assessment study, followed by the design and development of a new framework to evaluate ICT projects; and,
d) A case study research to further understand the approaches and strategies to apply the developed framework.

The study was more action-oriented following Kemmis and McTaggart's (1998) action research model of planning, acting, observing and reflecting upon each action carried out in the research. While the first phase of this action research study applied the qualitative research methods and techniques, the second phase was based on the participatory action research method and approaches. The theoretical foundations of the research study have been derived from basic action research in the first phase and from community-based action research in the second phase of the study.

As indicated above, the first phase of this research study investigated the need for a new evaluation framework for assessing rural pro-poor ICT projects, and subsequently developed the said framework, termed in this study as the 'Pondicherry Framework'. The second phase of the research study evaluated the 'Pondicherry Framework' in a rural ICT project in India in order to understand the approaches and strategies in the application of the framework in pro-poor rural ICT projects.
This chapter presents the collection and analysis of data that led to:

a) ascertaining the need and the subsequent development of the Pondicherry Framework in Section 5.2; and,
b) evaluating and testing the 'Pondicherry Framework' as a methodological tool for assessing the impact of pro-poor ICT information initiatives in Sections 5.3-5.5.

5.2 Needs Assessment Study

The needs assessment study carried out in various stages revealed the distinct need for developing a refined model of assessment for measuring the impact of pro-poor ICT initiatives. Following a brief preliminary literature review, a detailed questionnaire survey further explored the need for developing a new model. Encouraged by the results obtained in the first two stages, the researcher undertook field trips to two project sites in India. The on-the-spot field visits helped the researcher to gain a greater focus on the research objectives and to undertake a critical review of literature, as explained in Chapter 2. This was followed by wider-consultations among ICT specialists over two email discussion lists. Based on the above investigations, a peer-review exercise on the conceptual model was carried out.

5.2.1 Preliminary literature review

A preliminary literature review was undertaken at the early part of the study to determine the major gaps in ICT research. The study attempted to verify the hypothesis proposed by the researcher that there had been very little work carried out to determine the impact of ICTs in poor people's lives. The preliminary literature review therefore was aimed at finding out: if the scepticism and ambiguity about the potentials of ICTs still existed; the extent of research carried out by academics and practitioners in the area of ICTs, and, the major gaps in ICT research and hence to determine the specific areas of research which were timely and appropriate for the researcher to focus on.
There has been considerable scepticism regarding the potential of the technology for socio-economic development (Madon, 1997). While some studies have stressed the need for research in evaluating ICT projects (Sirimanne, 1996; Young et al., 1997; McConnell, 1998), various studies have directly or indirectly stressed the need for further understanding of ICTs (Gillespie & Comford, 1997; Arunachalam, 1999; ITDG, 2000; O'Farrell et al., 2000; Schildermann, 2002). The call for bridging the gap between the telecommunication experts and the communication practitioners (Richardson, 1996) re-confirmed the fact that the impact of ICTs on rural stakeholders and rural communities was less understood, so also among the urban poor communities.

The studies called for more understanding of issues relating to universal access, universal content, private and public partnerships, sustainability and training needs (Barr, 1998; O'Farrell et al., 2000). The preliminary survey identified the following areas of focus:

a) Further need to critically look into various models to close the digital divide (Gillespie & Comford, 1997, Taylor et al. 1997; Mansell and Wehn, 1998);

b) A distinct need to gain more understanding of content (Arunachalam, 1999; IBM, 1999; Marcella & Baxter, 1999; World Bank, 1999a);

c) Need to identify appropriate and best methods to converge the new and the old ICTs (Skuse, 2001);

d) Need for evaluation methodologies to assess the impact of ICT projects (Hamelink, 1997; Mitter, 1998);

e) Innovative ways to develop partnerships between governments, the civil society and the private actors in the field (Vaughan & Teague, 1997; IBM, 1999); and,

f) Need to identify and apply various methodologies for involving people in the process of introducing ICTs in their day-to-day lives (Richardson, 1996).

The identification of these areas of focus greatly strengthened and confirmed the researcher's hypothesis regarding the need for developing and evaluation model and methodology to assess the impact of pro-poor ICT projects. Therefore, the researcher decided to pursue his research to address this existing gap in evaluation studies.
5.2.2 Preliminary questionnaire survey

To follow-up on the findings of the preliminary literature survey an e-mail questionnaire survey among ICT researchers was carried out. A list of 116 experts was drawn out from those who regularly participated in ICTs- and information society-related policy events. The chosen experts contacted by email were from the following fields of expertise: ICT project managers and policy specialists; academics involved in ICT work; NGO leaders; government representatives in the IT and rural development sectors; donor community; and, information specialists.

The questionnaire (Appendix 1) based on the researcher's hypothesis included six sections, namely: the need for the study; the role of an ICT project; technological aspects of ICTs; gender and training issues of ICT projects; partnership factors; and, last but not the least, sustainability and impact factors facing ICTs. Each section contained between 6 and 11 questions, both open and closed. Of the 116 experts contacted via email, only 35 of them (Appendix 2) responded to make it a 30% response rate. The participants were asked if they would wish to be contacted again. It was encouraging to note that 90% of the participants responded in the positive. A small number of five experts chose to have further discussions with the researcher on the phone to share their thoughts about the present global research programmes. The answers to the questionnaire were fed into an excel spreadsheet and analysed on the basis of the objectives of the exercise. These objectives were to identify the following: a) the need for further research in the area in question; b) to verify the important pillars of ICTs in the researcher's hypothesis; c) to identify the issues of importance around the ICT pillars; and, d) to solicit support for further consultations. Using quantitative analysis techniques, the data was analysed and the following graphs and tables were developed as a result of the exercise.

a) Need for evaluating ICT projects

As shown in Table 5.1, 86% of the respondents agreed on the need for evaluating ICT-led information projects before replication, while only a mere 5% were unsure of the need. 20 out of the 35 respondents felt that ICT-projects failed due to lack of evaluation carried out on the ground. Only a meagre 9% felt that the funders as well
as the implementers were currently evaluating the ICT projects. To the question as to whether or not the participatory model was best suited for evaluating ICT projects, 29 out of 35 responded in the positive; and 91% of the participants strongly supported the need for further research in this area. While a majority of them (21) considered the existing models to be insufficient for assessing the impact of ICTs, an additional seven of them were unsure if those models served any purpose at all.

<table>
<thead>
<tr>
<th>Response</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree on the need for evaluation</td>
<td>30</td>
<td>3</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td>Projects fail due to lack of evaluation</td>
<td>20</td>
<td>7</td>
<td>8</td>
<td>35</td>
</tr>
<tr>
<td>Projects evaluated by donors with strong involvement by implementers</td>
<td>3</td>
<td>25</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Existing evaluation models sufficient</td>
<td>7</td>
<td>21</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Participatory model best suited</td>
<td>29</td>
<td>2</td>
<td>4</td>
<td>35</td>
</tr>
<tr>
<td>Support the need for further research</td>
<td>32</td>
<td>1</td>
<td>2</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 5.1: The need and the suggested method for evaluating ICT projects

b) Role of an ICT-enabled information project

The respondents were of different views on the role of ICT-led information initiatives. As shown in Table 5.2, while only 46% felt it highly important for the ICT projects to offer information services to 'all' people, 28 out of the 35 thought that these projects should offer mediation services to people. A moderate 54% confirmed the need for providing information services to people on all subject areas. Almost half of the participants considered it of high importance for the project to provide information services in different formats while 74% of them saw the need for using various means for disseminating information services. Regarding the question of whether or not an ICT project should promote local culture, 89% of respondents were affirmative, while the same number confirmed the need for these projects to act as the local focal points for enquiries. The same number of participants stated that these projects should offer training services to the people in the use of ICTs. Not a single respondent contradicted the view that these projects should have an in-built evaluation process as part of the project. While 20% of the participants considered mediation services
offered by the ICT centre to be not so important, 80% of them felt that the centre’s work should revolve around developmental activities.

<table>
<thead>
<tr>
<th>Response</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
<th>No response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide information to all</td>
<td>16(46%)</td>
<td>10(29%)</td>
<td>5(14%)</td>
<td>4(11%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Provide information on all subjects</td>
<td>19(54%)</td>
<td>7(20%)</td>
<td>9(26%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Provide information in variety of means</td>
<td>21(60%)</td>
<td>5(14%)</td>
<td>9(26%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Provide information in variety of formats</td>
<td>17(48%)</td>
<td>10(29%)</td>
<td>8(23%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Offer mediation service</td>
<td>13(37%)</td>
<td>15(43%)</td>
<td>7(20%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Promote local culture</td>
<td>18(51%)</td>
<td>13(38%)</td>
<td>4(11%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Coordinate training programmes</td>
<td>20(57%)</td>
<td>11(32%)</td>
<td>4(11%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Act as a focal point</td>
<td>19(54%)</td>
<td>12(35%)</td>
<td>4(11%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Facilitate development activity</td>
<td>19(54%)</td>
<td>9(26%)</td>
<td>7(20%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Is built-in evaluation suitable</td>
<td>27(77%)</td>
<td>8(23%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
</tbody>
</table>

Table 5.2: The services to be provided by an information project

c) Technology issues

As shown in Table 5.3, significantly, 80% of the participants were of the view that ICT projects should use local technology for disseminating information while a moderate 40% saw the need for uninterrupted connectivity to be highly important. All but four participants felt the need for the ICT workers in pro-poor, rural conditions to have adequate knowledge of technological issues.
Table 5.3: Technology issues in ICT projects

d) Training and Gender issues

As shown in Figure 5.1, a good 94% saw the need for employing only trained staff to run ICT projects while at the same time using the local people as trainers. 32 (91%) participants felt the need for the project to develop its own training plan identifying materials for local settings.

![Figure 5.1](image-url)
However, again as shown in Figure 5.1, only 26% of them considered the use of female trainers as hugely important while all of them saw the need for the project to be gender-sensitive and gender-inclusive. 80% of the respondents strongly felt the need for employing and training female staff who are competent enough to deal with technological issues. At the same time, a good percentage of participants were willing to compromise female staff for their male counterparts.

e) Partnership issues

As shown in Table 5.4, while over 90% of the participants considered it important for the project to build partnerships with both government and private sector entities, not everyone was of the view that the project's capacity to build partnerships should be assessed in an evaluation exercise. At the same time, 23% of them did not see the need for developing partnerships with other agencies for the effectiveness of the project.

<table>
<thead>
<tr>
<th>Response</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
<th>No response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>With other agencies</td>
<td>19(54%)</td>
<td>8(23%)</td>
<td>8(23%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>Capacity assessment</td>
<td>14(40%)</td>
<td>11(31%)</td>
<td>10(29%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>With government agencies</td>
<td>18(51%)</td>
<td>15(43%)</td>
<td>2(6%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
<tr>
<td>With private industry</td>
<td>17(48%)</td>
<td>15(43%)</td>
<td>3(9%)</td>
<td>0(0%)</td>
<td>35(100%)</td>
</tr>
</tbody>
</table>

Table 5.4: Partnership issues in ICT projects

f) Sustainability and impact factors

There was a mixed reaction to the questions around the sustainability factors posed to the participants. As shown in Figure 5.2, while 32 out of the 35 participants found the need for a sustainable plan developed by the project, only 40% of them considered it highly important to have a plan after the funding period. While more than 90% of them recommend sustaining partnerships with the local government, 23% did not find...
it necessary to sustain the same relationship with the private sector. 92% found it important to record failures in any sustainability plan. A small percentage (35%) considered it highly important to sustain partners while the same number found it unimportant to sustain partners. While 92% found the need for sustaining the local content flow, an equal percentage of people considered it important to sustain the dissemination activities offered by the ICT project. However, not many thought it important to sustain the staff members of the project and a good percentage gave low priority to develop and sustain skills among the project staff.

![Sustainability factors in ICT projects](image)

**Figure 5.2: Sustainability factors in ICT projects**

g) Frameworks cited by the participants

The participants suggested a number of frameworks to be of value. The researcher referred to each one of the frameworks suggested in order to gain an in-depth understanding of the existing models of evaluation among ICT initiatives. These included:

- A concept paper highlighting several frameworks for evaluating ICT projects in development written by Scott McConnell of the University of Guelph, Canada (McConnell, 1998)
• Work carried out by the Bellanet group and the ENRAP\textsuperscript{19} project (Richardson & McConnell, 2000)

• Research work carried out by CTA (www.cta.int), in particular by Ibrahim Khadar (CTA, 1998; Bellamy, 2000).

• Acacia study and the outcome mapping models of the International Development Research Centre, Canada (Graham, 1997)

• Lanfranco/Potvin framework for assessing the impact of ICTs (Potvin et al., 2000)

• GK-Leap framework for learning and evaluation hosted by Bellanet at http://www.bellanet.org

• Michel Menou’s model on measuring the impact of information on development (Menou, 1993)

• Menou and Potvin’s study towards developing a conceptual framework for learning about the ICTs (Menou & Potvin, 2000)

\textbf{h) Analysis of descriptive data}

In addition to the above frameworks cited by the participants, the following suggestions were of great value to the present research programme. One of the participants suggested that the evaluation components of ICT projects should be incorporated in the project design right from the beginning and that a thorough pre-test should be conducted so that the progress could be mapped against a clear baseline. The participant went on to suggest that the indicators of success were important and also that they should be clarified at the very beginning. He further commented that continuous rigorous monitoring was key for the evaluation of ICT projects. Another participant emphasised the great need for consulting the professionals at the grassroots level. This participant was of the opinion that academia lacks the knowledge of people’s needs and hence, insisted upon the need for consulting the grassroots level workers. A participant from Africa suggested that a study to evaluate the usefulness of mobile phones would be helpful while content development for communities should be the main focus of any ICT project. A participant from India insisted that any evaluation of ICT projects should aim at developing innovative ICT

\textsuperscript{19} Electronic Networking for Rural Asia-Pacific
projects rather than assessing their usefulness. He insisted that the present study should be a catalyst in processing and channelling ICTs in the direction of social development.

Among the funders, an official from the World Bank suggested the use of ethnographers in developing observational studies in ICTs while the rural ICT implementers needed to develop concrete business plans for their connectivity projects. Quoting the Grameen Bank's experiment in micro-finance and rural mobile telephony, he stated that a few projects could still be replicated without any evaluation, but favoured participatory evaluation techniques for such research. Another official from the Bank supported the view of an NGO representative on the need for focussing on the content issue rather than the infrastructure issue in ICTs. He recommended the present study to include a substantial role for the private sector in technological and training issues and concluded that the area offered great potentials to grow into an academic work.

A researcher from the International Institute for Communication and Development reinstated the fact that application of ICTs could vary from fax machines to sophisticated Internet tools. A consultant from the UK suggested that the Department for International Development be contacted for furthering this research. A researcher from Malaysia preferred to highlight the need for enhancing the prospects of sustaining rural ICT projects while an academician from Tanzania insisted upon the participation of local evaluators in the research. A gender specialist at the Food and Agricultural Organisation heavily criticised the use of participatory techniques and recommended that an evaluation framework developed independently be put to use right at the beginning of an ICT project.

5.2.3 Field visits to project sites in India

Alongside the questionnaire survey described above, the researcher undertook a feasibility study to two major information projects in India, the Wired village project of the National Informatics Centre in Maharashtra and the Rural Knowledge Centres project of the M S Swaminathan Research Foundation in Pondicherry. This was
preceded by a visit to New Delhi to consult the policy makers of the Government of India in the Ministries of ICT and rural and urban development.

The objectives of this visit were to gain first hand knowledge of the two ICT projects aimed at poverty reduction and to solicit support from the field staff for further research. The visit was also an attempt to find out if these projects had any built-in evaluation exercises planned as part of the project implementation phase. Observer-as-participant method and face-to-face interviews were the main data-collection instruments used at both the project sites. On-the-spot observation studies helped the researcher to gain primary data from the field. In addition, document analysis was undertaken in order to investigate the evolution of both the projects. User registers were analysed for gaining some understanding of the user feedback.

The major findings of the field visit can be summarised as below:

a) Demand-driven approach vs. IT taskforce-led approach:

The info village project at Pondicherry was conceptualised by Professor M S Swaminathan who felt the need for exploiting the new technologies for achieving continuous improvements in the quality of rural life (Swaminathan, 1993). As an outcome of a series of dialogues organised in Chennai on the topic, "New technologies: reaching the unreached", the idea of an info village was born. The outcomes of the series of dialogues culminated at the Science Academics Summit in Chennai in 1996 that further helped to define the need, and the Rural Knowledge Centres project, popularly known as the info village project was launched in January 1999. The info village project is clearly a demand-driven project.

On the other hand, the Wired Village project was an outcome of a special information technology taskforce appointed by the Prime Minister of India in 1999. The recommendations of this taskforce included a number of demonstration projects to demonstrate the usefulness of IT in social life among which the Warana village project featured. This clearly shows that no consultation with the main stakeholders was carried out, thus making the project a standing example of a technology-led project.
b) Selection based on economic strength as opposed to a pro-poor approach

The Warana co-operative complex is one of the finest examples of a successful integrated rural development programme resulting from the Indian co-operative movement through people's participation. The Warana complex comprises of 24 major co-operative societies in the fields of sugar, milk production, poultry, house construction, etc., with a turn over of over Rs. 600 crores (£80 million). The selection of the Warana site was based on its successful track record to ensure that the demonstration project also became a success.

In sharp contrast, the M S Swaminathan Foundation selected its seven villages in Pondicherry on the basis of the following criteria:

- the existing infrastructure in these villages was not deficient, but access to modern telecommunication infrastructure was poor,
- the existence of local institutions of governance in the region had been strong for the past 40 years,
- the ongoing bio-village project of the MSSRF for poverty alleviation had already created a strong awareness among the rural families about the opportunities created by new technologies to secure better livelihoods, and,
- the villages were pro-poor, pro-dalits, pro-women and pro-children.

c) Tripartite agreement between the state and the central governments and a co-operative as opposed to people and a civil society organisation

The Warana project was a result of the central and the state governments coming together to form a tripartite agreement with a local co-operative, the Warana Vibhag Shikshan Mandal with a funding ratio of 50:40:10. Two committees were set up for the implementation of the project and these were headed by the Head of the Indian National Informatics Centre (NIC) in Delhi and by the District Collector of the Kolhapur District in Maharashtra. The people's group in the project villages, on the

20 Dalit, a term which denotes the yesteryear untouchables in India, first used by Shri Mahatma Gandhi, the father of the Indian freedom struggle
other hand, executes the infovillage project, with the M. S. Swaminathan Research Foundation as their lead partner.

d) Top-down vs. bottom-up content

While both the projects provided top-down content, the infovillage project, in addition to the content flow from various national and international sources, had created a number of locale-specific databases on popular demand. These included a database of people living below the poverty line, a database of the entitlements of the households, a database of employment opportunities and women and children-specific databases.

e) Technical staff vs. practitioners

The Wired village project of Warana depended heavily upon the technical staff of the local engineering college for maintenance of the network and the technical infrastructure of the project, while the infovillage project executors depended on their technical staff based in Chennai. Capacity building for the Wired Village project was carried out by the software-training professionals of the NIC while the MSSRF had already trained a number of local volunteers as trainers of IT applications.

f) The first-hand on-the-spot interviews further revealed the following:

- The Wired village project was poorly managed with no ongoing support provided to the village centres by the project staff
- The IT training centre of the Wired village project was empty with no users and no trainers during the researcher's visit
- At least two centres of the Wired village project were non-functional due to the fact that the authorities providing electricity had disconnected the electric supply owing to the non-payment of the electricity charges
- The infovillage project's knowledge centres were functional at all levels with the people's enthusiastic participation. The women-run Embalam centre was the centre of attraction as many users crowded the centre everyday with a number of queries seeking information of various kinds, especially about market prices. All
the project centres of the infovillage were locally owned, operating in the space provided by the local governing authorities. The local volunteers responsible for maintaining and staffing the centre were also chosen by the local governing institutions. All the centres had at least one woman volunteer in order to encourage women to visit the centre as often as possible.

- The user registers maintained by the infovillage project revealed that the project was very popular in the developed world. More than 300 visitors from various countries had visited the project sites within the period of the past one year. However, the project was not known to a number of illiterate people in the project villages themselves.

The field trips to both the projects clearly demonstrated the need for impact assessment. Further, the project managers and the staff of both the projects felt the need for sharing their experiences and learning from each other for improved work practices. Both the projects were positive towards the researcher for developing an evaluation framework that would enable them to test the effectiveness of their interventions.

Face-to-face interviews with policy-makers and donors

Followed by the field visits, a series of policy makers and donors were consulted in India. Only face-to-face interview techniques were used. Although some of them were not able to keep up to their appointments, the researcher was able to meet some key government officials and a couple of staff at the United Nations offices who are among the main donors to India.

The major findings of these visits can be summarised as below:

Many government officials felt that the efforts at the grassroots level using ICTs for information delivery to people should be institutionalised and that the state should invest more money and time to support these initiatives. In support of this view, the rural development ministry was willing to support rural ICT initiatives with funding for the start-up phase. Further, the government officials interviewed were keen to enter into fruitful partnerships with private sector and civil society actors. Health
information is one of the major priorities in India as thousands of mothers and infants die at childbirth accounting for one-half of such deaths in the world. The policy makers insisted that the ICT interventions focussed on health information as well as on agricultural information. They felt that India's largely agrarian society had a new opportunity through the ICTs to find its roots and invest its efforts in its age-old farming practices using modern techniques.

Among the donors, the United Nations was willing to support these initiatives through their netAid programme while the British Council was willing to support non-governmental organisations (NGOs) in building capacity among them to use ICTs in their day-to-day work. The Planning Commission of India recognised the information needs of the poor people as its utmost priority. If the Warana project was found to be successful, the National Informatics Centre, the technology wing of the Planning Commission was willing to set up similar initiatives in all the seven north-eastern states of India. An NGO group in Delhi, Development Alternatives, was interested in replicating the M S Swaminathan model in the state of Madhya Pradesh in India.

Finally, it must be stated that the potentials of ICTs in the poor peoples' lives were being recognised by the policy makers with caution. They wanted to see thousands of MSSRF-type initiatives taking place in India. But, the government relied heavily upon the private sector for investments into this area, while recognising the civil society as the driving force for turning these initiatives to success stories. All the parties agreed that an evaluation work to assess the impact of these initiatives would help them decide in favour of investing more in these areas.

The first phase of the study was thus helpful in identifying various key issues in ICT research. Among these issues, the need for evaluating the ICT initiatives in developing countries was strongly felt by the experts consulted both online and in person. The visits to the two ICT projects also confirmed the need. Suggestions to apply participatory methodologies to assess the impact of ICTs in a holistic way were received throughout this phase.
5.2.4 Email discussion lists

For discussions on the need for evaluation among a wider set of audience, it was felt important to organise email debates involving practitioners, academics and donors who have a special interest in pro-poor rural and urban information systems.

a) Discussion among South Asian leaders

With the help of the British Council, UK and OneWorld International, UK, the researcher initiated an email debate among the ICT leaders in South Asia. An open invitation was sent to all those participated in the Global Knowledge-II (GK-II) conference in Malaysia in March 2000 and the participants of the "Towards a South Asia Knowledge Network (TASKNET)" conference in Delhi in November 1999. Prior to this, the South Asian representatives of the organising committees of both the conferences were contacted in order to identify the themes for the debate. An email questionnaire was sent out to 20 experts to select the themes of their choice from a list of key issues identified in the Okinawa Charter (G8 Summit site, 2000; U of T G8 information centre, 2000), the BICA (1999) conference in Pretoria, the Global Knowledge Partnership Action Plan (Global Knowledge Partnership, 2000) and the TASKNET proceedings (Tasknet, 2000). Based on their recommendations, four themes were identified and a list was set up.

The list was set up using open sources, Linux and mySQL with a simple web-based front-end application. The list was run for eight weeks with all the themes running in parallel. The 20 experts mentioned above undertook to send out the invitation to their contacts. Some 100 participants joined the list and contributed to the debate. The themes were introduced and moderated by the researcher. At the beginning of the debate, appropriate background documentation and links to useful resources were supplied to the participants. The mails were archived and kept for future reference for a period of one year at www.oneworld.net/tasknet. The email contributions were archived and carefully studied. No data analysis software was used, instead, the researcher carefully went through each and every mail and identified the common points and contradictory views. A summary of each theme was produced every week and posted to the list. These summaries steered the debate with new aspects being
identified in the debate each week. The methodology adopted by the researcher stimulated the debate and made it a participatory and engaging one.

The initial survey among the organisers of the TASKNET and GK-II conferences helped the researcher to identify the following issues for the debate:

- **Access**: solutions to the multidimensional 'divides' facing the information society such as monopolies, cost, infrastructure, urban vs. rural and gender that minimise access to information by all communities
- **Content**: people-centred approach to knowledge sharing, creation of 'public spaces' and appropriate, needs-based indigenous content development
- **Technology**: use of convergent technologies and open systems to ensure appropriate use of ICTs in the creation of knowledge societies
- **Empowerment**: the role of ICTs in poverty alleviation, community work, rural development, gender and grassroots empowerment and social inclusion

The final summary results of the debate were listed as bullet points under the following three themes identified for the G8 Dotforce consultation process:

1) **Fostering policy, regulatory and network readiness**

- Disparities exist within the South Asian countries in fostering ICTs and developing e-government friendly policies. There is an absolute need for building capacity among government officials in these countries and for raising the awareness of e-government issues;
- Although, illiteracy, over-population and unemployment are seen as factors affecting the spread of ICTs, the participants felt that the introduction of ICTs in pro-poor pockets would result in narrowing the digital divide. On the other hand, costs and taxes levied on ICT products and tools cause the digital divide problems. Hence, the participants called for a need for revisiting government policies to make them ICT-friendly;
• Partnerships between the government, the NGOs representing the poor and the private sector will result in building capacity among the users, the communities and the NGOs in effectively implementing these technologies; and,

• More donor help in assessing ICT projects is key to the demonstration of the effectiveness of these initiatives aimed at the poor.

ii) Improving connectivity, increasing access and lowering costs

• The participants stressed the need for partnerships in enhancing access and connectivity to ICTs in the rural areas;

• Although community access may be the immediate answer in enabling people's access to information through ICTs, the participants felt that only individual access to ICTs would eventually close the digital divide. Low-cost initiatives such as the Simputer initiative and DSL Dishnet business plan for low cost access must be looked into and encouraged; and,

• The participants felt the need for giving the highest priority for preserving the cultural identity of the South Asian region in the light of globalisation.

iii) Building human capacity

• Building capacity to determine the effects of ICTs in poverty alleviation programmes was supported by almost all the participants;

• It was strongly felt that a model to assess the impact of ICTs would help even the western countries to assess the effectiveness of ICTs in the areas where the poor and the disadvantaged people live; and,

• The participants saw the local languages as an issue and called for building capacity to develop applications for people so that they could access information in their own vernacular languages. Voluntary support such as the netAid initiative\(^{21}\) should be used to support ICT initiatives among the poor.

Thus, the TASKNET debate helped the researcher to identify the critical issues underpinning the ICT debate in a developing region such as South Asia.

\(^{21}\) [http://www.netaid.org](http://www.netaid.org)
b) **Email discussion among the experts in designing urban poor information systems**

This debate that followed the TASKNET debate was aimed at information managers, NGOs, government officials, urban developers, various service providers of urban populations and the pro-poor policy makers. The main aim of the debate was to identify the information needs of the poor in the urban areas and the role of ICTs, intermediaries and key informants in delivering the information required by the people. The aims of the debate were in line with both the Habitat agenda (UNCHS, 1996) and the DFID's strategies for combating poverty in urban areas (DFID, 2001). The primary method of data-collection was through an email discussion list where members were invited to join and contribute. Some 600 members from all over the world joined the e-conference and 201 messages were posted to the list during the entire period of the debate that lasted for 10 weeks.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Dates</th>
<th>No. of messages</th>
<th>% of messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where and how do the poor people get information?</td>
<td>24 Jan - 4 Feb 2001</td>
<td>79</td>
<td>40</td>
</tr>
<tr>
<td>The role of information in the development of settlements and livelihoods</td>
<td>5-18 Feb 2001</td>
<td>31</td>
<td>15</td>
</tr>
<tr>
<td>Modelling/Analysing information flows</td>
<td>19 Feb - 4 Mar 2001</td>
<td>31</td>
<td>15</td>
</tr>
<tr>
<td>Strengthening systems and processes</td>
<td>5 - 18 Mar 2001</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>New issues</td>
<td>19 Mar - 2 Apr 2001</td>
<td>38</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>201</td>
<td>100</td>
</tr>
</tbody>
</table>

*Table 5.5: Flow of messages to the e-Discussion*

The five issues mentioned in the above table were debated upon. As shown in Table 5.5, in the very first week, more than 50 messages were received accounting for
approximately 25% of the total messages received. Postings to the list by the participants in the first week touched upon issues that were going to be discussed in the following weeks. It is evident from the above table that the participants did not have much to say about modelling techniques, rather they debated greatly upon issues around the role of ICTs, gender balance, and the role of intermediaries and key informants in enabling the urban poor to access their required information. Although more than 600 participants subscribed to the list, only 70 of them were active accounting for just 12% active participation by the members. Presumably, the others were passive participants reading the views of the active ones. Significantly, 70% of the messages were generated from participants from developing nations.

The messages were synthesised and their summaries were posted to the participants at the end of each theme. The last two weeks were dedicated to debating newly identified issues by the participants themselves during the debate that witnessed the list debating on issues such as the role and impact of ICTs in poor peoples’ lives and the information needs of women.

Major results of the consultation

As mentioned earlier, a large number of participants responded to all the four identified issues in the first week itself. However, the nature of the discussions changed over the rest of the period. The mid-part of the debate was not as active as desired which resulted in a lesser number of messages to the second, third and fourth themes as compared to the first theme. However, the conference gathered some momentum towards the end when issues around the role and impact of ICTs in the lives of poor people were discussed.

The main findings of the e-debate are listed below:

- **Key informants**: Overall, the participants agreed that the key informants of communities played a crucial role in the existing information systems. If properly identified and supported, they have the potential to influence the way in which a community accesses, synthesises, processes and uses information. The process may be highly challenging as the information networks developed by the
communities are dynamic and multi-cultural, and bound to change as people migrate within cities quite often. Resources are needed to effect a fruitful partnership between the people, the civil society, the private sector and the local political leaders. This should result in the development of a number of key people within communities who may well play a role of being key informants. These mechanisms will strengthen the capacity of the local actors as suggested in a DFID report (2001). Attempts can be simultaneously undertaken to study the real-time situations and the problems encountered by the key informants; and the on-the-spot solutions undertaken by them to solve the problems. This may further result in identifying a number of gaps; and strengthening the system through training, systems support, content development, and so on.

- **Knowledge generation**: The present climate is not conducive enough for the urban poor to directly participate and benefit from the development process because of their own lack of access to knowledge and the one-way top-down approach adopted by the authorities. As their needs are not properly assessed and documented, it becomes highly difficult for the authorities to learn about the needs of the urban poor and hence, draw solutions at the policy level. A two-way process of access, sharing and communication of the problems and solutions should be developed. This will place the community on a more equal footing in organising itself to meet its challenges as well as in negotiating with the authorities. This process will also have a horizontal effect as problems of communities at various places are the same.

- **Impact of information**: The participants took note of the increasing scepticism among the donor world on the usefulness of information projects in poverty alleviation, and recommended that the project planners should measure the impact of information-related solutions. However, there were no concrete recommendations on the choice of the models for analysing the information flow on the ground. Nevertheless, it was recommended that a combination of methodologies based on either the participatory or Sustainable Livelihoods approach could be considered in order to evaluate and measure the impact of these ICTs in different settings.
The role of new ICTs: Some participants were of the strong view that ICTs could play a crucial role in enhancing livelihood opportunities. From the number of case studies that were brought to the attention of the conference, it was evidently recommended that successful ICT experiments should be studied more closely and attempts should be made to replicate such experiments.

People's participation: Citing a participatory budgeting experience from Brazil and other similar examples, the participants emphasised the need for involving people right from the beginning of different programmes among the urban poor. Participatory approaches to solving the problems of the urban poor would help in better communication between the authorities and the people. This should happen at all levels especially when deciding on the financial priorities and the livelihood opportunities. As stated in the Habitat Agenda (UNCHS, 1996), this process would lead to good urban governance through involvement of people in decision-making, action and participation.

Involvement of Women: The members were divided in their opinion about the ongoing programmes for empowering women. However, they agreed that information was likely to be important to women to challenge their subordinate position in many societies, and to voice their opinions in matters of concern. Hence, it was recommended that bold initiatives, which encourage women to play a key role in effecting information solutions, must come about in large numbers. Programmes to train the local women as trainers at all fronts should be developed. Further, attempts should be made to take account of the information needs of both women and men in decision-making at every level to support the Habitat agenda (UNCHS, 1996).

The Urban Poor Knowledge and Information Systems List focussed on the wider issues surround the information needs of the urban poor. The debate was quite useful to understand the role of the ICTs while designing an information system aimed at the poor people living in the urban slums.
5.2.5 Peer-reviewing of the conceptual model

All the consultations described above helped the researcher to identify the basic components of the holistic framework that was to be formulated as a part of the present study and the principles behind the framework that would govern its application in a pro-poor setting. As explained in the previous chapter, the components and the governing principles of the framework are listed below:

The components of the framework

Based on the above discussions, the researcher was able to identify the following important components for consideration while designing the framework:

a) The poor people as the main target groups as well as the end-users of the evaluation;
b) The need to focus on issues that informed the ICT debate such as Access, Content, Partnerships and Sustainability;
c) The effective role played by the intermediary organisations, the key informants and the transforming structures such as the local government, schools, hospitals, village councils and the political leaders;
d) The social and technological factors that affect the people's ability to reap the benefits offered by the ICTs; and,
e) Finally, the impact assessment continuum promoted by Menou (1999) as a means to assessment and learning in the field of ICTs.

The general principles that govern the application of the holistic framework

The guiding principles that support the application of the framework to be formulated as a part of this phase of research were influenced mainly by the DFID's human rights principles (DFID, 2000b; 2001) and the World Bank's (1999b) methodology to consult the poor. Further, the livelihood issues identified in the SLF were also seen as factors that enlarge the horizon of the evaluation framework. The SLF helped in the consideration of a wide range of livelihood issues rather than just the ICT-related
ones. A detailed list of the principles and the implications of their application in an ICT project can be found in Section 4.5.

The above principles and the components of the ‘Pondicherry Framework’ were tested among a group of experts in London and Harare.

a) A presentation on the framework to the experts at the IIS/IDF workshop

At the Institute of Information Scientists/International Development Workshop in London in June 2001, a brief presentation on the framework (Shadrach & Summers, 2001) was made to a panel of 30 experts who were drawn from the information field. As the purpose of the workshop was to share the latest thinking on assessing the impact of information services, the presentation was well received by the panel. Almost all the participants welcomed the idea of developing such a framework with a strong participatory approach. The ICT triangular model was seen as very comprehensive for the research. Suggestions to focus more on human issues were noted at this workshop. In addition, some members of the panel offered to engage in a continuous dialogue with the researcher in this study.

b) A field trip to the Infobus project in Harare

A field trip was undertaken in June-July, 2001, for an initial evaluation programme to the infobus project of the Intermediate Technology Development Group (ITDG) in the peri-urban Willowvale area of Harare, Zimbabwe. As a response to the information needs of the small and medium entrepreneurs, the ITDG has set up this resource centre, a “BUSINE$$ BUS”, popularly known as the Infobus. The project aims at identifying and meeting the information needs of small-scale entrepreneurs and manufacturers in six sectors – light engineering, building materials, agro-processing, agriculture, mining and energy. Through face-to-face interviews, the researcher consulted the project staff at the Infobus about the information needs and the usage pattern of the project. The ICT triangular model was discussed with the project staff and the issues faced by the project in demonstrating the effectiveness of ICTs in the lives of the SMEs. In addition, the researcher analysed the user statistics register maintained by the project at the centre. The researcher also spent some time
observing the surroundings and the pattern of usage of this popular facility right in the midst of the industrial area of Harare.

Operational since September 2000, the well articulated BU$INE$$ BU$ has facilities such as TV, video, fax, typewriters, photocopiers, telephones, and computers for emailing and browsing of the Internet. In addition, this BU$ has a small library containing a database on Appropriate Technology, technical briefs, publications on how to start, run and manage small businesses, and databases and directories of micro-finance institutions. At the time of the present study, the project was engaged in monitoring the usage of the centre by collecting information about the individual users, their socio-economic profile, and their information needs. The project envisaged to collect information about the non-users and to conduct an assessment of the impact of the project over a wider community.

Both the ICT triangular model and the conceptual framework developed by the researcher were found to be helpful for the project staff to conduct an impact assessment study. However, some reservations were expressed about the application of participatory techniques in the evaluation process. As the evaluation required some baseline data, some scepticism was expressed, as this project does not hold any such data. The project staff were able to list issues around the four aspects of the triangular model. It was possible for the staff to see those aspects as the objects of evaluation. Further, it was felt that the answers to issues that arise around the four aspects/pillars would address the issues facing the project such as, developing appropriate content, enabling non-users to access information through appropriate means, incentivising content dissemination activities and so on. As explained in the above sections, the first three phases of the study enabled the researcher to develop the holistic framework.

The rapid evaluation carried out in Harare and the presentation made to the ICT panel in London (Shadrach & Summers, 2001) were quite encouraging which further led to the evaluation of the framework in Pondicherry. The next section details the first-hand experience gained by the researcher while testing the framework at the Rural Knowledge Centres project of the M S Swaminathan Research Foundation in Chennai and Pondicherry.
5.3 Evaluation of the ‘Pondicherry Framework’

A long and concentrated effort was undertaken to evaluate the ‘Pondicherry Framework’ that also encompasses the ICT triangular model. The researcher had to undertake four trips to India during this phase of the research, the first lasting for three months, the second and the third for a month each, and the last one for a period of one week. During his stay in India, the researcher developed a rapport with the project staff, the project volunteers and the beneficiaries of the project villages of Pondicherry. The researcher was able to identify with the local culture and respect the social values of the communities the MSSRF Rural Knowledge Centres project is aimed at serving.

A number of steps were undertaken before data-collection, the details of which have already been described in Section 3.4.2. A number of data-collection methods were adopted. Using the participatory techniques, the main questionnaire to collect data from the users and the non-users was developed. The evaluation team also developed the second questionnaire targeted at the project volunteers. However, the third questionnaire to collect data from the project staff was prepared by the researcher himself, based on the other two questionnaires. In addition, the researcher interviewed a number of key people responsible for the implementation of the project. More than ten observational walks were undertaken to observe the life in the villages and to capture on-the-spot people’s reactions to the knowledge centres operating in their villages. A number of focus group meetings were organised to discuss the questionnaires, the data-collection methods, the data-results and the action plans.

5.3.1 Research Planning Visits

A series of visits was undertaken by the researcher to meet the project staff in Chennai and Pondicherry, and the project volunteers at the information hub in Villianur and at the seven project villages in Pondicherry. In addition to the above, three visits were undertaken to interview selected government officials at their offices.
a. **Meeting with the project staff of the MSSRF in Chennai**

This meeting was intended for the researcher to discuss the evaluation exercise and to seek the support of the project staff. Six project staff based in Chennai support the information hub and the seven project villages in Pondicherry. These staff members are responsible for the implementation of the project with the help of one Project Manager based in Pondicherry. These staff provide the necessary technical support to the project. They also extend their research support by answering some specific farming-related queries raised by the beneficiaries. The information hub passes on most of the difficult queries to the project office in Chennai for handling. During this meeting, the researcher explained the holistic framework and the pre-conditions for applying the framework. The project staff did not face any difficulties in understanding the framework. They however, felt the need to learn more about the wider social issues reflected in the framework. They were also unsure of exploring the project's relationships with the other transforming structures such as the schools, the hospitals and the local council. This scepticism may be due to the fact that the project has not pro-actively attempted to develop such partnerships with the other actors in those villages. A questionnaire survey administered among the project staff confirmed this weakness.

The results of the survey are presented in Section 5.4. At this meeting, it was also agreed that two project staff members would accompany the researcher to Pondicherry to organise the meetings with the project volunteers in Pondicherry. It was also agreed that the project volunteers based in Pondicherry would form a part of the evaluation team to test the framework developed by the researcher. The meeting also discussed the alternative steps to be employed in case of any emergency or unforeseen problem, the cost and time to be invested in this exercise and the total commitment expected of the project staff and the volunteers for the study.

b. **Meeting with the project volunteers in Pondicherry**

A meeting in Pondicherry was organised to discuss the framework with the project volunteers. Almost all these volunteers were educated up to the school level, and had a limited knowledge of the overall aims and objectives of the Rural Knowledge
Centres project. As volunteers, they earned no compensation for their time in monetary terms, but enjoyed the goodwill, respect and a new status among their peers in the villages. The group was comprised of young graduates, unemployed youth and housewives who prided themselves in associating with the project.

The researcher did not attempt to explain the holistic framework, but rather, used the Greek temple concept to illustrate the evaluation pillars. The volunteers were able to understand the concepts in a short time as they found the exercise to be timely and relevant. The researcher explained the basic principles behind the framework and the steps involved in the process. It was agreed that the researcher would act as the facilitator of the study while the volunteers would design, evaluate and peer-review the questionnaire and also conduct the actual study using a combination of interviewing, observational and focus-group techniques. A project evaluation team was constituted at this meeting, and it was agreed that the evaluation team would bear the researcher's conceptual model in mind while designing the questionnaire.

5.3.2 Recruitment of the evaluation team

The evaluation team constituted for the purpose of this study consisted of four project staff, fourteen volunteers and the researcher himself as the facilitator of the evaluation exercise. The team was comprised of eight women and eleven men including the researcher. At this meeting, a volunteer from Kizhoor village, Mr G. Jayakrishnan was elected as the lead evaluator for the purpose of this study. From this time onwards, he was responsible for convening the meetings and coordinating the evaluation process. It should be noted here that the main purpose of this study was to demonstrate and test the novel evaluation framework for impact assessment of ICTs, termed the 'Pondicherry Framework' developed by the researcher. However, the evaluation team, from this time forward, owned the evaluation process. As a part of this work, a set of questionnaires was designed by the local people to assess their own Rural Knowledge Centres project. The questionnaires are appended as Appendices 4 & 5. A descriptive analysis of the findings from the questionnaire can be found in Section 5.4.1 of this chapter. The analysis provides a wealth of information that the local people want to see processed and visualised.
The evaluation team consisted of:

- lead evaluator, Mr G. Jayakrishnan, a youth from Kizhoor village;
- local volunteers and project staff (18 in all including the lead evaluator); and,
- a facilitator, the author of this thesis.

5.3.3 Focus group meetings

A number of focus group meetings were organised to carry forward the research investigation in a participatory and consultative manner. The check-list offered by the evaluation experts that offers guidelines for conducting a focus group could not be fulfilled in the present study, as the meetings were not moderated by the researcher, but by the participants themselves. Usually, the lead evaluator convened the meetings. The first few moments of the focus group meetings are generally said to be critical. However, in the present study, the convenor always created a thoughtful and a permissive atmosphere to initiate the dialogue. The main point he always stressed was that there would be no wrong answers in the discussion, but only differing points of view. The next point he emphasised was that everyone in the group would have their say in the decision-making process. This approach was found to be very helpful, and was observed throughout all the meetings held. The researcher had to remind himself often of his sole role as a facilitator in order to maximise the participation by the local evaluation team. He had to restrain himself from getting totally immersed in the evaluation study. Rather, he spent much of his time observing the team's reactions to the framework, both positive and negative.

a. Research planning meeting

The research-planning meeting was the perfect occasion for negotiating the purpose and objectives of the evaluation. Participation in the research exercise was on a voluntary basis. As suggested by Krueger and King (1997), it was quite important for the researcher to depict his own role at an appropriate level. Figure 5.3 clearly shows the importance of the level of control between researchers and participants. It must be admitted that quite often the participants expected the researcher to take critical
decisions, thus giving him the choice of control. The researcher, however, had to keep on reminding the participants that the study was aimed at aiding them in identifying key learning points from their own project, and hence, their ownership was not only crucial, but it would also to enable them own the outcomes of the evaluation.

Regardless of existing literature and the advocates such as Chambers (1997), one may still question the benefits of voluntary participation in research studies. On one hand, the risk of handing over the technical process to people unfamiliar with its complexity is easily imagined. In this context, the following questions often surface as an argument against involving the local people: a) what if the volunteers do not recruit the right samples; b) what if they do not ask the leading interview questions; c) what if they aren't able to capture or record the message of what is said; and, d) what will prevent them from finding support for their own project. On the other hand, a strong rationale underlies voluntary participation in focus group studies. The following sections will explore this rationale.

b. **A focus group to discuss the questionnaire**

The second focus group meeting of a small number of volunteers discussed the questions to be asked in the survey. The purpose of this meeting was not to design the questionnaire, but to brainstorm and agree upon the issues of importance for inclusion
in the survey. The team first came up with a list of indicators for exploring the role of the ICTs under the following major headings:

- the personal and family details of the respondents,
- the social and economic status of the respondents' families,
- the community orientation of the respondents,
- the perceptions of the respondents about their own neighbourhoods,
- the patterns of usage of the ICT centres,
- the benefits and the services anticipated by or availed of by the respondents,
- the services and products brought out by the ICT centres, and,
- the suggestions that the participants may wish to offer to the ICT centres.

According to experts, the design of the questionnaire is important to the validity of the information collected. There are four general types of information required for an impact evaluation (Valadez & Bamberger, 1994). The types of questions that the evaluation team came up with were in tune with the above-mentioned experts' opinions:

- nominal data about the respondents irrespective of whether or not they were beneficiaries of the intervention;
- exposure to treatment variables recording not only the services and benefits received but also the frequency, amount, and quality;
- outcome variables to measure the effects of a project, including immediate products, sustained outputs or the continued delivery of services over a long period, and project impacts such as improved income and employment; and,
- intervening variables that affect participation in a project or the type of impact produced, such as individual, household, or community characteristics.

It was fascinating to note that the evaluation team without much of a theoretical or practical background as that of professional evaluators came up with sensible questions. They were interested in gaining greater insights into the problems faced by their beneficiaries while accessing the Rural Knowledge Centres and the information databases held. Further, they expressed their interest to carry out the exercise in an
informal, free-flowing conversation with the respondents with a view to formulate the problems rather than developing conclusive evidences. The researcher's role at this stage was to sensitise the question-makers that the evaluation must also take into account certain principles such as those outlined in the DFID's (2000b) human rights principles and the factors identified in the SLF (DFID, 1999; Ashley & Hussein, 2000). It was decided that information about these critical issues would be gathered through a story-telling session.

At this meeting, the team also discussed the strategies for selecting the samples for the questionnaire survey. The team came to a consensus decision that they would interview a minimum of 125 respondents covering all the seven villages. They anticipated that they would require at least 45 minutes to conduct the survey with each participant. They felt the need for interviewing both the users and the non-users of the Rural Knowledge Centres project. Further, among both the categories, they decided to include certain vulnerable groups, such as the unemployed, housewives, students, the illiterate and the elderly.

The researcher did not influence their decision for he found their approach matching the stratified random sampling method suggested by experts (Fink, 1995; Fridah, n.d.). It was also possible to see their approach in the light of the purposeful sampling techniques applied in social research to achieve maximum variation within the control group.

During this meeting, it also emerged that a second set of questionnaire survey among the project volunteers would be helpful in order to double check and validate the perceptions held by the project beneficiaries.

c. Story-telling session by the project volunteers and the beneficiaries

The story-telling session was quite useful for the evaluation team to identify the factors responsible for the successes and failures in their own interventions. Stoll et al. (2002) insist on the need for using stories in an assessment process. The participants brought a number of stories to the table, ranging from the case of a divorcee obtaining a government loan to a farmer buying paddy seeds for half the
price as that quoted by the middlemen. The participants also brought to the table a number of problems faced in their work, and the subsequent on-the-spot solutions that they had taken in order to overcome the problems. Both the success and the failure stories enabled them to identify certain indicators, which in turn could be used to measure the success of the project.

The story-telling sessions was of great value in the present study, exactly as pointed out by Stoll et al. (2002) in the following words: "Stories are created and told to interpret a situation, to transmit knowledge, lessons learned, dreams and aspirations. Stories are in fact never strictly an objective representation of reality; they are giving an account of things from the specific point of view of the storyteller and his cultural and sociological background. Every story represents an evaluation and therefore gives us access to information on multiple levels such as real facts, perceptions, interpretations of actions undertaken, needs" (p22).

From the success and the failure stories, the following indicators were identified to be of importance:

- Expressed need for certain specified services such as more information on self-employment, information from government agencies and the latest rice varieties developed at the state agricultural university;
- The people were willing to share their expertise and knowledge with the ICT centre for the benefit of the other users;
- Specific applications and computer software programmes required by the users;
- The amount of time the services of the ICT centre were disrupted due to a lack of electric supply, phone services and so on;
- The number of job applications processed and the jobs secured through the information provided by the centre;
- The amount of time spent by the people waiting for their turn to use the ICT centre; and,
- The ability to reach-out to people at their homes through the public address systems.
The above indicators only reflect the fact that the story-telling session indeed enabled the evaluation team to consider certain service performance indicators of the ICT centre as a part of the questionnaire survey.

5.3.4 Questionnaire design

Following the second focus group meeting that discussed the questionnaire and the third focus group meeting that was dedicated to story-telling, it was indeed possible for the evaluation team to get down to design the questionnaire. The researcher sensitised them about the need to consider certain pro-poor and human rights issues for inclusion in the questionnaire. Three issues were identified for inclusion: (a) the peoples' perceptions about their own well-being; (b) the priorities of the poor; and, (c) gender relations. These issues were drawn from the World Bank's (1999b) methodology for consulting the poor.

As suggested by Earl et al. (2001) in the IDRC's outcome mapping exercise, the researcher also had to draw their attention to the vision and mission statements, the objectives and the output statements of the project. This enabled them to focus on three specific issues, namely: Pro-poor, Pro-women, and Pro-dalits. The team decided to first define the evaluation objectives. They agreed that the first and foremost objective would be to test the effectiveness of the project itself, and the extent to which the project was instrumental in enabling the poor in accessing information through the application of new technologies. As per the researcher’s suggestion, the team agreed to include a few wider social indicators that would enable them to find out if the ICT centre had indeed been helpful in contributing to the livelihood assets - human, social, physical, environmental and financial capital, of the community. The team to frame the questions and to consider certain indicators to measure the ownership issues, followed the Greek temple concept. The team also considered identifying the pillars of importance in the Greek temple concept. It was quite an easy task for them to identify the pillars (measurable indicators) that hold the roof (sustainability, quality of life and empowerment issues) of the Greek temple as shown in Figure 4.5. The principles, indicators and the vision and mission statements of the project enabled the team to write down about 150 questions for further consideration.
The team then decided to ask their peers to review the questions before finalising the questionnaire.

This team also prepared the second questionnaire intended to be used among the project volunteers, by mainly drawing from the broad set of questions used in the beneficiary survey.

a. Focus group to peer-review the questionnaire

A team of four local people consisting of both members and non-members of the evaluation team were asked to peer-review the questions set out by the evaluation team. The review group made an attempt to logically group the questions together first with a view to reduce the total number of questions. They felt that the interviews would be very difficult to conduct if the questionnaire would have more than 100 questions. Asking too many questions would result in an unfocussed effort. Having grouped the questions together, they debated upon the usefulness and the validity of certain questions selected by the team. They rephrased certain vague questions for they thought that vague questions would lead to vague answers. They recommended that the team could avoid those questions for which they already had the answers. Some of these questions that were removed included:

- Which party does your local legislator belong to? The ruling party or the opposition?
- Do you have a library in your village?
- Did you know anything about the MSSRF before visiting the centre?
- Do you speak Tamil?

The team approved the second set of questions for a survey among the project volunteers without any major changes. The questions in this survey were aimed at double-checking and validating the perceptions of the project beneficiaries as opposed to the perceptions of the project volunteers themselves.
The researcher was an observer of this exercise, adding limited input to the process. However, he asked the team to consider a few questions that would reflect the management priorities of the centre (USAID, 1996b), and to select questions which would bring forth answers from empirical evidences, rather than subjective opinions.

b. **One-to-one meeting to plan the data-collection**

Once the questionnaire was finalised (Appendix 4), a two-member team typed and reproduced 150 copies of the questionnaire in Tamil. A brief and very informal one-to-one meeting was held with the team members of the evaluation team who were designated to act as the interviewers. 14 members of the team, all project volunteers agreed to undertake the data-collection work. The lead evaluator, Mr Jayakrishnan discussed with the individual members of the team the manner in which the questions would be asked, as well as the ordering of the questions, as it was felt that the ordering was also quite important in generating reliable information. Most of the interviewers felt that they would not strictly follow the order of the questions in the format, instead, showed their interest in engaging into a dialogue with the respondents. This would ensure that the exercise would not appear to be an interview, rather appear to be a good conversation about the project. The team showed interest in turning the questionnaire survey into an experience survey with a view to formulate the problems faced by the beneficiaries while accessing the Rural Knowledge Centres.

The researcher suggested that the interviewers posed both open-ended as well as closed-ended questions (Barton et al, 1997) to ensure that the answers to certain questions would not be just a plain 'yes', but richer and descriptive. The idea was to discover elements of the respondents' perceptions of the questions being asked. The interviewers agreed to adhere to the decision on the sampling method discussed earlier in a focus group meeting. However, they decided to use their judgement on the occupational groups such as the teachers, farmers, fishermen, semi-skilled labourers and small traders according to the local variations.

The lead evaluator, Mr Jayakrishnan undertook to perform the second questionnaire survey among the project volunteers.
5.3.5 De-briefing

A de-briefing session was organised at the end of the data-collection phase to discuss the further steps of the research study. This meeting took place in a van while the evaluation team was travelling to the MSSRF office in Chennai to attend a meeting with the Chairperson of the Ford Foundation. The team shared their difficulties in administering the data-collection exercise while exchanging their views about the entire exercise. They were appreciative of the fact that for the first time in their lives, they were seen as evaluators rather than as mere subjects. They also felt that they had learnt a lot in the process, improvising their own interviewing skills with each person they interviewed. They felt that their knowledge of the local environment, culture and resources had been very useful while interviewing.

Quite often, when outsiders went into their villages interviewing the people, the volunteers felt that the outsiders were quite ignorant of the 'realities' of their day-to-day life. At the same time, they were appreciative of the fact that as local people working with the researcher in the present study, they were able to enhance their views about the problems, resources and opportunities of the villagers. Most of all, they felt that they were aware of the possibilities of improving their own performance as the project volunteers to provide more focussed and demand-driven information to the people they served. The interviewers felt the need for local partnerships with other actors such as the cable television operators, local schools, local councils, adult education centres, health centres and the rural development agencies.

The researcher felt that the local people had not only learnt a lot about the ICT intervention and the possible improvements that they could suggest, but also brought a lot of their own perspectives to the evaluation. They could inform the project about the factors that played key roles in their day-to-day lives. The volunteers were able to assess the expectation level of the people about the ICT intervention and felt the need to educate their users about the limitations of the intervention. The need for marketing the various services offered by the centre among the local people was strongly felt right across all the villages.
5.4 Primary and Secondary Data Collection through questionnaire surveys

While the evaluation team led by the team leader, Mr G. Jayakrishnan carried out the first of the three questionnaire surveys, the team leader himself carried the second. The researcher carried out the third survey among the project staff.

5.4.1. Questionnaire survey among the project beneficiaries

As discussed in Section 5.3.4, fourteen project volunteers who formed a part of the evaluation team of this study carried out a questionnaire survey among the beneficiaries. A total number of 125 people were interviewed from the seven project villages. They included 36 women. The volunteers interviewed all age groups and all occupational groups.

As shown in the Table 5.6, more than half of the people interviewed were between the ages of 16 and 35 while only 3 each below the age of 15 and above 65 years were interviewed. Of the 36 women who participated in the questionnaire survey, only 16 use the Rural Knowledge Centres while the rest 20 do not. Among the 89 male participants, 68 used the centre accounting for 81% of the users interviewed while 21 did not use the centre, thus, accounting for 51% of non-users interviewed.

<table>
<thead>
<tr>
<th>Age group of the participants</th>
<th>Number of participants</th>
<th>of Percentage of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>16-25</td>
<td>33</td>
<td>27%</td>
</tr>
<tr>
<td>26-35</td>
<td>33</td>
<td>27%</td>
</tr>
<tr>
<td>36-45</td>
<td>22</td>
<td>18%</td>
</tr>
<tr>
<td>46-55</td>
<td>15</td>
<td>12%</td>
</tr>
<tr>
<td>56-65</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>65+</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Unknown</td>
<td>10</td>
<td>8%</td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 5.6: Age composition of the participants
The majority of the participants of the survey in Kizhoor village were farmers while in Nallavadu and Veerampattinam, the majority of the users were fishermen. Housewives were interviewed in almost all the villages. Students, teachers, skilled workers and small traders were also interviewed. The survey sought the views of both the employed and the unemployed people in order to understand their perceptions of social well-being and the role played by the Rural Knowledge Centres project in transforming their lives.

a) People’s participation in the programme

The samples were chosen so as to provide the right mix of diversity of views from the different occupational groups. They included both users and non-users. As shown in Figure 5.4, participants of the questionnaire survey ranged from teachers to students and housewives to skilled workers and unemployed, etc. Through the application of participatory action research techniques, the sampling was chosen in such a way that all cross-sections of the society were covered.

Figure 5.4: The occupations of the participants
As shown in Figure 5.5, while 8 out of the 13 housewives interviewed did not benefit from the centre, this unemployed group formed a major share of the non-users' group.

![Figure 5.5: Occupations of the users and the non-users](image)

While the farmers and skilled workers used the centre much more than any other group, 40% of the fishermen and the small traders did not use the centre. Students and teachers, understandably, used the centre well. Among the 125 people interviewed, only 84 of them ever used the ICT centre, making it a usage rate of 67%; however, among the 41 non-users, 19 of them confirmed that their family members visited the centre quite often. This effectively brought down the non-usage rate tremendously. Less than 2% of the non-users felt that they had no idea of what the centre was involved in, while at the same time, more than 9% of the non-users felt that the centre was highly useful to the village. The sense of participation of the people in the development of the centre was more among the literate as compared to the illiterate.

**b) Social factors that influence people's participation in the programme**

A number of social factors can be identified for the purpose of evaluating the role of ICTs in the lives of the poor. Quite often, many of the factors that disable or enable people's access to the ICTs are social in nature rather than technological. The present research focussed on a few of the potential factors that affect the people's ability to access the ICTs.
Literacy rate

Literacy rate plays a key role in enabling people's access to ICTs and the information supplied by the ICT centre.

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Users</th>
<th>Non users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of users</td>
<td>% among the user group</td>
</tr>
<tr>
<td>Illiterate</td>
<td>7/84</td>
<td>8%</td>
</tr>
<tr>
<td>Middle school</td>
<td>16/84</td>
<td>19%</td>
</tr>
<tr>
<td>Secondary school</td>
<td>36/84</td>
<td>43%</td>
</tr>
<tr>
<td>Graduate</td>
<td>19/84</td>
<td>23%</td>
</tr>
<tr>
<td>Technical education</td>
<td>5/84</td>
<td>6%</td>
</tr>
<tr>
<td>Unknown</td>
<td>1/84</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>84/84</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 5.7: Literacy level of the participants

From Figure 5.7, it is evident that 29% of the non-users are illiterates, and their participation in the project increases with their literacy level up to the secondary school level. Only 8% of the users are illiterates while more than 70% of the users attended secondary school and above. This clearly shows that the usage will increase in accordance with their education.

Age factor

Age is clearly an important factor that influences the people's access to ICTs. All the volunteers were below 35 years and the entire team's average age was less than 30 years. The user registers revealed that young people and those who were in immediate need of information visited the centres very frequently. From Table 5.8, it is evident that children below 10 years of age do not use the centre. Those who visit the centre in the age group of 10-15 years tend to draw pictures using MS-Power Point or MS-Word applications.
<table>
<thead>
<tr>
<th>Age group</th>
<th>User</th>
<th>Non-user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of users</td>
<td>% of users</td>
</tr>
<tr>
<td>0-10</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>11-20</td>
<td>13</td>
<td>16%</td>
</tr>
<tr>
<td>21-35</td>
<td>40</td>
<td>48%</td>
</tr>
<tr>
<td>36-50</td>
<td>20</td>
<td>24%</td>
</tr>
<tr>
<td>51-65</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>65+</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 5.8: The age-wise distribution of the participants

It is interesting to note that the majority of the users and the non-users belong to the age group of 21-35 years followed by the age group of 36-50 years. It is apparent from the Table 5.8 above that the age level does not dominate the usage or non-usage of the centres although a greater number of users are above 21 and below 50 years.

From Table 5.9 below, it is evident that twelve people visited the centre more than 20 times a month and most of them were from the age group between 21 and 50 years. 11 out of the 40 users who belonged to the age group 21-35 visited the centre 1-5 times a month.

<table>
<thead>
<tr>
<th>Age group</th>
<th>1-5 times</th>
<th>6-10 times</th>
<th>11-20 times</th>
<th>20+ times</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>21-35</td>
<td>11</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>36-50</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>51-65</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>65+</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>14</td>
<td>14</td>
<td>12</td>
<td>22</td>
<td>84</td>
</tr>
</tbody>
</table>

Table 5.9: Number of visits made by different age groups each month
This age group dominates the user group at all levels accounting for almost 250 visits a month as compared to those between 11 and 20 years who account for about 50 visits a month and the 65+ age category who pay less than 40 visits a month. Among the age group of 36-50 years, more than half of them visit the centre at least 10 times a month. The same pattern emerges for the age group of 51-65 years also.

**Social capital issues**

As shown in Figure 5.6, while 23 people at some point in their social life occupied a public position, the social integration of these villages for joint group work was seen to be very low. Only less than half the population interviewed ever participated in any type of group work. Only 27 people even shared domestic responsibilities at home. The men expected the women to shoulder a number of responsibilities such as cooking, washing, cleaning, taking care of children, etc., while they considered earning money as their prime responsibility. However, more women were engaged in self-employment and small trading activities than their counterparts. The participants also possessed a number of skills other than the one they practised for earning their living. Based on these skills, they stood a good chance in competing for employment opportunities that arose from time to time.

As shown in Figure 5.6 above, only 43 of the 125 people interviewed participated in group work, one way or the other. Interviews with the key people within the project villages revealed that these group efforts were often undertaken only for cultural and religious events. Sometimes, these group initiatives cause division within the society.
From the questionnaire survey, it was evident that within the households more than 70% of the 125 interviewed did not share their domestic work. Women had to carry out all the housework while their responsibility was no less in income generating activities. The ICT centre is actively involved in disseminating employment information to the users. It may be quite helpful to keep the people's skills in mind while pro-actively harvesting information on employment opportunities.

As shown in Table 5.10, while 67 of those interviewed declared that they did not possess any additional skills, 26 of them although not engaged in farming activities, possessed additional skills. Five of them were skilled in driving heavy vehicles, while three each were skilled in tailoring, embroidery work and book-binding. At least two people possessed one or more of the following skills: photography, electrical work, construction work, cycle repair, teaching other languages, homeopathy, transportation work, blood testing and painting. Among the people interviewed, at least 35 of them possessed small business skills, but only 14 of them were engaged in self-employment or enterprise activities.

<table>
<thead>
<tr>
<th>Number of people</th>
<th>Skills known</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>No skills known</td>
</tr>
<tr>
<td>26</td>
<td>Farming, dairy farming</td>
</tr>
<tr>
<td>5</td>
<td>Driving</td>
</tr>
<tr>
<td>3 each</td>
<td>Tailoring, embroidery, Binding, Small trade,</td>
</tr>
<tr>
<td>2 each</td>
<td>Photography, electrical work, construction work, masonry</td>
</tr>
<tr>
<td>1 each</td>
<td>Cycle repair, homeopathy, timber trade, painting, ironing, leather work, gardening, teaching other languages, blood testing, coaching for sports, mechanic, computer training, transportation</td>
</tr>
</tbody>
</table>

Table 5.10: Additional skills possessed by the participants

Gender issues

The gender-wise analysis of the participants showed that the occupation the women preferred, due to lack of choice, was limited to small businesses. As shown in Figure 5.7, a large number of the men who were interviewed came from the unemployed group.
The employed group represented those who were employed in formal sectors such as the industry and the government. Invariably in all the villages, the households preferred boys to girls. Only 20 households preferred to have the second girl child as compared to 44 who preferred to have the second boy child. Only 4 out of the 125 households had three or more girls while 23 had three or more boys. The boy-girl ratio stood at 100:80 for the households interviewed.

<table>
<thead>
<tr>
<th>Earning capacity</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Indian Rupees</td>
<td>No. of people</td>
<td>%</td>
</tr>
<tr>
<td>Less than 500</td>
<td>17</td>
<td>48%</td>
</tr>
<tr>
<td>500-1000</td>
<td>15</td>
<td>43%</td>
</tr>
<tr>
<td>1000-2000</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>2000-3000</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3000-5000</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>More than 5000</td>
<td>2</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 5.11: Gender-wise income level

As shown in Table 5.11 below, access to money among women was quite limited. While 49% of women earned less than Rupees 500 (£6.66) a month, none of their male counterparts earned less than Rupees 500 a month. However, almost half of the men earned less than Rupees 1000 (£13.33) a month. While none among the women but for two earned more than Rupees 2000 (£26.66) a month, more than 20 men did earn that kind of income.
Income disparity and economic wellbeing

Of the seven villages, as shown in Figure 5.8, only Embalam and Kalitheethalkuppam seemed affluent while Pooranamkuppam and Veerampattinam had many people earning less than Rupees1000 (£13.33) a month. The majority of the participants earned around Rupees 1000 to 2000 (£13.33-26.66) a month, which marked them below the poverty line. In the village of Kizhur, there were marginally less number of poor people as compared to their counterparts in the other villages.

![Income level in Rupees](image)

**Figure 5.8: Village-wise income level**

As shown in Figure 5.9, the villagers, by and large, enjoyed the basic needs although a majority of them were poor. 116 out of the 125 households interviewed had electricity while 115 of them owned a house of their own although most of these houses were huts, low in standards. 104 households had television sets while 70 of them owned a radio. The penetration of the telephone was however low.
Of the farming households, almost half of them had borewells as the means of water supply to the crops. These factors are important, as people prefer receiving information on their television sets.

People's well being and their perceptions

<table>
<thead>
<tr>
<th>Composition of children</th>
<th>Number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of children</td>
<td>Boys</td>
</tr>
<tr>
<td>1</td>
<td>37</td>
</tr>
<tr>
<td>2</td>
<td>44</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5.12: The number of boys and girls in the households

The majority of the households felt a strong need for having more boys than girls and they preferred not to have more than one girl child. As shown in Table 5.12, 20 of the households interviewed had a second girl child as opposed to the 44 households that enjoyed having their second boy. Some households even had four boys while the maximum number of girls in a single household was limited to three. The boy-girl ratio of these villages stood at 56:44. But, an analysis of the user register revealed
that both girls and boys used the ICT centre in an equal manner. The study did not explore the gender-relations issue in-depth, but it would be possible to so in the future.

As shown in Figure 5.10, 48% of those interviewed mentioned that the main difficulty faced by their households was the lack of access to finance to enhance their livelihood standards, while 14% felt the earnings were not good enough. 13% faced unemployment difficulties while 6% found it difficult to educate their children. There were other problems as well such as drinking, lack of medical care and long distances for walking, which were expressed by the participants.

![Figure 5.10: Difficulties faced](image)

But, the majority of the problems faced by the people were around economic issues. The people's well being as they perceive, is that they can have a good life only if they have access to economic benefits. These factors are to be seen as highly important as the ICT centres disseminate information pertaining to the needs of the people.
Most of those interviewed felt that excessive population caused unemployment problems, but when they were asked to be specific, 19 of them thought that the education system was not oriented towards finding employment as shown in Figure 5.11. Corruption seemed to be one of the main problems in preventing the poor from finding employment. The industries in these villages that were set up by the people from other states did not prefer to employ the local people for fear of labour union activities. Some people preferred finding only government jobs which gave them job security for their life times, but some others felt that the policies of the government were not aimed at the poor finding living opportunities. To the questions posed by the interviewers relating to the people's well being, there were contrasting views. Women were more honest than men when it came to answering questions relating to fighting and stealing. But, when it came to finding out if people had drinking habits, only 16% of the women answered in the affirmative while more than 24% of the men said that they drank. This may be due to the fact that women perceive drinking to be a social evil as compared to men.

c) Technological factors that influence people’s participation in the programme

To the question as to how many beneficiaries accessed information or preferred accessing information online, 74 out of the 125 mentioned that they accessed computer-based information as compared to the 40 people who chose not to do that.
However, about 70% of the users preferred reading the blackboard outside the ICT centre. Access to information on computers was dependent upon the educational level of the people. While the illiterate people largely did not enter into the centres, the young and the educated did go in to access the information held in the databases.

When the participants were asked if they would prefer receiving daily news from the centre, as shown in Figure 5.12, 118 of them expressed their interest while only 7 did not feel the need. But, it was interesting to note that most of them preferred receiving the news in the age-old print medium followed by a television-based news service. Although the Public Address (PA) system was quite popular in one village, only 2 participants suggested the use of the PA system for announcing the daily news.

![Interested in daily news?](image)

**Figure 5.12: Preferred ICT medium for a daily news service**

**d) The role of ICTs in people’s lives**

When the people were asked about the usefulness of the Rural Knowledge Centres, most of them felt that the centres were highly useful to the villages. Even the non-users who knew something about the centres shared this perception. A handful thought that the standard of living had increased in the villages ever since the Rural Knowledge Centres had started operating. They did not have any evidence to underpin this claim, but strongly held the perception. A substantial number of people considered the centres to be highly useful to their children in their education while some others thought that the centres were very useful to farmers and fishermen and to some poor segments of the population. But, it was interesting to note that 35% of the participants knew nothing about the centre and wished that the staff of the centres
would let them know about the benefits of using the centres. 20% of the participants despite knowing about the centres and their usefulness never found time to visit the centres. 79 people believed that there were no other centres such as the MSSRF centres within or outside their village, while the rest saw the public library and the various government departments to be providing a large part of such information. But, none of the other centres had comprehensive information similar to that held in the Rural Knowledge Centres.

Access-related issues

It is evident that the centres perform in the central locations of the villages as more than 95% of those interviewed lived within half a kilometre of the centres. Most of the people walked to use the centres, while only a few had to cycle to visit the centres. The centres were accessible to everyone without discrimination of any kind. All age groups visited the centres, ranging in age from 11 to 70 years. A number of school-going children visited the centres on a regular basis. While 7 out of the 19 illiterates used the centres regularly, the usage level increased with the people's educational background. The usage was less among the less educated as is evident from Figure 5.13. The majority of the users studied only up to the school level while it was interesting to note that at least 4 among the sample who did not use the centres possessed university degrees.

Figure 5.13: Education Vs usage
As shown in Figure 5.14, the same pattern as above was reflected in the income level of the users. The percentage of users was more in number when they earned more money while the low-income group visited the centres less frequently. But, it was interesting to note that among those who earned less than Rupees 1000 a month, 65% used the centres.

The average monthly income of the villages was about Rupees 3500 (£46.66) a month. Calculations show that in reality, more than 80% of the households earned less than Rupees 2500 (£33.33) a month. Half of the earning capacity was found to be with 15% of the households. As mentioned earlier, the usage level of women was not very encouraging as about 60% of the women interviewed never used the centres.

With mobility, the usage level increased.

<table>
<thead>
<tr>
<th>No. of trips to City</th>
<th>Users</th>
<th>Non-users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don't go at all</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0-5 times</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>5-10 times</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>10-15 times</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>15-20 times</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>20-25 times</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>More than 25 times</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 5.13: Usage Vs mobility
As shown in Table 5.13, the households and individuals who travelled to the city more frequently visited the centres also frequently. Among the non-users, a significant number visited the city less than 5 times a month.

As indicated in Table 5.14, among those who used the centres, 68% of them visited them more than 5 times a month. While 20% of the users visited the centres more than 20 times a month, which amounts to almost once a day, the majority of the users visited the centres 5 to 15 times a month. A majority of the family members of the non-users did not visit the centres even once while 6 households of the non-users visited the centres less than 5 times a month. Members other than the users belonging to 32 families did not visit the centres, while the family members of 12 users interviewed visited the centres more than 20 times a month. In reply to the question of whether or not the centres should function in the evenings, 71 users and 25 non-users said yes, while 72 users and 27 non-users thought that the centres should function on holidays too.

<table>
<thead>
<tr>
<th>Number of visits a month</th>
<th>How often do you visit</th>
<th>How often do your family members visit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Users</td>
<td>Non-users</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>1-5</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>5-10</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>11-15</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>16-20</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>21-25</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>25+</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 5.14: Number of visits made to the ICT centres each month

When the interviewers asked how the participants accessed information provided by the centres on a day-to-day basis, 81 of them mentioned that they stopped by and read the news on the blackboard outside the centres each day. Out of these, 46 of them walked into the centres to read the daily news on computer screens. More than 40
people interviewed never read the news either on the blackboard or the computer screen.

Content-related issues

The people perceived the centres to possess all the useful information for their day-to-day lives. While some were of the view that instant information was made available to all, some others felt that the content offered by the centres was oriented towards the farmers, the fishermen and the students. It was very evident that the elderly felt that they did not have much to do with the centres for it was for those who were younger and/or the educated youth. A number of farmers expressed their interest to obtain scientific information on farming tools and techniques, while most of the unemployed thought that the centres were providing enough employment information to them. Although many people felt that health information was available, the overall perception did not confirm this fact.

Many felt that the availability of information on market prices was quite helpful, so also the weather reports broadcast by the centres every day. Some poor students benefited the most from these centres, as the cost of learning basic computer skills from the commercial centres was very high. Some fishermen felt that wave height information was lifesaving and that such information should be made available to all the fishing villages. Many preferred to receive this information over loud speakers.

A small segment of the participants were, however, of the opinion that the centres should function better by providing more timely information. They felt that the centres should be proactive in marketing the contents held in the computers. Many felt the need for entertainment and sports information to be made available through the centres. But, by and large, the perceptions of the users and the non-users about the content held in the centres was positive, although, the percentage of people who had such perceptions was only about 75%.

When a single question regarding information needs was asked twice in order to double check the extent to which people indeed expected certain types of information as opposed to their needs, there were some differences between the people's wants and
needs. The needs of the users and the non-users did not differ dramatically while the same was true for user expectations and non-user expectations as shown in Figures 5.15, 5.16, and 5.17.

Figure 5.15: The needs and the expectations of the users

It was astonishing to note that although one of the prime activities of the knowledge centres was processing of daily market information for the benefit of the users, not many needed this information. Although information for fishermen at sea through wireless radio was not a great need among the fishermen, a majority of them expected the knowledge centres to provide such services.

Figure 5.16: The needs and expectations of the non-users
While the knowledge centres consider the telephone facility as one of their services to the beneficiaries, not many seemed to need or expect such a facility. On the contrary, many felt the need for Internet facilities and expected the centres to extend that facility to them. Many sought for self-employment information, although they did not immediately expect the centres to provide such information. There was a great demand for both employment information and dissemination of all sorts of news items to the communities. It is evident from the Figure 5.17 that certain traditional services and information offered at the centre did not seem to be popular any more. However, only agricultural information seemed to be still popular as many users and non-users expected the centres to continue to provide such information.

It was interesting to note that employment information was quite popular in all the villages, while only Embalam and Kaliytheethalkuppam opted for obtaining market prices much more than other types of information. Agricultural information seemed to be very popular in all the villages other than the fishing villages of Nallavudu and Veerampattinam, where fishing information seemed very popular. Surprisingly, in Embalam and Kizhoor villages, no one seemed to have obtained any information about government-related issues from the centres while at Kaliytheethalkuppam, none of those interviewed obtained any educational information. The participants from Pooranamkuppam village seem to have obtained every kind of information other than fishing-related information as shown in the Figure 5.18, while the participants from Veerampattinam village seemed to have obtained all but farming information from the

Figure 5.17: The needs and expectations of both users & non-users combined
centres. In all the villages, there was some demand for computer training as well as for training for job-related skills.

In answering the question regarding the kind of information that the participants found to be most useful, as shown in Table 5.15, significantly 23 of them identified the contact addresses of government officials provided in the newspaper.

<table>
<thead>
<tr>
<th>What do you find useful in the newspaper</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health information</td>
<td>18</td>
</tr>
<tr>
<td>Advertisement</td>
<td>9</td>
</tr>
<tr>
<td>Contact addresses and phone numbers</td>
<td>23</td>
</tr>
<tr>
<td>Employment news</td>
<td>7</td>
</tr>
<tr>
<td>Agricultural news</td>
<td>11</td>
</tr>
<tr>
<td>All news</td>
<td>26</td>
</tr>
<tr>
<td>No idea</td>
<td>31</td>
</tr>
</tbody>
</table>

Table 5.15: Useful information in the newspaper circulated by the centres
While 31 of those interviewed were not aware of the purpose of the newspaper, 26 others found everything in the newspaper to be of value. Although anecdotal evidence suggested that a number of people benefited from the advertisements that appeared in the newspaper, only 9 participants acknowledged this fact during the survey.

**Partnerships-related issues**

The participants expected the centres to provide certain types of information that were possible only when the centres entered into partnership agreements with a number of other agencies, including the government. When the participants were asked to suggest any improvements that they might like to see regarding the functioning of the centres, many responded with a number of suggestions. Some of those included partnership issues, that were crucial for strengthening the activities of the centres. The suggestions made by the participants are listed in Table 5.16.

| The knowledge centres should function independent of the village panchayats and not in partnership with the local panchayat boards |
| The centres should function as employment centres in partnership with the local employment bureaux |
| The centres should develop partnerships with remote sensing agencies to help the fishermen at sea to navigate their way back safely and to locate fish density |
| The centres should work in partnership with the local television cable providers for disseminating information |
| The centres could enter into partnership with computer training institutions for providing free computer education to the communities |
| Self-employment training for women should be provided |
| The centres should facilitate the initiation of co-operative schemes for starting small industries |
| Training on small-scale industry and business skills must be provided to those interested |
| The centres should be expanded with the help of the local communities |
| Some arrangement must be made to reduce computer downtime |
| The centres should announce the local news on the radio |
| The centres should facilitate business and industrial opportunities for the development of the villages |
Daily schemes from the government should be broadcast immediately to reach even the illiterates

The centres should announce exam results in co-operation with all the local schools and the governing boards for the schools

The centres should encourage the planting of trees, the cleanliness of the villages and the development of proper waste management systems

Old age homes must be constructed

The local temples must be renovated

The centres should enable the widows to start an association

The centres should provide health care and sanitation training and awareness

With the help of the government, the centres should help the communities to avail of small business loans, and train individuals in small business skills

The centres should create awareness about a number of issues including, communicable diseases, environmental hazards and safety methods, modern techniques in farming, cultivation techniques, educational counselling, animal husbandry and so on.

Table 5.16: The key suggestions offered by the participants

The above suggestions from the villagers themselves were indicative of the fact that the ICT centres had already been dealing with some of these issues in partnership with a number of other stakeholders. However, the people did see greater networking opportunities through the centres. A majority of the participants wanted to lodge their public grievances with the centres so that the centres would pass on these complaints to the right authorities within the state and the local governments. More than 75% of the participants felt that the centres provided government-related information, and that they should continue to provide the same for the benefit of the communities. While answering employment-related questions, many felt that the centres should enter into partnerships with the local industries for announcing the job vacancies and for recruiting personnel for them.

Sustainability-related issues

The answers to a number of questions indirectly touched upon sustainability issues that influence the efficient functioning of an ICT initiative such as the MSSRF project.
The centres have provided computer-training skills to a number of people such that the participants felt highly confident of handling the tool. This showed that the centres were expected to continue to provide training programmes. This would in turn help the centres to sustain their role in building new skills among the citizens they serve. From Figure 5.19 above, it is evident that a number of services were well sought after by the community.

Calculations based on the obtained data show that more than 500 visits were undertaken to the Rural Knowledge Centres by the individuals each month to learn computers while the number was even higher for obtaining employment information and market prices. For availing computer training, 15 people visited the centres more than 10 times a month. The less sought-after types of services could be easily singled out here, for example, the timetable information services. The demand for information services had grown over the past few months, which added to the sustainability factor of the centres. Another indicator to the sustainability factor was the retention of the staff members. Most of the staff members had stayed on since joining the centres.

Figure 5.19: Service-information availed of by the users every month
The interest of the communities in the information products and services of the centres had also gone up. This was evident from the fact that more than 70 people were willing to share their knowledge at the centres for the benefit of others. They saw a new relationship with the centres as information providers rather than as mere seekers. When asked if the participants would advertise in the information products of the centres for a fee, 51 of them answered in the affirmative.

It was clearly determined from the present investigation that the dependency of the communities on the knowledge centres had been increasing which placed the centres as important entities in the society. This fact was further strengthened with the government entering into new partnerships with the centres to sort out specific community problems. The centres had thus retained their position as key actors in the society, which gave them a better chance to sustain their existence.

In the descriptive answers, the participants raised a number of sustainability-related issues. These are listed in Table 5.17 below:

| **Link up the centres with the fishermen at sea through a communication network so that the fishermen could communicate with the shore while facing problems at sea** |
| **Sustain the training activities of the centres by introducing a number of awareness raising programmes** |
| **Attach the Rural Knowledge Centres with a commercial entity such as a tea stall or a grocery shop so that the centres are subsidised through the income generated from the commercial entities** |
| **Raise revenue from advertisements to support new services** |
| **Use the Web cam facility for question and answer sessions with doctors, government officials and local authorities so that the centres become a focal point for all developmental activities** |
| **Reach employment news to homes for a small fee** |
| **The centres should act as the focal point for joint efforts by the villagers such as starting a co-operative or a small scale industry** |
| **Integrate all the ICT centres together for joint initiatives** |

Table 5.17: Suggestions offered by the users to sustain the activities of the centres
Benefits offered by the centre according to the project beneficiaries

From the questionnaire survey, it was evident that most of these families had made telephone calls using the phones at the ICT centres. But, the demand for telephones was diminishing as more households have obtained connections by now. Only 68 of the 125 participants had used the telephones in the ICT centre in March 2002. In addition to computers and telephones, at least three of the seven project villages use radio towers to communicate with the hub in Villianur. They are able to access the Internet and the databases held in the file server at Villianur. Through the web cam facility these villages are able to communicate with the government officials in remote locations. The interviews with the users revealed that they saw no difference between the people living in cities and themselves when it came to accessing the ICTs.

The ICT centres offer access to the Internet and an enormous amount of information held in several databases. Of the 84 users, 44 of them availed of the market prices held in the ICT centre at least once in a month, while 17 others obtained the same more than five times and six others accessed this type of information more than 10 times. The survey revealed that even among the non-users (41 of them in the study), the family members of 17 of them regularly used the centre. More than 80% of the beneficiaries do have transactions with the ICT centre at least once each month. More than 17 people access market prices, employment news, and government announcements and farming information more than 5 times each month. The number of transactions carried out by each of the centres is more than 500 per month. This is phenomenal considering the fact that each of these centres offers its services to a population of less than 2000 people.

From the questionnaire survey, it was found that a number of transactions between the government and the citizens have taken place. Most of these transactions have resulted in some action, for example, seven people found employment in the fire services and some women's groups could avail a number of loans. The ICT centres have been instrumental in more than 20 women availing the government benefits due to them. The project volunteers shared a number of anecdotal evidences in the story-
telling session while the beneficiaries interviewed by the researcher confirmed this. 

The user registers at each of the ICT centres contain a number of these facts.

**Figure 5.20: Benefits offered by the ICT centre (according to the beneficiaries)**

Many people have benefited by using the centre while in the questionnaire survey no attempt was made to assess the losses suffered by the stakeholders on account of the centres. It was interesting to note that 14 out of the 84 users mentioned that the centres did not offer any benefit to them, yet they wanted the centres to continue to operate. While 29 of the users confirmed that they had learnt computer packages at the centres, 20 of them regularly used the telephone. The benefits received by the users as shown in Figure 5.20, are multiple. However, an in-depth analysis suggests that the benefits availed vary from centre to centre, although the age group between 25 and 50 were the main beneficiaries. While 22% of the participants benefited by learning computers, only 1% of them have benefited from health-related information offered by the centre. 8% of those who answered the questionnaire had found employment through the centre.
5.4.2 Questionnaire survey among the project volunteers

The lead volunteer carried out the interview among the thirteen out of the rest seventeen project volunteers using a questionnaire specially designed for this purpose. He himself filled out a questionnaire to make the total number of respondents of this survey 14. The questionnaire as shown in Appendix 5 contained the following major sections:

- Personal details of the volunteers;
- Family details of the volunteers;
- The main reasons and the motivational factors behind volunteering;
- The perceptions of the volunteers on the benefits of the centre to the users, the community, the natural and physical environment of the village and finally, for the economic well-being of the village;
- The challenges faced by the volunteers in their work and the activities they would undertake to improve the performance of the centre; and,
- Their training needs to fulfil their tasks fruitfully.

Through the face-to-face interviewing method, the lead volunteer spent more than 30 minutes to record the answers in each questionnaire. This gave the lead evaluator a better understanding of the perceptions of his fellow volunteers and their training needs. An equal number of men and women were interviewed to make the total number to 14. They came from the seven villages, 3 each from Embalam and Nallavudu, 2 each from Pooranamkupam, Kalitheethalkupam and Kizhoor and one each from Veerampattinam and Thirukanchipet. While half of the volunteers have less than a year's experience, a majority of them earned a small honorarium for their contribution of working hours. It was interesting to note that those who worked less earned more honorariums as compared to those who worked more number of hours.

While five out of the seven women volunteers interviewed were married, all the male volunteers were unmarried. The spouses of the five married women volunteers earned Rupees one thousand each. While one of them had no children, the rest of the four
married women had two children each. It was interesting to note that while the average income of the villages were more than Rupees one thousand, all the volunteers were relatively poor, yet were willing to volunteer. It was not surprising to note that the main reason as well as the benefit for the volunteers volunteering at the centres was not income generation, but the development of skills.

From Figure 5.21 below, it is evident that many of the volunteers wanted to gain confidence in using computers and they have indeed achieved that objective. While the majority of the volunteers joined the centre to help others and render community work, it appears from the figure above that they have also gained a lot personally by volunteering. The benefits range from gaining knowledge of computers to raising their general awareness about issues and their increased self-confidence. Some of them considered meeting foreign dignitaries who visit the centre to be one of the benefits while others felt that they have gained self-respect and self-esteem within the village ever since they started occupying the role.

Figure 5.21: Reasons for volunteering and the benefits received by the volunteers
The questionnaire survey among the project volunteers revealed a number of key points relating to the benefits offered by the centre. Some of the findings are summarised below.

**Benefits offered by the ICT centre according to the project volunteers**

Most of the volunteers felt that the main benefit offered to the individuals was offering advice and information about employment opportunities and development of skills such as computer training as shown in Figure 5.22. The role played by the centre in enabling people to find employment opportunities and employment-related training was perceived as the major contribution made to the whole community's economic wellbeing. According to the volunteers, the other main benefits for the community were services such as typing petitions for approaching various government officials and providing information about the government's schemes.

![Benefits to individuals](image)

**Figure 5.22: The benefits offered by the ICT centre according to the volunteers**
It was interesting to note that the information offered to the widows and the deserted women was not considered as a benefit to the community at large, rather, it was perceived as a benefit to the individual women affected. Similar views were expressed regarding farming information offered to both the community as well as the individual farmers. The availability of telephones, again, is seen as a benefit offered to the individuals rather than the community at large. Health information available at the centre was not found to be a priority for the community as well as for individuals.

The volunteers felt that the centre offered the following benefits to the community in terms of maintaining their natural environment:

- The information supplied by the centre created awareness among the local people as well as the local industries which resulted in less pollution in the area;
- Public toilet facilities that prevent the spread of epidemics such as cholera, dysentery, and so on. The people were earlier using open spaces for easing themselves;
- The people have submitted petitions to the local panchayat authorities for cleaning up the village and have succeeded. Similar petitions have been handed over to the authorities for a proper drainage system, uninterrupted supply of electricity, supply of water and some other facilities;
- Mosquito repellents are sprayed throughout the village periodically;
- The people benefited by the construction of a proper drainage system in the village of Nallavudu;
- School students are also engaged in cleaning the village periodically;
- The government's department of science and technology is planning to distribute refuse tips to the villages; and,
- Due to the general awareness created by the centre, the people have planted a number of trees at the roadsides.

The volunteers mentioned that the centre had significantly contributed to the physical infrastructure of the villages. In one of the project villages, problems such as a lack of library facilities and a shortage of teachers in the schools had been addressed. Water tanks and paddy storage facilities were constructed after the centre had come into
being in another village. The government's commitment to construction work such as boundary walls, drainage systems, fences around the graveyards and community water tanks has increased in the past year.

Challenges faced by the volunteers

The volunteers faced multiple challenges in their work. The main challenge was the inability to provide information for complex enquiries. Although, they were able to obtain information from their office in Chennai, quite often the information arrived late. Moreover, quite often the needs are not mere information needs, but often equipment, physical infrastructure and facilities to improve the living conditions of the village. In addition, the volunteers are expected to provide value-added services such as preparing curriculum vitae for job-seekers, preparing petitions for communicating grievances of the community and translating information from English language to vernacular languages. The volunteers are not able to charge for any of these services, although they see the potential to do so. Neither they are able to earn enough remuneration for their work from the Panchayats. The volunteers in the fishing villages are faced with demands such as electronic fish zone maps, mobile communication equipment and livelihood opportunity during the 40-days of compulsory holiday enforced upon them by the government.

Training needs of the volunteers

Almost all the volunteers had functional knowledge of various computer applications such as MS-Office, MS-Paint, Windows operating system and emailing services. However, they all felt the need for more training and exposure to software development and presentation and design packages such as AutoCAD and PageMaker. Each one of them felt the need for improving their knowledge of English, especially for interacting with the foreign dignitaries who visited the project. They all felt that such a training would give them enough confidence and empower them to take up leadership positions within their village. It is surprising to note that none of them expressed their need for any livelihoods or micro-enterprises training.
5.4.3 Questionnaire survey among the project staff

Finally, a questionnaire designed by the researcher to gain a better understanding of the perceptions of the project staff was used. Four staff members filled out the questionnaire while the researcher interviewed the other six staff members who took turns to answer these questions from their busy day-to-day work. The questionnaire as shown in Appendix 6 sought to find answers to the following:

- The main activities carried out by the staff for the project
- The details and the perceptions of the project target groups
- A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the project
- Details of the contributions made by the project to individual users, the community, to the natural environment of the village, to the physical infrastructure of the village and finally, for the economic well being of the village
- The major achievements and the shortcomings of the project
- The empowerment and social inclusiveness issues around the project
- Finally, the technological aspects of the project and the future plans envisaged by the staff themselves for the project

The main responsibilities of the project staff

The project staff performed almost all the major functions for the maintenance of the info centres. These included offering technical support, information gathering and dissemination support and hardware maintenance support. The project volunteers in the villages depended totally upon the project staff whenever there were any technical faults or hardware problems. While only two out of the ten interviewed belonged to the project villages, the rest hailed from other towns. The staff were salaried, and often aware of prospective work opportunities elsewhere. However, many of them preferred to work for the project despite receiving salaries less than 30% of the market rate. The project staff possessed skills in social enquiry, information management, content editing, people networking, web management, hardware maintenance, software development, html authoring and translation.
Benefits offered by the ICT centre according to the project staff

The project staff perceived that a real social change was already taking place in the project villages. They felt that the change was being reflected by the communities' awareness of their rights and entitlements. Since more than 99% of the 660,000 villages in India do not have the privilege of using ICTs, the staff members felt that their project villages were one of the first few villages to benefit. However, the handholding nature of the project limits the project staff from withdrawing immediately from the villages. The staff felt that their mere presence was valuable to the communities. Among the very many challenges, the staff felt that they had to find solutions for sustainability. The challenge for transmitting data before 12'o clock in the afternoon has always been a problem which the project staff thought was one of the priorities which should be addressed in the future. In addition, they felt that the project should concentrate on enabling the people to generate some income through the information supplied to them.

The project staff confirmed that the centre was offering many benefits to the individuals who use the centre. According to them the individuals were able to save time and money as they accessed information at their convenience right in their village itself. Otherwise people had to travel long distances and to various corners to obtain information. Quite often, an individual on his own was unsuccessful in obtaining the required information. The access to information at the centres offered opportunities for people to enhance their skills, knowledge and general awareness. Individuals were able to apply for a number of jobs they never were able to before. This was due to the fact that they were quite often unaware of those opportunities. Now with the information supplied by the centre, hundreds of people have attended interviews of whom a good number have got selected for skilled jobs. Further, the project staff stated that through the ICT centres the people were able to access a number of government schemes offered to the poor below the poverty line. There was anecdotal evidence to suggest that the individuals who accessed information at the centre have gained credibility due to their association with the MSSRF.

In addition to the benefits passed on to the individuals, the project staff were of the opinion that the ICT centres were passing on a number of benefits to the community.
at large. They felt that the communities were united in the villages where the centres were functioning. People seemed to have overcome the barriers of position, caste and economic status. All the people were the beneficiaries of government schemes, not just a preferred group of individuals or a community based on caste or creed.

In some villages, the staff at the centre announce the time at regular intervals using the loud speakers provided by the centre. This, the staff say, enables the community to plan their day-to-day tasks, both domestic as well as professional and the employees of the village are able to reach their places of work on time. In a fishing village, the centre has provided the community with a focus light which enables the fishermen to safely return to their village at night after fishing without problems of any kind. Exposure to computers and education through animation techniques for the children has proved to be very helpful in bringing up their educational level. The other benefits to the community included the daily weather report, information about government entitlements, examination results, and agricultural market prices.

On the following basis, the project staff argued that the ICT centre was offering specific benefits to the physical infrastructure of the village:

- The communities are very peaceful these days as they know that they can approach the centre for any of their social and economic problems for the right advice and support;
- The school children have now taken up the responsibility of cleaning the village periodically. They perform this role at their homes everyday;
- The centre itself is an extra infrastructure in all the project villages;
- There is enough commitment from the village leaders to develop the village with the support of the centre; and,
- The centres bring computers, telephone lines, faxes and other sophisticated gadgets such as Spread Spectrum Technology, radio towers and so on to the villages.

As for the economic well being of the community, the project staff felt that the ICT centres were bringing the following benefits:
Through the newspaper supplied by the centre every fortnight, the people were able to enhance their business opportunities by advertising their products and services;

Many people have taken medical and life insurance policies which have proven to be very helpful; and,

Some people conducted their business activities using the phone available in the centres as there were no other phones in that particular village.

The decision by the Science & Technology department of the government to support the ICT centres after the funding is withdrawn by the IDRC is a major step towards attaining long-term sustainability. This itself is an economic boom to these villages as the support will be on a long-term basis.

**SWOT analysis of the ICT intervention by the project staff**

Based on the answers provided by the staff, the following SWOT analysis shown in Table 5.18 was developed. According to the project staff, the target groups feel that they have been brought out of their ignorance, in other words, they have been empowered by the project through the information supplied to them. Many of them, the staff feel, have changed their lifestyles on the basis of the information provided to them. While students came out to acquire computer skills and obtain information related to their studies, the farmers used the centre very regularly due to the financial benefits attached to the information provided. However, the main user group comprised of the unemployed who regularly visited the centre to obtain employment-related news and to word process and print their application forms. The other set of target groups, according to the project staff, were the leaders of the community who frequented the centre for preparing and printing petitions and complaints against the government authorities. Although a good percentage of the potential users do not visit the centre, the staff felt that the centres were operating very well for those who used it. The need for marketing the usefulness of the centre was felt by almost all the members of the staff.
**Strengths**

People's participation  
Community ownership  
Credibility with the MSSRF approach  
Government support  
Locale-specific content  
Inclusiveness  
Commitment of the project staff and the volunteers  
No other similar centre in the villages  
Demand-driven content

**Weaknesses**

Poor documentation of the project  
Low level of awareness about the project among the communities  
The static nature of some content  
Unable to meet the need at times  
Provides less employment news  
Unable to market the produce of the villagers  
No remuneration given to the volunteers

**Opportunities**

To partner with the government and private sector agencies  
To partner with other NGOs and self-help groups  
Government recognition for the self-help groups  
To uplift the people below the poverty line  
To change the paradigm from the people being the mere recipients of information to the providers of information  
To capture the local knowledge  
To replicate the project in several other villages  
To recycle the computer equipment  
To partner with the international agencies and research institutions

**Threats**

Political interference  
Changing the mindset of the people at large  
Voluntary nature  
No income generation schemes for the people  
Poor salary structure  
Potential staff turn over  
Takes a long time to understand the nature of the project for the villagers initially  
Mushrooming of village knowledge centres all over India so that it threatens the credibility of such institutions  
Commercial interests to use the people as the experimental samples  
Visits made to these villages by the researchers within India and abroad

**Table 5.18: SWOT analysis**

**Major achievements and shortcoming of the centres**

The first and foremost achievement of the centre, according to nine out of the ten project staff was empowerment of women, dalits and the poor and marginalized...
people. However, the remaining staff member felt that the major achievement was the livelihood opportunities for the people offered by the centre. Seven staff members felt that they had achieved a lot by making the government officials responsible for the welfare of the villagers to be accountable to their work, while the rest felt that the centre had still a long way to go in achieving the same. There were divided opinions about the training programmes organised by the centre. While three of them felt that the training programmes were appropriate, the rest of them felt otherwise. On the partnerships front, all the ten project staff strongly felt the need for strengthening the relationships with the government and private industries for both content sharing as well as for creating livelihood opportunities for the local people. However, the staff were not very aware of the micro-enterprises opportunity as much as its need was felt by the beneficiaries.

The project staff members felt that disparities in income levels among the villagers remained while there was a marginal improvement in the lifestyle of the ultra-poor. They also felt the need for a thorough impact assessment of their programme in order to demonstrate its effectiveness. The various technological solutions applied in the info centres were perceived to be very expensive among the project staff. In addition, the project staff felt the need for replicating their efforts in the hundreds of villages in and around Pondicherry. They felt that the project had failed to scale up faster in terms of its outreach and coverage, as only a miniscule percentage of the poor had benefitted out of their experiments.

The empowerment and social inclusiveness issues of the project

The project staff reiterated that the main benefit of the programme was empowerment of the poor and the marginalized people, especially the women and the dalits. They all felt that the programme had empowered the people to demand their right to information. This has also resulted in government authorities’ responsiveness and efficiency. The project staff members are also esteemed very high among the government officials while the local politicians at times felt threatened by the fact that the poor people are aware of their rights.
All the ten project staff felt that the project was gender-sensitive so also pro-poor and pro-marginalised groups. They all felt that the very nature of the project had created a strong sense of unity among the people. They felt that the info centres have become common places where people from all walks of life, of all ages and caste backgrounds were able to freely visit and seek their informational needs. However, the project staff felt that in villages such as Nallavadu and Pooranamkupam, the info centres were quite often occupied by men which prevented women from using them. They were also aware of the fact that a number of men in Kalitheerthalkuppam village perceived the centre to be anti-dalits.

5.4.4 Comparison of data

As mentioned in Section 2.4.2, an attempt to form the questionnaire survey data triangulation enabled the researcher to form an opinion on the same unit of analysis, thus cross-checking one result against another, and increasing the reliability of the result. There have also been contradictory results that bring up important problems with the participatory approaches, as well as fundamental issues surrounding researcher's framework. The triangulation method enabled the researcher to combine multiple techniques such as observation and on-the-spot interviews with empirical materials, to overcome the weaknesses or intrinsic biases that come from a single method of data collection and analysis.

Figure 5.23 below compares two sets of data obtained on the question of what were the benefits passed on by the ICT centre to the beneficiaries. The outer circle in the figure represent the perceptions shared by the volunteers while the inner circles represent the perceptions shared by the project beneficiaries. It is very evident that the beneficiaries were of the opinion that the major benefit of the ICT centre was the receiving computer training while the volunteers felt that the major benefit passed on by their centre was providing training on new skills to the beneficiaries. The second major benefit according to the beneficiaries is the use of telephone at the centre while the volunteers did not think so. They felt offering employment news, providing computer training and facilities were of great value. Both the volunteers and the beneficiaries shared almost the same perception on the rest of the services offered by the centre.
While comparing the above perceptions with that of the project staff members, the trend of variation continues. The biggest benefit to the individuals, according to the project staff was, livelihood opportunities and new skills training. The project staff were divided in their opinion about the computer training offered to the beneficiaries while the beneficiaries valued the service the most. The project staff also felt that the provision of computer facilities to individuals was very valuable.

The above comparison is one example of the many such comparative tables prepared by the researcher for the benefit of the project stakeholders. The comparative tables were presented to the beneficiaries soon after the data was analysed.

Figure 5.23: Benefit offered by the centre to individuals – a comparison data (inner circle represent the opinions of the beneficiaries while the outer circle represent the volunteers’ opinion)
5.5 Primary data collection by the researcher

The researcher undertook a number of observational walks in all the seven project village sites of Pondicherry. A project volunteer from each village accompanied the researcher during these observational walks usually undertaken in the afternoon hours when the participants were available at homes, common places and in tea shops. The researcher had to undertake various steps as suggested by the USAID (1996c) while undertaking these walks, such as, deciding on the focus and the recording methods, and selecting the site and the timing. The main purpose was to independently understand the way in which the people lived, get an impression of the quality of village life, and to assess the natural and physical assets of the village (Barton et al., 1997).

The researcher visited the villages of Embelem, Kalitheerthalikkuppam and Veerampattinam three times, the villages of Thirukanchipet and Nallavadu twice and the villages of Pooranamkuppam and Kizhoor only once. Otherwise, for the purpose of the study, the researcher visited these villages almost everyday for a period of one month.

An observation form was used for recording the specific details to find answers to the livelihoods issues explored in the questionnaire surveys among the project beneficiaries and the volunteers. Although the researcher tried recording the observations like an ethnographer while investigating the information systems aspects as suggested by Myers (1997), it must be admitted that the insights gained were more geared towards the holistic framework designed for the purpose of this study.

In addition to the observation method employed, a number of on-the-spot interviews were carried out by the researcher at the homes of the villagers and among the users who visited the centres when the researcher was present there. This technique was very helpful as a number of women who visited the Embalam centre were interviewed. Otherwise, it would have been very difficult for the researcher to meet with these users. The researcher interviewed a number of elderly people in the street corners and in the fields. In addition to these interviews, the researcher visited the district rural development agency of the government and the social welfare
departments to interview the officials in their offices. During this exercise, the researcher realised that the interviewer's attributes had an impact on the replies of the respondents. It was not possible to determine the extent to which the ethnicity of the researcher had attracted some attention as indicated by Bryman (2001) as an important factor in social research. However, the tendency of some people to agree or disagree, what is known as the acquiescence in social studies, was observed during the interviews. While discussing these issues with the government officials, the researcher came to know that this was a common phenomenon among the rural population.

The on-the-spot interviews conducted by the researcher were quite helpful to double check the information provided by the staff and the volunteers, mainly to find out the reasons for the non-use of the centre by a certain group of people. The researcher chose not to pre-select the questions, but each time entered into a dialogue with the villagers to find out the answers to the above question. Some 50 people were interviewed.

In addition to these walks, the researcher was present at a community meeting organised by the local government for initiating a partnership between the MSSRF and the villagers from Chinnakaraiyanputtur village. This village has lost its income from the sale of illicit liquor due to strict police vigil and is now on the brink of abject poverty as the villagers know no other skills apart from producing and selling illicit liquor to the neighbouring state of Tamil Nadu. The state government has proposed to set up an information centre under the auspices of the MSSRF for enabling the villagers to find new opportunities. The researcher found this meeting to be of great importance to his research programme.

The researcher undertook a number of visits to the seven project villages as well as some non-project villages to study the contrasts in the people's way of life and their day-to-day practices and routines. A volunteer of each of the respective villages always accompanied the researcher. At the non-project villages, the lead evaluator accompanied the researcher. These walks were helpful for the researcher to develop an idea about the villages and the common beliefs held by the people of each village. The following points could be drawn relevant to the study:
Social factors

- **Distribution of holdings by land type:** The distribution of land was uneven with a large number of poor labourers with limited access to farming. A majority of the people were agricultural labourers dependent on land owners. The marginalized and the poor, particularly the dalit community had no access to lands of any type.

- **Existing services, rates of growth, size and characteristics of the service centres:** All the people, invariably whether or not poor were able to access all the types of services available to the villages. However, access to money was very limited. While the affluent and the educated had access to funds from financial institutions, the ICT centre’s intervention in enabling the people’s access to facilities and finances was very crucial. The ICT centre has encouraged many self-help groups to organise themselves and access funds from the cooperative banks. It was very evident that the poor people despite the benefits offered through the ICT centre, remained very poor, and vulnerable to many problems. The existing service centres and transforming institutions were very weak. While the youth clubs were functional in most of the villages, these groups did not appear to be engaged in community work. The cooperative system was seen to be quite strong, however they were not very innovative in their approach in solving the local problems. Local decisions were taken up at the panchayat level, but highly determined by the caste politics of each village. The arrival of the ICT centre was an influential factor to some extent in changing the social dynamics of the villages.

- **Adequacy of communication and physical infrastructure:** The communication facilities were remarkable in all the villages but for Thirukanchipet village. All the villages had telephone facilities. A number of households enjoyed access to telephones. The ICT centres were well equipped in terms of providing access to computers, telephone services and fax facilities. The visitors were able to even use the web cameras for speaking to the people in the other villages. Bus facilities were available in all the villages. The villages had access to clean water and adequate power for their day-to-day living. Almost 90% of the households had
electric supply and access to drinking water. Access to water for farming was very limited as not many farmers had borewell facilities to harvest ground water. The villages received adequate rainfall in all the seasons, but as the majority of the poor did not possess agricultural lands, only the rich and the affluent benefited the most.

- **Settlement pattern – homesteads vs. village:** All the villages visited by the researcher had homesteads together. Their farming lands were away from where they stayed. In some villages, there was a separate colony for the dalits. In the village of Thirukanchipet, most of the people belonged to the dalit community with no access to television and proper housing.

- **Volume of cash flow within the local system:** There was no evidence to conclude that the cash flow was strong. Many labourers depended on their daily wages. The fishermen in the fishing villages earned weekly wages while their wives were able to generate income everyday by buying and selling fish. In Kizhur and Embalam, the people appeared to have access to enough money. Cash flow within the local system was very absent in the farming villages as they depended heavily upon the markets in the township. Many people visited the towns on a daily basis for transacting goods. The cooperative system did not prove to be very helpful to the poor. However, the self-help groups organised by the women were very effective in circulating their savings within the groups. Wealth distribution is uneven in all the villages. Although most of the villagers are poor; the poorer and the marginalized had no access to assets, as most of them were landless labourers.

- **Nature and strength of local leadership:** Nature of local leadership was not strong in almost all the villages. While the Panchayat leadership was instrumental in taking decisions, they met only occasionally. The people had no easy access to their elected representatives or their local leadership. Even at the time of communal fights, the local leadership was not able to exercise its leadership to bring the situation under control. A majority of the people felt that the ICT centre could offer them solutions in areas where their leaders fail.
• Past performance of local projects: Other than the programmes carried out by the ICT centres and their bio village initiative, not many programmes are functional in the villages. Even the extension workers of the government agencies do not visit the villages on a regular basis. This leaves a major responsibility upon the project volunteers to provide answers to a number of government-related queries, and find remedies for many social ills.

• Degree of alienation of different groups: Although the degree of alienation is not very visible, the villages were caste-conscious much more than being communally divided. The dalits lived separately in many of the villages. The ICT centres have given a special status to women, and to the dalits. The Embalam centre is an example for women’s empowerment and their ability to take on leadership roles.

• Nature and importance of communal celebrations, events, rituals and degree of conflicts and factionalism: The communal celebrations were found to be extremely important in all the villages. Special events in the villages ranged from the visit by the local elected representative to their villages to sports events and religious events and so on. The villagers valued all the rituals of the villages with almost all of them participating in both communal as well as household events. The villages are prone to communal conflicts and factionalism. Even during one of the visits of the researcher, there was a major communal clash in the village of Veerampattinam. Such clashes are controlled by the local administration. The people fear the police force and the local politicians.

• Attention and assistance from higher level: Assistance from the higher-level functionaries is seen only during the election times. The government officials and the political leaders pay occasional visits to the villages to receive petitions and suggestions by the community. However, unless lobbying efforts are carried out the villagers do not receive any support from the higher-level authorities.

• Degree of women participation in communal affairs and leadership: There is some evidence to show that the women are able to assume local leadership after the ICT centres have come into existence. The centres have not only given such
confidence among the women, but also a status in the villages. The women of Embalam village are able to voice the grievances of their village to higher level authorities. The women of these villages are allowed by their spouses to travel to various capital cities for participating in workshops, meetings and training programmes.

- **General level of security:** Although many people feel secure in the village, they feel vulnerable to those who exploit them. They find the government officials and the politicians to be exploiting them. The sense of financial security among the poor was low; and generally women in all the villages were seen freely moving about.

**ICT factors: access-related issues**

- **Individual access:** The ICT centre is open for any individual to access. During the researcher's visits, people from all walks of life visited the centre. Among the frequent users were the spouses and relatives of the centre operators, students from nearby schools and farmers with occasional information needs. Not many elderly people and housewives frequented the centre. Not many people who passed by the centre did stop to read the newspaper or the notices pasted outside the centre. The Villianur centre did not attract very many individuals. The same situation was witnessed in almost all the villages but for the women-run Embalam centre. The centre in Kalitheerthalkuppam was found locked at least two out of the several number of visits undertaken by the researcher. The centre in Nallavadu is very centrally located in the neighbourhood. The centre was very crowded, however not many women seem to be using the centre.

- **Gender issues:** As mentioned above, the centres were visited by men much more than the women. Only the women-run Embalam centre was an exception. While the centres in Thirukanchipet and Kalitheerthalkuppam were visited by young boys, during his very many visits, the researcher did not find even a single woman using these two centres. The centre at Pooranamkuppam and Kizhur seem to be attracting a few women. The centres do not seem to be engaged in organising
programmes that attract women to use the centres. Almost all the centres employed women volunteers to staff the centres, yet the volunteers in Kālitheerthalkuppam and Pooranamkuppam were not very proactive as compared to their counterparts in Nallavadu and Embalam. The centre in Thirukanchiptet did not have any women volunteers as staff. Although access is available to anyone, young boys and men were the main users of the centres. The usage of the centres among the women, especially the unemployed and the job-seekers was very poor with an exception of the Embalam centre.

- **Number of visits:** While a record of each and every visitor was maintained at the centre, a glance at the user register suggested that the volunteers did not have a uniform practice. There was no system though which a serious user could be distinguished from a casual visitor. The user register was not maintained in a fashion which allows the project staff to learn lessons from the type and the intensity of usage. On an average, not more than 5 people visited the centre every day. This included the casual visitors as well as those who did not have any special query. It was observed that the volunteers were paid a honorarium for maintaining the user register and the statistics of the number of visitors.

- **Connectivity:** Almost all centres were well equipped with technical infrastructure. The centres in Thirukanchiptet and Pooranamkuppam did not have a direct link to the hub in Villianur whereas the Veerampattinam and Embalam centres enjoyed direct access to the hub. They were able to log on to the file server at the hub through radio modem connectivity. As compared to many other rural ICT centres across the region, the centres in Pondicherry possess very expensive connectivity tools. The main problem faced by the centres, including the hub in Villianur that used solar battery back up facility, was the power outage almost every day. During the researcher’s visits, the power outage was faced everyday leaving the users to wait until the electric supply was restored. It appeared that for the amount of money spent on uninterrupted connectivity the centres were not able to optimise the usage level.
• **Language issues:** The usage of local language attracted many users to the centres, however a wealth of information was still held in English. The volunteers did not possess enough skills to translate all the information from English to the local languages. Attempts are now being made to translate content in English into the vernacular languages.

• **Modes and means:** The information held in the systems was accessible only on the computer. The only other form of information access for the people was through the newspaper published by the hub. Individual centres were not engaged in producing any local newspaper or information in multimedia formats. People were found to be comfortable watching television channels and listening to radio. Radio broadcast was popular in community areas such as tea shops, temple corners, market places, etc. The centres were not engaged in any information dissemination activities at these places which many people frequented every day.

• **Applications:** The various applications used in the centres were limited to MS-Office products. The students and children who visited the centre frequently were exposed to MS-Paint and MS-Power point applications. In addition, MS-Word was also very popular among the users. Neither the users nor the volunteers were accessing the databases directly. The volunteers were able to use the email system and html authoring tools for sending mails and designing web pages. The volunteers were very familiar with the English key board for typing Tamil fonts. Using a combination of keys, they were able to type in Tamil, a language that has 256 characters. Both the users and the volunteers were comfortable working in Tamil language as compared to English.

• **Social inclusiveness:** The centres stood as standing examples of social inclusiveness as there were not many institutions which were open to people from all castes, age groups and gender. The people saw the centres to be the place for anyone to learn and seek information on any topic. The centres that have active women volunteers were pro-active in attracting the marginalized groups. However, the number of people who visited the centre did not exceed 5-10 a day. The centres were not equipped to assist the disabled and the illiterate people.
Hence, the perception among the general public about the centres was that it was a place for the literate and the young people, especially the boys.

**ICT factors: content-related issues**

- **Volume and subject range of content**: The hub and the centres possessed a set of databases on farming, fisheries and marketing information. In addition, the hub is in the process of collecting health and education-related information as well. A number of web pages in English language are being translated into Tamil and being made available on the web. Certain databases are static in nature, hence not being updated on a daily basis. However, the hub is engaged in making dynamic content available to the centres on a daily-basis although in a limited manner. Such dynamic information is limited to only agricultural and weather-related information as of now. As compared to many other information initiatives around the country, the databases in the possession of the M S Swaminathan Research Foundation are rich in content. Attempts are being made to make the content locale-specific to include information pertaining to the needs of the people. Certain information such as the bus time table information was available at the centre, although not frequently used.

- **Formats**: Owing to the fact that half of the population of the villages where the ICT centres operate, are illiterates, the centres should be engaged in capturing and disseminating content in multimedia formats, especially in audio and visual aids. But, the centres are not equipped to provide such material for the benefit of the public. Neither are the centres capable of producing content for broadcasting through mainstream radio and television networks. The local cable TV operators are willing to broadcast material from the centres, but so far no attempt has been made to this effect.

- **Indigenous knowledge**: The centres are not equipped to provide local knowledge for the benefit of their constituencies so also for the other communities. Local and indigenous knowledge is seldom captured. After the introduction of the Open Knowledge Network programme in Pondicherry, attempts are being made to
encourage the local people to share their knowledge through the information centres. However, the centres are not currently taking advantage of indigenous databases developed by other NGOs such as the HoneBee network and GIANS, etc. The only attempt by the centre has been the publication of a local newspaper in print format. Through this fortnightly issue, the centre is able to publish some indigenous content for the benefit of the local people.

- **External linkages:** The external linkages have been very weak as the centres depend extensively on the research wing of the MSSRF. The possibilities of linking up with external agencies such as the Indian Meteorological Department, the various government agencies and the local government departments are being explored. The only collaboration visible at this stage is the linkage with the Defence department of the U. S. government for providing wave height information to the fishermen in the coastal villages.

- **Meeting local demands:** The centres are undertaking genuine attempts to meet the local information needs of the stakeholders, however, for want of linkages and partnerships with external agencies, the centres are not in a position to meet these demands. Quite often, the demands are not just informational in nature, the people expect the centres to offer mediation and lobbying functions on their behalf in order to realise their rights and benefits.

**ICT factors: partnership-related issues**

- **With local people:** The centres enjoy the best cooperation among the local population. The partnership with the local people is very strong at all the centres except for the Villianur centre. The local people not only hold the responsibility for providing space and electricity and the required security for running the centre, but they also supply the human resources to make the centres functional. The volunteers are selected by the local Panchayat in a democratic process. The only condition laid out by the project staff is the inclusion of women as volunteers. The centres in fact operate with the total co-operation and in collaboration with the local people.
With local industries: The partnership with the local industries is absent. None of the centres has been able to attract the local industries either for sponsorship or for providing their goods and services. The local industries do not think it appropriate to advertise their vacancy announcements at the centre. This is due to the fact that there is a deliberate attempt by the local industries to appoint outsiders as part of their workforce. The centres realise their responsibility to change the situation but haven’t yet attempted to approach these industries for potential collaboration.

With local leadership and governing institutions: While the partnership with the local leadership is quite strong, the collaboration with local government institutions such as the department of fisheries, the local banks and the small-scale industries is very poor. The local people and the volunteers do realise the opportunities for collaborating with these institutions, however, they have not taken any step to forge such relationships thus far. The volunteers feel that the project staff should develop such partnerships.

With the government agencies: As mentioned earlier, the partnership with the government agencies is also not very visible. Neither do the local government bodies visit the centres nor do they feel that these centres add value. However, it was interesting to note that the personnel from the District Rural Development Agency were interested in the work carried out by the centres. They expressed their interest in jointly launching a centre in the remote village of Chinakaraiyanpatti.

With technology providers: The centre has strong relationships with a select list of technology providers who are interested in experimenting technological tools and products for the rural masses. This is evident with the partnerships with organisations such as Motorola, Bharat Electricals Limited and World Space Radio Company.

With other NGOs: There is no evidence to demonstrate any linkages or partnerships with the other NGOs that operate in the region. Also there is no
evidence to suggest that the other NGOs are very active in the region. However, if attempts are made, a number of difficulties faced by the centres in terms of meeting the information needs of the local people can be avoided.

**ICT factors: sustainability issues**

- **Economic sustainability:** The centres do not show any sign of attaining economic sustainability in the near future. The project staff are also unprepared for writing any business plan for the programme. The project is donor-funded, and probably will have to be so for a few more years unless the aspect of individual entrepreneurship is introduced as a part of the programme. The small amount of money that is collected at the centres currently does not constitute even 10% of the programme cost, however, the major cost of staff salaries is avoided as the volunteers work free of cost most of the times. Only for maintaining the user registers, they are paid a small honorarium.

- **Social sustainability:** The programme is a clearly an example for minimising social exclusion and maintaining social equity, and at times maximising social equity. People from all walks of life, with no bias to gender or caste can walk into these centres seeking information. The demands from these groups are received invariably, and through the M S Swaminathan Research Foundation’s office in Chennai, attempts are made to provide information to even the most complex of the enquiries.

- **Institutional sustainability:** There is a clear doubt in this area as there is no sign to demonstrate institutional sustainability. But, the emerging partnerships indicate that institutional strengthening might be possible in the long run. It should be noted that the decision-taking processes within the centres are often participatory as the centres join together every last working day of each month to discuss their problems and to take decisions in a democratic manner. It is still unclear if any public or private sector organisations have approached the centres for strengthening the operation. But, there are indications that suggest there is a slight
improvement in the livelihood standards of the lower middle class. This is not so among the ultra poor families.

- **Localisation of the operations of the centre:** Although the centres are locally owned and managed, they are yet to reach the stage of complete autonomy. The centres and the volunteers depend heavily upon the hub and the project staff of the M S Swaminathan Research Foundation. The volunteers do not show enough leadership or willingness to operate independently and take decisions for introducing revenue-generating services on behalf of the centres.

- **Sustaining the skills:** The centres are able to sustain the skills required to operate. The centre volunteers are aware of their limitations and ask for skills development training programmes, not only in information and communication technology aspects, but also in small enterprises activities. As the volunteers are local people who are able to stay in the same village for a long duration, the skills are sustained and passed on to the community.

- **Sustaining the content flow and the demand for information:** The demand for information is quite high at these centres, however, the volunteers are not able to cope up with the demand. Quite often, the demand comes from the regular users while a number of potential users do no use the centre due to lack of knowledge about the services offered by the centre, and also due to the lack of time. The flow of content, both local to global and global to local is very inferior as compared to the demand that prevails.

- **Sustaining the flow of local knowledge:** The flow of local knowledge is found to be key for publishing the local newspaper every fortnight. While the first few issues of the newspaper have included a number of local news items and local knowledge content, this area of activity remains a challenge. It may prove to be difficult if the volunteers are expected to also play the role of news-gatherers and news reporters for the centre.
• **Sustainable self-help groups:** Attempts are now being made to convert the self-help groups that are operating as a follow-up to the introduction of ICT centre, to a sustainable self-help group status. These are being carried out by enhancing the income generation opportunities for these groups through the ICT centre and by empowering them with training for skills development. As an incentive, the project staff have constantly been encouraging the women in the Embalam centre to offer training to the women from the other villages.

• **Administrative staff characteristics:** The characteristics of the project staff are very positive and motivating. Their approach to solving problems and encouraging the centre volunteers is key to the sustainability of the operation. Starting with the top leadership, all the staff members associated with the project do recognise the importance of retaining the volunteers and motivating them to contribute to their communities. Their morale is always very high as they get to interact with a number of academic visitors and development specialists from India and abroad. This aspect alone seems to be a major motivational factor for both the project staff and the volunteers.

**Other factors considered while observing the stakeholders**

The researcher also considered the following aspects while observing the stakeholders. The **farm-level variations** considered during the observation were: Ownership status; On-farm resource availabilities, size, zone, etc; Quality of land and special characteristics; Farm water supply: adequacy, reliability, distance; Farm energy supplies: nature, adequacy, reliability; and, Transportation and communication situation and remoteness. In addition to the above, the researcher also considered the following **household-related variations** during his observation: characteristics: size, age, sex, number of children, household welfare load: aged, informed, alcoholics, young, diseases, etc., household labour resources and allocation, education, experience of farmers and spouses and degree of contact with the extension workers. The **community level variations** such as participation in community: leadership, groups, services, degree of media use, farmer’s level of knowledge on current affairs and social status, and, access to support were very useful in understanding the
characteristics of the villages. The impressions gained by the researcher have been communicated to the stakeholders in the de-briefing meetings.

Some more issues that emerged while conducting the on the spot face-to-face interviews with the beneficiaries:

a) Some elderly people think that the centre is only for the educated and the young, hence they do not use the centre. However, when explained about the information held in the centres and the services provided, they were all willing to visit the centre;

b) A few women do not visit the centre as they find the centres always overcrowded with men. They would prefer a separate time for their usage;

c) Some children do not get to use the centres for there are just a few computers at these centres;

d) Sometimes, when the people come to use the centre, they find it locked;

e) Some people belonging to the upper class feel that the centre holds information only for the lower class and the poor, hence they do not feel like visiting the centre;

f) Some people would prefer a centre that is run in a family home rather than a more common place, with the family encouraging everyone to visit and use the centre;

g) The people are willing to pay for the information supplied if it would indeed enhance their income generation activities;

h) Many small traders felt that the centre should engage in marketing their produce and goods by advertising on the Internet;

i) Many fishermen felt that the centre should provide them training on the preparation of fish pickles and on the cultivation of prawns; and,

j) The farmers although happy with the information provided currently would like the centre to obtain the latest findings from the Agricultural University in Coimbatore, a district in Tamil Nadu that is 350 kilometres away from these villages.
5.6 Secondary data collected by the project staff and the academic visitors

5.6.1 Analysis of the user registers, pictures and dairies maintained at the centres

The Veerampattinam centre was popular among the users for telephoning, while the Pooranamkuppam and Embalam centres did not use the facility very effectively. Health enquiries have been very few at all the centres but for Kalitheerthalkuppam and the women-run Embalam centres. The women users make most of the health-related enquiries.

All the centres have been organising computer training programmes for sometime now. But the people in the fishing village of Nallavadu have benefitted the most. A very poor turnout was witnessed in Pooranamkuppam. There has been a substantial demand for general news at the newly opened Thirukanchipet centre while in Kizhur the demand has been very low. Kizhur is one of the oldest centres functioning for almost four years now. It is interesting to note that at the Kalitheerthalkuppam centre, there has been a great demand for agricultural and farming information as compared to the marginal level of enquiry in Pooranamkuppam which is also a farming village. The enquiry level has diminished in Kizhur, the other village dominant with farmers.

As compared to Nallavadu, fish maps, weather warning-related enquiries in Veerampattinam has been marginal. This may be due to the fact that Veerampattinam has been using a public address system to announce the weather report several times everyday. Kalitheerthalkuppam leads in health enquiries followed by the women-run Embalam centre. The people of Veerampattinam enquire about various welfare schemes much more than their counterparts in the other villages. It is interesting to note that in Pooranamkuppam, there has been a very low-level of interest in welfare news. From Table 5.19 below, it is evident that there has not been a great demand for general news, computer training, phone calls, welfare news and health information at Pooranamkuppam. The centre that receives the most enquiries is Thirukanchipet followed by Embalam, Veerampattinam and then the rest.
Table 5.19: User statistics as per the MSSRF records

The first hand evaluation of the Pondicherry framework proved very useful in exploring the issues around the application of the framework as well as the usefulness of the framework in evaluating an ICT intervention. At the outset, the experiment in Pondicherry among the local volunteers, who acted as the main evaluators has confirmed that the poor people with minimal education can indeed assess an ICT intervention that is aimed at poverty alleviation. The poor do not only have the capacity to identify the relevant issues, but are also able to explore and seek answers to those issues which are of critical importance to them.

5.6.2 Analysis of project evaluation reports and articles by project staff

The following reports were obtained and analysed:

a) Success Stories of Rural ICTs in a Developing Country, a report of PANAsia Telecentre Learning and Evaluation Group’s mission to India (IDRC, 2000)

This study was aimed at performing a comparison and evaluation of the projects being undertaken by each member of the PANAsia group in respect of the installation and operation of rural telecentres. The Group’s approach to evaluating the telecentres it visited was born out of necessity, given the limited time available for observing the
operations of each one of them and for interacting with their users. Nevertheless, the Group believed that it had learned the value of stories in particular and of qualitative data in general, in obtaining a reliable representation of the impact of the telecentres. The context of the evaluation supported the approach, by allowing individuals to express themselves freely and by focussing special attention during each session on the women beneficiaries. The Group had every reason to believe that the stories they heard were genuine and were faithfully transmitted through the translation process. However, the Group acknowledged that the evaluation, depending on its purpose, could in some ways be described as superficial. Evaluations, too, have their contexts, and for the purposes of this mission, the Group considered that the story approach was perfectly adequate. It seemed to the Group that the purpose of an evaluation of this type might determine the balance of its mix between qualitative and/or quantitative methods.

The evaluation covered aspects around the info kiosks, the software used, the keyboard used for typing the Tamil characters, value-addition services offered by the hub, herb-gathering practices, and the information needs of the communities such as fish finding, sea conditions, employment opportunities, information services to students, loan information, small enterprises initiatives and the provision of health information and free health services to the citizens.

Members of the evaluation team considered the mission to have been successful on several counts. First, they felt that the objective of implementing the lessons learned from an earlier planning workshop was accomplished. The team members felt that they were better able to evaluate the telecentre operations and felt that it had demonstrated this capability to good effect. Secondly, the team considered that it had advanced the objectives of the IDRC, in a modest way, by strengthening the capability of each member towards achieving desirable outcomes in their respective projects. Finally, the team believed that it had the potential to extend its influence beyond the immediate objectives through further collaboration that would; provide mutual support and capacity building; foster accelerated knowledge creation and dissemination; generate channels for advocacy among home and regional policy bodies; consolidate diverse experiences into wider opportunities for learning; and add impetus to research efforts directed at achieving development through ICTs.
Towards assessing the impact of the info village project, the project staff of the MSSRF had organised an assessment study to evaluate the project that had established a hub-and-spoke model of data-cum-voice communication in a group of six villages in Pondicherry in South India.

**Access-related statistics**

As shown in Table 5.20, the assessment found that the centres functioned every day attracting over 15000 people during the period between January 1999 and June 2000. The users included, people from asset-less families, students, women and illiterate people. One-fifth of the users during that time were one-time users. The male-female usage ratio stood at 82:18 during the assessment period.

<table>
<thead>
<tr>
<th>Usage statistics</th>
<th>During January 1999 – June 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average working hours (daily)</td>
<td>9.1 hrs</td>
</tr>
<tr>
<td>Time</td>
<td>0900-1800 hrs</td>
</tr>
<tr>
<td>Average number of users (per day)</td>
<td>12.3</td>
</tr>
<tr>
<td>Average Grid Electricity breakdown</td>
<td>94 min/day</td>
</tr>
<tr>
<td>Total number of users in 5 villages</td>
<td>15651</td>
</tr>
<tr>
<td>Total number of female users in 5 villages</td>
<td>2832</td>
</tr>
<tr>
<td>Users from asset-less families</td>
<td>4571</td>
</tr>
<tr>
<td>Illiterate users</td>
<td>392</td>
</tr>
<tr>
<td>One-time users</td>
<td>3674</td>
</tr>
<tr>
<td>Persons below 14 years</td>
<td>4421</td>
</tr>
</tbody>
</table>

*Table 5.20: Usage statistics*
Patterns of usage

As shown in Table 5.21, the pattern of usage varied from seeking agricultural information to government entitlement-related details. The majority of the users sought government information followed by educational and training-related information.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice personal grievances</td>
<td>16.33</td>
</tr>
<tr>
<td>Programme-related</td>
<td>1.18</td>
</tr>
<tr>
<td>Data on agriculture and fisheries</td>
<td>6.69</td>
</tr>
<tr>
<td>Education and training-related</td>
<td>32.01</td>
</tr>
<tr>
<td>Employment-related</td>
<td>2.05</td>
</tr>
<tr>
<td>Health-related</td>
<td>1.51</td>
</tr>
<tr>
<td>Government information</td>
<td>40.23</td>
</tr>
</tbody>
</table>

Table 5.21: Benefits offered by the ICT centre
(according to the project evaluation)

The evaluation concluded that the finding reiterated the first PANTLEG evaluation’s conclusions in November 1999. Those were:

- Development entrepreneurship fosters sustainability;
- Pro-active intermediaries with minimal skills accelerate success;
- Empowering beneficiaries has its own value;
- Technology won’t achieve empowerment alone;
- Sensitivity to the context should be positively prescribed;
- Success is a moving target, so our aim should be flexible;
- Global concepts have local application when sensitively applied;
- Evaluation is time-sensitive, patience is a virtue;
- Replications of principles are superior to replications of practices; and,
- New knowledge is still needed among the rural population.
The assessment learnt that the village centers were able to communicate with each other as well as to the Internet. A hybrid of technologies, wired with wireless for communication and solar with mains for power supply was used to provide connectivity to the Internet through dial-up telephone lines, and the staff there created locally useful content. The village centers received queries from the local residents and transmitted information, collected from the hub (answering the queries), back to them. An important feature of this project was the strong sense of ownership that the village communities have developed towards the village centers. The other key feature found was the active participation of the rural women in the management of the village center as well as in using it. A system of close consultation between the project staff and the rural users had been evolved, so that the information needs were realistically assessed. Quantitative data was collected on the usage patterns, and stories of benefits derived were chronicled. On the whole, the impact was found to be very positive.

iii) Reaching the unreached: How can we use ICTs to empower the rural poor in the developing world through enhanced access to relevant information? (Arunachalam, 2002)

In his article presented to the International Federation of Library Associations meet in Glasgow in 2002, Arunachalam acknowledges that the projects that have placed technology at the forefront without a clear understanding of the context and the needs of the local communities have failed. The mere provision of information does not lead people out of their poverty trap, these efforts need to be complimented with skills and capacities for the people in order for them to convert the information obtained into earning opportunities. Arunachalam clearly states that the MSSRF project has taken an integrated view of development, working closely with the biovillage and the ecotechnology groups of their organisation. He emphasises the need for working closely with other groups and NGOs that are engaged in developmental processes. Arunachalam also emphasises the need for linking up with micro-credit groups and micro-enterprises for providing people with access to income. He calls for partnerships with libraries, primary health centres and like-minded institutions from India and abroad. Arunachalam concludes stating that the info village project is a success story for the integrated approach.
iv) Information technology in developing nations (Shanmugavelan, 2000)

In his article in INTERMEDIA, Shanmugavelan writes that the MSSRF, by making it clear that they would withdraw their commitment to the info centre project after a period, has made the villagers think about the issue of sustainability. This has resulted in the village administration in Embalam apportioning some amount every year out of the proceeds of the tamarind tree auction. Citing that the villagers of Veerampattinam pay Re. 1/- for every local call they make, Shanmugavelan argues that these are signs of becoming self-reliant. However, it is still unclear if the villagers will be willing to pay for information to sustain the information shop after the MSSRF's withdrawal.

v) Towards a knowledge system for sustainable food security, an article by Balaji et al. (2001)

In their article, Balaji et al., write that evaluation of the impact of ICTs on communities is still an open issue in terms of methodologies. Universally accepted norms and methods for quantification of impact assessment using several techniques and parameters, including chronicling of stories are still to be tested and experienced. From the info village experience, according to Balaji et al., it is clear that an information network can be meaningful only if there is significant local content, and such content creation is very expensive. They go on to explain that in a rural system, social and gender barriers to information access are not insignificant, and special efforts are needed to lower them even by a small measure. The economic cost of attempting at this in pilot phase is quite phenomenal. However, they conclude that 'a system of technology-based information exchange is possible so that rural families can connect to the larger, external world in new ways they can derive benefit from'.

vi) Information village, a chapter in Student's Britannica, volume six by Balaji & Balasubramanian (2000)

Calling the info village project as the model for rural development, Balaji and Balasubramanian write that ICTs can play a major role in environmentally sustainable
rural development, not only in reaching the poor but also in helping them to achieve food security and social justice. In the first years of its existence itself, according to Balaji and Balasubramanian, the info village project has transformed a general knowledge delivery system to a locale-specific one, meeting the information requirements of rural families in their particular socio-economic context. It provided knowledge that could be acted upon, and it examined the social, economic, and financial viability of its intervention.

5.6.3 Analysis of reports written by external visitors and academicians

None of the scholars who have visited the information village project have ever dared to criticise the project. They all compliment saying that the "Information Village" programme increases the status and influence of women by making them the primary local knowledge providers. Quoting that the programme has been set up as a scientific experiment with computer system location, association with a preformed community group, and so on, being used as the input variables, Alberts (1999) says that he is enormously impressed with the quality of thought that has gone into this project, as well as by the energy, dedication, and skill of the young Indian scientists who are carrying it out.

At a time of growing unease about the global gap between technology knows and know-nots, Dugger (2000) says, India is fast becoming a laboratory for small experiments like the one at the temple (in the village of Embelem) that aim to link isolated rural pockets to the borderless world of knowledge. Local governments and non-profit groups are testing new approaches to provide the villages where barely anyone can afford a telephone, with computer centres that are accessible to all.

In an editorial article re-written in the journal, Appropriate Technology (2000), the author says that the impact of ICTs on communities is still to be evaluated, but it is already clear that an information network can play a meaningful role in the rural areas, as long as there is significant local content. The task is expensive and further complicated when it comes to developing content in local languages.
A number of papers written by similar scholars, academic visitors and journalists such as Sankaranarayanan (2003) indicate all positive stories about the info village experiment with a large number of stories re-cycled. A number of these academics have paid a quick visit to the Pondicherry villages before writing on the impact of IT in rural areas, and in some cases, like Dargon (2001) and Goswami\textsuperscript{22} (2002), those who have not even visited have also written about the project.

Chapter 6: Discussion

6.1 Background

The research has been a response to the felt need of the ICT community as discussed in Section 5.2. The first part of the study led to the design of the 'Pondicherry Framework' bringing in a methodological holism integrating various evaluation approaches and principles. The second part of the study was aimed at testing and evaluating the 'Pondicherry Framework' to find the value that it offers to the critical mass of available literature on evaluation methodologies. This chapter discusses the merits and demerits of the 'Pondicherry Framework' and attempts at demonstrating how the new approach does have the potential to contribute to the literature on evaluation studies.

6.2 Results of the 'Pondicherry Framework'

The analysis of data explained in the previous chapter enables the researcher to demonstrate that the results obtained through the application of the 'Pondicherry Framework' are richer than that obtained by third party evaluators applying other methods. The approach taken by third party researchers have been mainly a) the conventional research inquiry using external evaluators as an obligation to report back to the donors on the usefulness of the service; b) a peer-learning exercise called, PANTLEG applied by the project managers of IDRC-funded telecentres projects; and c) the outputs of the so-called "rural development tourism" that continues to happen in a number of rural development programmes. The term, 'rural development tourism' coined by Chambers (1983) refers to a variety of external visitors who write rapid reports about the rural programmes. These include, academics and visitors from urban localities and from other countries. The reports submitted by these visitors constitute a critical mass of literature and have created a very positive impression about the info village project among the donor world so also among those who wish to replicate or initiate similar programmes in the South.
6.2.1 Comparison of results obtained in this research with third party evaluators

As discussed in section 5.4, the ‘Pondicherry Framework’ enabled the researcher and the local people to form a partnership to enquire the value offered by the info village programme, focussing on the issues outlined as useful indicators for evaluating rural telecentres in Africa (Whyte, 1999). The ‘Pondicherry Framework’ has examined the following: a) Basic characteristics of the community; b) The role of info centre as perceived by the beneficiaries; c) The behaviour and attitude of the beneficiaries towards the info centre; d) Demand for services; e) Service performance; f) Access-related issues; g) Content related factors; h) Sustainability issues; i) Partnerships factors; j) The role of other transforming structures; and k) Economic and social impacts of the info centre.

Application of triangulation method

The methodology employed in the ‘Pondicherry Framework’ can be classified as an evaluation framework that essentially relied upon three underlying forms of data collection: a) Interviews carried out among multiple stakeholders through participatory techniques; b) direct observation; and, c) review of documents. As discussed earlier in this thesis, observation emphasises the situation, whereas questionnaire survey emphasises the respondent. Document analysis presents a picture that is often one-sided. Crosscutting all three approaches through triangulation (Denzin, 1970; Ianni and Orr, 1979) demonstrates the methodological pluralism. However, as discussed in Section 6.2.1, the discrepancies provide useful hints that lead to synthesis and to deeper insights. Thus, triangulation of data was found to be an important weapon for exposing bias, entailing use of more than one method of qualitative enquiry, while at the same time combining both qualitative and quantitative methods to provide complimentary information. The approach was all the more effective as the project volunteers who were responsible for conducting the interviews invariably acquired many ancillary observations during their enquiry, which were not recorded in the questionnaire. However, as stated by Fielding & Fielding (1986), the researcher supplemented the results through observation methods bringing in interesting insights. Systematic de-briefing of project volunteers every
day after their questionnaire survey may provide as much insight into the subject in question as the questionnaires themselves.

As mentioned in Section 3.4.2, it was found that while employing the triangulation method (Denzin, 1970) employed in this study, this approach revealed contradictory evidence. In some cases, discrepancies identified can be attributed to bias, at the same time provide useful hints that lead to synthesis and to deeper insights. Exploring perceptions on a set of crucial issues using more than one method of inquiry therefore often resulted in more reliable and insightful data. The results synthesised and obtained through the triangulation method are detailed below:

**Basic characteristics of the community**

In the present study, it is evident that the community comprises people from all castes, economic status and occupational groups, with a majority of them living below the poverty line, with less evidence of abject or chronic poverty. However, as the poor face the danger of becoming ultra poor, they seem to be motivated to seek assistance from the info centres to sustain themselves, and if possible, enhance their economic status. The community members place men as earning members and women as housewives as those who offer support to the household. This is evident as there is a marked preference for boys above girls. It is apparent that a good number of men are interested in a leadership position, while they demonstrated little or no efforts in undertaking any community work other than organising isolated religious, cultural or social events. The youths are more likely to offer their voluntary service than their elders. The literacy rate of the community is marginally higher than that of the rest of the villages in the country. About 20% of the community members have received graduate level education. There is a great quest to learn and enhance their knowledge in areas that are immediately relevant to their lives. All the households place their importance on educating their children, especially those at the school going level. However, the elderly people seem neither motivated to learn new skills nor interested in becoming literate.

Despite possessing rich micro-enterprises skills, a majority of landless labourers have not attempted at engaging in self-employment activities, owing to the finances
required. The community members, especially the unemployed tend to blame irrational educational policies and stiff competition as reasons for unemployment. Among the male members of the community, there is great dependence on the government for jobs while the women, both educated and uneducated, have shown interest to engage in self-help group activities. Women's earning capacity is far inferior to that of their male counterparts with their labour for household chores not quantified. The community's social well being is perceived more in the consumer goods in possession than their happiness or security. Drinking habits and quarrelling among households bear a greater social stigma as compared to unemployment or illness. The tendency to volunteer and commit community work is visible among the youth and married women. However, their attitude towards serving institutions or government entities as volunteers is negligent.

Thus, as stated above, the present study enabled the evaluation stakeholders to gain a good picture about the characteristics of the community. It is noteworthy that the evaluations carried out both by the project as well as the rest of the third party evaluators (Balaji & Balasubramanian, 2000; IDRC, 2000; Shanmugavelan, 2000; Balaji et al., 2001; MSSRF, 2001; Arunachalam, 2002), as described in Section 5.5, do not reveal the characteristics of the village to the extent the present study has. The only exception although very limited in scope has been the base line study carried out by the project staff in 1997 while assessing the need for the info village programme. The study offered vital statistics such as how many people owned television sets, what are the forward and backward linkages for information needs and demands among the people and the penetration of telephone services in villages, etc.

The above fact is common to many expensive impact assessment studies (Baker, 2000) such as the PROSCOL study carried out by the World Bank which sought input on specific topics from the specialised skills of a statistician, an economist, an econometrics professor ad a sociologist, yet lost sight of consulting the people themselves (Ravallion, 1999). This scenario can be attributed to fact that the above evaluations have been carried out using conventional methods forming a linear relationship between the donors, evaluators and the beneficiaries (UNDP, 1997), where the purpose of evaluation becomes a donor-focussed exercise. It must however
be stated that the latter evaluations carried out by MSSRF have been focussed to learn the community characteristics with a view to improving their programme.

**Behaviour, attitude and perceptions of the community towards the ICT initiative**

In a triangulation method, as shown in the previous chapter, the present study analysed the perception of beneficiaries of the values and benefits offered by the info centre from three important stakeholders, namely, the beneficiaries, the volunteers and the project staff. There are similar perceptions among the three stakeholders of most of the services offered while certain other areas such as offering telephone services for the community, weather warning information and market prices information are not perceived to be useful by a majority. The amount of time spent by the project volunteers and staff in collating market prices and weather warning information is enormous as compared to gathering and disseminating other types of information such as employment news, farming news, provision of fish zone maps.

While the info centres attempt at providing value-added services to the communities, there is definitely a mismatch between demand and supply, revealing some contradictory perceptions between the project staff and the beneficiaries. As discussed in the previous chapter, the observations carried out by the researcher suggest that the popularity of these info centres among the main stakeholders is less evident as compared to their recognition outside the community. The elderly and the non-users are aware of the number of foreign visitors the project attracts, at the same time are unaware of what these centres have to offer for them in their daily lives. While finding their association with the visiting academics and visitors to be the one of the best recognitions for their input to the project, the project staff and volunteers have not taken enough measures to popularise the info centres among the main stakeholders.

The above findings based on triangulation method (Znanieck, 1925; Triangulation in research, 2001) are contradictory to the number of reports (Dagron, 2001; Sankaranarayanan, 2003), including the donor evaluation studies (IDRC, 2000) that have emerged in the past about the project (Dargon, 2001) so also from the user registers maintained by the project volunteers. One very important perception shared
by a number of young people in Kalitheerthalkuppam was that the centre was an organ to serve the interests of the dalits and low-caste people is not recorded in any of the evaluation documents.

**Service performance and demand**

As indicated in the previous chapter, the IDRC (2000) evaluation has not studied the demand for services aspect in-depth, contrary to the evaluation carried out by MSSRF staff (2001). The present study, as indicated in Figure 5.15, 5.16 and 5.17, has led to gaining a deeper understanding of both users’ and non-users’ demands and needs.

The present study revealed that the daily news sheets prepared by the centre is best served if circulated in print format as opposed to storing on centre computers. It is evident from the Figure 5.18 that certain traditional services and information offered at the centre did not seem to be popular any more. However, only agricultural information seemed to be still popular as many users and non-users expected the centres to continue to provide such information. Performance level indicators suggested by scholars and institutions ((Kempson, 1990a, 1990b; Menou, 1993; Griffiths, 1996; UNESCO, 1997; Sturges & Wallis, 1999) have not been applied in many studies in the past, including the evaluations carried out the project. It should be noted that a number of questions in the present study lead to measuring the service-level performance.

**ICT-related issues: Access, Content, Partnerships and Sustainability**

As shown in Section 5.4.1, the present study has attempted at understanding the access-related issues in the following: the community’s proximity to the info centres; the usage pattern compared with their literacy rate, educational qualifications, sex, age; their ability to access information vis-à-vis their economic status, their mobility; visitation to the centre by users and non-users; their access pattern; and, the factors that discouraged their access to the centres. Most of the ICT impact assessment studies have focused on access issues to a large extent around quantitative data such as how many people accessed (Rodriguez, 2000), identified information, what technologies were used prevailing condition of uneven and unequal access to
information and communication technologies in rural and or remote areas (Qvortrup, 1998; Gomez & Hunt, 1999; Latchem & Walker, 2001) and performance measurement and how many jobs were generated. However, not a single ICT impact assessment study has so far focused on a broad range of human and livelihood issues. The present study attempted at looking at the economic and social status of the community to learn their pattern of usage and demand.

On the content front, the present study has focused on issues such as, the demand, the usage, the coverage and scope of content held, the language and the format of content, the specificity and the relevance of content through a number of comparative analysis on the community information needs Vs their demands, Vs usage pattern and so on. In addition, the present study, unlike many other evaluation studies including the ones carried out by the project (IDRC, 2000; MSSRF, 2001), has explored if and how the community would wish to share their knowledge if they were asked to do so. However, as observed by Liff & Steward (2003), the present study did not attempt at studying the social connections that are requisite for interactive learning.

Recent studies have resonated the arguments, outlined in Section 4.5.1, calling for fruitful partnerships for the successful initiation of an ICT-led information project (Vaughan & Teague, 1997; Young et al., 1997; Richardson & McConnell, 2000). Richardson (1996) points out in a study of internet-led projects for rural and agricultural development, the issue of partnership between information providers and the communities as very crucial for achieving sustainability and success. While covering the above aspects, the present study also looked at, as shown in Table 5.16, a number of other issues. It is noteworthy that the project staff and volunteers have since taken the issues emerged and reported in Table 5.16, in establishing and strengthening partnerships with a number of content and technology providers.

A number of case studies show that ICTs can enhance development projects. However, it has not been conclusively demonstrated that an ICT activity directed at increasing income for the poor can, on its own, generate cost recovery inclusive of setup and replacement costs, in other words, gaining economic sustainability.

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23 Many of these can be browsed on the Digital Opportunity (http://www.digitalopportunity.org) Channel and the Development Gateway (http://www.developmentgateway.org)
(Batchelor et al., 2003). While the situation is such that, ICT experts and implementers argue that the sustainability factor should be seen in the wider context of institutional frameworks, local capacity, programme objectives and developmental benefits. The present study, as discussed in Section 5.4.1, helped to take the latter view of exploring the local capacity, sustained demand, community involvement, content-flow, generation of local content, women's empowerment and willingness to pay for service as pointers to sustainability. It is noteworthy that the past evaluations of info village project have not critically looked into the above aspects.

The role of other transforming structures

As shown earlier in Figure 4.1, a community's ability to access the livelihoods assets depends greatly on their contexts, quite often, vulnerable if they are poor. The Sustainable Livelihoods Framework (DFID, 1999) recognises the factors that make people vulnerable may be altered by strengthening the existing or new transforming structures and processes. It is believed that such structures would, in turn, influence the people's ability to access their assets and formulate new strategies for enhancing their opportunities (Carney, 1999; Carney et al., 1999; Ashley & Hussein, 2000; Adato & Meinzen-Dick, 2002).

The present study looked at the potentials of other institutions such as the schools, hospitals, cooperative societies, self-help groups, private sector industries and other NGOs and their ability to partner with the info village programme. Although, there has not been enough evidence to suggest that these institutions have contributed significantly to the poor people, the emerging partnerships with micro-credit agencies and banking institutions look promising. As stated, the government agencies are interested in working closely with the info centres to enhance the living conditions of the poor.

Unlike the present study, none of the past evaluation studies of the info village project (IDRC, 2000; MSSRF, 2001) had attempted at studying the potentials of other institutions. Following the results of this evaluation, in recent months, it is worth mentioning that the info centres have established partnerships with a number of local institutions such as the State Bank of India, Fisheries Department of the government,
Indian Meteorological Department, local schools, Aravind Eye Hospital, Tuberculosis Research Centre and local Cable TV operators.

**Economic and social impacts of the ICT Initiative**

There is hardly any evidence to suggest that there has been a significant improvement in the economic status of the community as an outcome of the ICT initiative that has existed for the past few years. However, there is much evidence to demonstrate that the social status of women has improved in only-women run Embelem village while the same scenario is not witnessed in other villages. This fact is recorded in many studies in the past. However, the present study takes a view that the skills and expertise of the women from Embelem need to be shared among the rest of the villages.

6.2.2 Richness of data obtained by applying the ‘Pondicherry Framework’

From the above section, it is possible to suggest that the data obtained in the present study are richer than the other studies in various aspects. The study examined issues around ICT initiatives in rural areas wider as well as deeper as compared to the third party evaluations that have applied other methodologies. Since the present study is rooted in participatory approaches to inquiry process, the involvement of local people as question-makers has been one of the main reasons for obtaining rich data. Further, the study also led to considering wider social and technological issues that affect the poor people's ability to benefit from an intervention such as the one introduced by the M S Swaminathan Research Foundation. Application of human rights and sustainable livelihoods principles (Ashley & Hussein, 2000) have enabled the study to look at other transforming structures and their relationship with the info centres.

As described by Ravallion (1999), a majority of impact assessment as a short route to analysing social programmes often result in turning the evaluation exercise itself a very expensive one. Often, the sources of bias, the values of baseline surveys and control variables of data are considered by people who do not have any basic knowledge of the community they are hired to evaluate. The present study placed the local people to explore the strengths and weaknesses of the programme so as to point
to lessons that could be learnt. The results described above and the previous chapter demonstrate that the local people, although poor, know to ask the right questions and also seek right and truthful answers to the questions posed.

6.3 Discussion on the components of the ‘Pondicherry Framework’

Despite the messages that emerged from the critical review of literature from the thousands of research studies on various aspects of impact assessment, the consultation undertaken in Phase I of this study made it clear that it was necessary to develop a new model based on participatory approaches. The preliminary questionnaire survey among a number of ICT experts revealed the need for a new framework, applying participatory approaches. As shown in Figure 5.1 and discussed in Section 5.2.2, 91% of the respondents supported the need for a new model that applies participatory approaches.

The argument for a new model is further strengthened with the call for more focussed evaluations of ICT initiatives (Morales-Gomez & Melesse, 1998; Richardson, 2000; MacLean et al., 2002) so as to show how these tools could meaningfully assess and monitor gender-related issues, and impact on society and culture (Richardson, 2000; Wanrock, 2001). The need for understanding the ICTs and their consequences in people’s lives, as explained in section 2.5, has been only partially addressed. It is only now that very many research groups are actively involved in exploring the social, economic and policy issues arising from new technologies, especially involving the ICTs.

As argued in Section 4.5, the need for developing an approach based on methodological holism was further felt when it was clearly seen that the existing approaches to impact assessment were best suited to traditional developmental projects, but not the ones involving the ICTs. The need for a new model for impact assessment is thus argued on the basis of the following key points:

- Assessment of developmental projects, even the available ICT studies most often focussed excessively on the increase in cash (Richardson, 1998; Ashley & Hussein, 2000; Espita, 2001), the increase in production, or the number of
jobs generated, rather than reflecting upon the process in order to learn lessons. Among the impact assessment frameworks, only the SLF looked at broad range livelihood issues and wider social issues, while none of the other frameworks focused enough on the processes.

- Project impact assessment exercises carried out by the project staff quite often look at the achievements and tend to be oriented towards management issues such as cost-effectiveness, cost-benefit analysis and monitoring of planned project activities (Menou, 1993; McConnell, 1998; Espita, 2001). To gain a broad picture of the project's status with the objective of reducing poverty, it is indeed important to focus on wider social issues, and take into account a number of immediate, internal and external stakeholders' efforts that influence people's ability to access information through the ICTs (Carney, 1999; Stoll et al., 2002). This would mean that the assessment has to look beyond the beneficiaries to consider all the stakeholders.

- Sustainability issues have so far focussed only on the financial aspects (Espita, 2001), however, it is important to measure the level of sustenance of factors both internal and external to the project (McConnel, 1998).

- Finally, there have not been many models in the ICT world that help the local grass-roots initiatives to reflect upon the processes and learn lessons. If one of the existing methodologies or frameworks, as described in section 4.4 were applied to ICT projects in developing countries, it is likely that a high proportion would fail due to the complexity of issues and different target outcomes. Hence, a combination of approaches and methods together with good governance principles has given birth to the 'Pondicherry Framework' for assessing the impact of ICT initiatives in pro-poor settings.

In order to develop the new model required to be formulated specially for the present study, as discussed in section 4.3 and 4.4, the existing models were carefully looked at to identify the relevant and appropriate approaches that could be integrated for assessing the effectiveness of ICTs in people's lives. This led to the creation of the
ICT triangular model, which fits into the holistic 'Pondicherry Framework', shown in figure 4.9.

6.3.1 People's participation in the evaluation process

None of the evaluation methods other than the ones using participatory methods and the SLF give the people great importance in the evaluation. The 'People' have always been seen as the mere subjects of most of the evaluation processes (Baker, 1998), and in some cases, mere-rubber-stamps (Christian Aid, 2001). However, even those who applied the participatory methods found it extremely difficult to rationalise their own stake in the evaluation (Johnson, 1993). The present study, on the contrary, provides equal stakes to both the people and the external evaluator. Following the principles outlined in a number of studies and suggested methodologies, the present study placed the people at the centre of the evaluation (World Bank, 1999b), and enabled them to play the role of the question-makers (USAID, 1996d: UNDP, 1997). However, as the facilitator, the external researcher had to ensure that the people included certain crucial questions outlined in the DFID's human rights principle such as the inclusiveness of the project (DFID, 2000b).

There have been only a few studies that discuss the importance of peer review. The present study used the people themselves to peer review the questionnaire developed by the evaluation team. Further, as outlined in the World Bank's methodology (1999b), the people themselves have carried out the data-collection. To supplement their efforts, the researcher had acted as an observer to the evaluation process and carried out a study among the project staff themselves. This method is different from the one employed in the PANTLEG study where the project staff from one project evaluated their peers in the other projects (Harris, 1999). As explained in Section 6.1, the data obtained in the present evaluation is far superior to that of the PANTLEG study.

Most of the studies that follow the participatory approaches do not discuss in detail the data analysis methodology adopted in the evaluation process, let alone people's role in the process (Reiley & Gomez, 2001). However, the present study does not pretend to have used the people themselves for data interpretation, rather, the
researcher completed the task. Reflecting upon the capacity of the local people, it may be possible for them to undertake the analysis part only when they are trained in research data analysis skills. Hence, the role of an external evaluation was deemed to be necessary to analyse, interpret and present the results to the main stakeholders. The researcher had to depend heavily upon his observational skills and the understanding gained over the period of the entire research programme for interpreting the data. As stated by Baker (1998) and Earl et al. (1998), the evaluation team demonstrated the capabilities to discuss and determine the objectives and outcomes of the research, based on which the data analysis was carried out by the researcher. But, the people if they were to analyse the data must be provided with all necessary tools to carry out the task and the evaluation teams must take advantage of the people's local knowledge while interpreting the data and developing action plans (World Bank, 1999b).

The people's role in discussing the results and developing follow-up action is very crucial for any evaluation study. As indicated by Whyte (1998), the implications of data-analysis should have resulting effects. This can be achieved when an effective information system is established to disseminate the findings to all the stakeholders at all levels. The 'Pondicherry Framework' lays its utmost importance to communicating the results to the local stakeholders first, and of course, to all the other stakeholders. It must be stated that in the present study, the process of discussing the results was not limited to just a single day's presentation or a report presented to the stakeholders. The researcher undertook a number of visits to meet the local stakeholders to explain the outcomes and learning points that emerged in the research and worked with them to help implement the learning points.

The 'Pondicherry Framework' requires a careful implementation of the evaluation process. It is essential to begin with the involvement of the local people as the main stakeholders in the evaluation process as prescribed by the UNDP (1997). As experienced in the present study, the purpose, the methods, the role of the evaluator and the impact of the evaluation may vary considerably depending on the type of evaluation and the level of participation by the donors, the stakeholders and the beneficiaries. As shown in Table 6.1, in the high-degree, the stakeholder becomes the evaluator rather than the donor, while in low-level participation, the donor commissions an evaluator to carry out the task.
### Table 6.1: Dimensions and scope of stakeholders' participation (UNDP, 1997)

<table>
<thead>
<tr>
<th>Participation</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Evaluation initiator</strong></td>
<td>Commissioned or obligatory evaluation, typically part of programme development. Meets institutional needs. Evaluation done to, on or about people</td>
<td>External evaluator invites end-users to assist in one or more evaluation task(s)</td>
<td>Evaluation in which end-users collaborate with external facilitator or among themselves to assess, review and critically reflect on strategies formulated for them</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>Justify or continue funding. Ensure accountability. Levels of funding or sustained support</td>
<td>Gain insight into development activity from end-users' perspective. Shift focus from institutional concerns to end-user needs and interests</td>
<td>Promote self-sufficiency and sustainability by linking end-users to evaluation planning cycle. Develop relevant, effective programme and decision-making based on end-user views, opinions, recommendations. Increase ownership in &amp; responsibility for success/failure of development interventions</td>
</tr>
<tr>
<td><strong>Question</strong></td>
<td>Agency heads, administrators, outside clientele, persons' distances from evaluation site</td>
<td>End-users with external evaluator at various stages of evaluation generally determined by the evaluator</td>
<td>End-users, external facilitator, persons most affected by development intervention</td>
</tr>
</tbody>
</table>
The present study applied the middle level of participation by the stakeholders. Since the evaluation was initiated by the researcher for an academic purpose, as shown in Table 6.1, the researcher invited the local people to form an evaluation team and

<table>
<thead>
<tr>
<th>Methods</th>
<th>Established research designs, statistical analyses, reliance on various quantitative methods. Findings oriented, mathematical in nature. Dominated by math whiz kids.</th>
<th>Qualitative methods favoured but also includes quantitative methods. Values a process focussed on open-ended inquiries. Uses methods that give voice to voiceless</th>
<th>Relies on highly interactive qualitative methods but does not disregard quantitative tools. “The process is the product”. Inventiveness and creativity encouraged to adopt the methods to the context being evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluators</td>
<td>Evaluator takes the lead in designing evaluation. Formulates questions / survey forms with no input from those evaluated. Steers overcome by setting design. Assumes objective, neutral, distance stance</td>
<td>Evaluator works collaboratively at various stages with end-users. Is partner in evaluation and imparts evaluation skills. Shares lead with end-users</td>
<td>Evaluator becomes more of a facilitator. Facilitator acts as catalyst, confidante, collaborator. Takes lead from end-users. Has few if any pre-determined questions.</td>
</tr>
<tr>
<td>Impact/Outcome</td>
<td>Reports, publications circulated in-house. Findings rarely circulated among end-users. Findings loop into planning stage with little input from end-users</td>
<td>Shared data gathering but limited participation in data analysis. End-user views loop into planning stage. Increased understanding of end-user experiences</td>
<td>End-use more capable of meaningful decision-making based on effective involvement in evaluation. Findings become property of end-users or community. Participation in analysis is critical.</td>
</tr>
</tbody>
</table>

**Table 6.1: Dimensions of stakeholder participation**
consider participating in the research. The purpose of the evaluation was not aimed at measuring the success rate of the ICT intervention, but rather to gain an insight into the ICT intervention from the perspectives of the beneficiaries.

The questions were asked by the local people, thus making the degree of stakeholders' participation high. However, the methods employed in the present study limited the stakeholders participation to medium. The role of evaluators was played by the local people whereas the researcher turned his role to that of a facilitator while he also played a lead role in observing the community and analysing and interpreting the data obtained through the process of inquiry.

6.3.2 The role of external researcher

In the present study, the team consisted of the researcher as the facilitator and the local people as the main evaluators. As shown in the Table 6.1, both the local people as well as the researcher played key roles in equally dividing the stake among them. Not many studies and evaluation approaches see an equal partnership such as the one proposed in the 'Pondicherry Framework'.

A range of skills is needed in an evaluation work that aims at achieving high quality output that would feed into policy environment as well as lead into further action. In a typical donor-driven evaluation, the broad responsibilities of team members include the following personnel (Baker, 2000): an evaluation manager; policy analysts; sampling experts; survey designers; fieldwork manager and staff; and, data managers and processors. But, in a local community initiative as it is impossible to build such a cost into the intervention for assessing the impact, the local people together with an external facilitator will have to undertake the responsibilities of the above personnel as in the case of the present investigation. The evaluation team constituted for the purpose of the present study included a lead evaluator selected by the team and a host of volunteers who agreed to be the members of the evaluation team.
<table>
<thead>
<tr>
<th>Evaluation steps</th>
<th>Main evaluator</th>
<th>Facilitator</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question-maker</td>
<td>Local people (The project volunteers)</td>
<td>Researcher</td>
<td>The researcher should play a crucial role, but the local people should finally own the questions and be the question-makers</td>
</tr>
<tr>
<td>Peer-review</td>
<td>Local people</td>
<td>The project staff</td>
<td>A focus group meeting should help the process</td>
</tr>
<tr>
<td>questionnaire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalising the</td>
<td>Local people</td>
<td>Researcher</td>
<td>The local volunteers should have consensus, but the researcher should influence the inclusion of the questions of greater importance</td>
</tr>
<tr>
<td>questionnaire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation team</td>
<td>Local people</td>
<td>Researcher</td>
<td>Attempts should be made to achieve 50%, participation by women as team members</td>
</tr>
<tr>
<td>Lead evaluator</td>
<td>One among the local people; researcher</td>
<td>Local people; researcher</td>
<td>The lead evaluator should have a greater understanding of the intervention and the evaluation objectives, and be a team player</td>
</tr>
<tr>
<td>Data-collection</td>
<td>Local people</td>
<td>Local partners</td>
<td>Knowledge of local issues is crucial; some capacity building will help</td>
</tr>
<tr>
<td>Target setting</td>
<td>Local people</td>
<td>Researcher</td>
<td>The researcher should sensitise regarding the need for including the disadvantaged, women and children in the sample</td>
</tr>
<tr>
<td>Sampling technique</td>
<td>Local people</td>
<td>Researcher</td>
<td>The researcher should present a few options for sampling</td>
</tr>
<tr>
<td>Observational</td>
<td>Researcher</td>
<td>Local people</td>
<td>The researcher needs to be articulate, unbiased, and highly sensitive to local cultural issues</td>
</tr>
<tr>
<td>walks</td>
<td>(preferably, one person)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Face to face</td>
<td>Local people; researcher</td>
<td>Local partners</td>
<td>The researcher should also interview a random sample in order to ascertain the quality of data</td>
</tr>
<tr>
<td>interviews</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus group</td>
<td>Local people</td>
<td>Project staff</td>
<td>The local people should convene and conduct these meetings, and the researcher should play a passive observant role in most cases</td>
</tr>
<tr>
<td>meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-the spot</td>
<td>Researcher</td>
<td></td>
<td>It proves useful if the researchers carries this out as an independent exercise,</td>
</tr>
<tr>
<td>interviews</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table: 6.2 The evaluation stakeholders
The local people consisting of a lead evaluator and his team members performed most of the tasks shown in Table 6.2 within three months, thus minimising the cost of the process. It was observed that the approach not only costs less, but yields rewarding results. In the present study, a volunteer played the role of the lead evaluator while the researcher embraced the role of the facilitator. The local people formed part of the evaluation team that included the project staff and project volunteers. Quite often, the local partners substituted for the researcher in facilitating certain tasks as shown in the Table 6.2.

The role of the researcher was demanding and complex in approach as pointed out by Feuerstein (1998), a pioneer in the evaluation field. As she states, wherever local people either forget or do not want to look at given areas, the facilitators can play a key role in asking the right kind of questions. The role evolved into a crucial one for the evaluation exercise, as the researcher was able to bring other experiences, perceptions and dimensions to mind.

The dimensions of the researcher in the present study bring to light the following issues of importance as raised by Feuerstein (1998):

- A relationship of trust and confidence was rapidly established between the researcher as facilitator, the project staff and the participants;
- The researcher had to culturally be able to identify with the project staff and the participants, thus increasing the range of mutual learning and sharing opportunities;
- The role of the researcher as facilitator was clearly explained, clarified and agreed upon right in the beginning;
- Negotiations with the direct, indirect and immediate stakeholders were necessary and the evaluator had to forge this relationship by explaining the evaluation objectives set out by the evaluation team and the methodology to be adopted for the study;
- The researcher had to time and again explain the rationale behind the participatory approach, and the qualitative and quantitative data collection and analysis techniques;
A non-directive leadership style was most exercised, with the researcher and the lead evaluator assuming the overall responsibility with the context of shared leadership;

- The researcher had to show sensitivity to local issues and should volunteer to offer assistance in sensitive areas only when asked for;
- The researcher and the lead evaluator had to possess skills to diffuse and resolve situations of tension and possible differences in viewpoints during the evaluation process;
- The researcher had to fill the gaps left behind by the evaluator to cover the issues around the four ICT pillars according to the local context and demand; and,
- Finally, the researcher while applying the 'Pondicherry Framework' had to have the ability to get the methods to fit people rather than get people to fit the methods.

6.3.3 The ICT triangle

At the core of the 'Pondicherry Framework', the researcher's ICT triangle has been placed. The pillars that form the triangle, namely, Access, Content, Partnerships and Sustainability are the issues that arguably lay the foundation for bridging the digital divide (BICA, 1999; Tasknet, 2000), and more importantly for bringing the poor people closer to accessing information that they could not before. These issues also offer opportunities for the pro-ICT policy-makers to recognise the role of the ICTs as a part of the process that strives to alleviate poverty faced by more than half of world's population (Armstrong, 2002; Ballantyne, 2002; DFID, 2002; Kenny, 2002). The e-mail discussions with the ICT experts at the very early part of this research sounded out the importance of the issues highlighted in the triangle. The respondents found the following issues of importance: The role of the ICT intervention; Inclusiveness of the intervention; Technological factors that affect the people's ability to benefit from the intervention; Gender and training issues; and, Sustainability and partnership factors.

The wider consultation undertaken by the researcher in the third phase of the research again highlighted these issues as discussed in Section 5.2.4. The ICT leaders from
South Asia identified the following four issues to be of great importance in building a knowledge society with the aid of ICTs: Access, Content, Technology and Empowerment (Shadrach, 2001a). The second consultation during this phase among the urban poverty experts highlighted the issues around people's participation, the involvement of women, the role of key informants and the impact of information as the ones that informs information research in this area (Shadrach, 2001b; Schiderman, 2002).

In the field study, these issues dominated most of the focus group discussions while designing the questionnaire. The very fact that the local evaluation team brought up these issues indicates that the issues do not only remain at the policy-level, but are also grounded on grass-root realities. The questions posed by the team touched upon all the four pillars of ICTs although the team concentrated more on the access and content issues. The questions were not very different from those published in a number of available ICT studies where the researchers were the question-makers (UNDP, 1997; Young et al., 1997; Vaughan & Teague, 1997; McConnell, 1998), thus demonstrating the ability of the poor in assessing their own lives. It may be emphasised that the people adapted to the role of the question-makers without much of a problem and some questions included in the study would not have featured had it not been for their involvement in such a capacity.

The available evaluation studies in ICT research have thus far focussed heavily upon the cost-benefits aspects as well as the access-related issues (Menou, 1993; McConnell, 1998; Richardson, 2000). The present study however laid its emphasis on the access and content aspects inquiring more into ICT-led services and products. Almost all the questions asked directly or indirectly match with one of the four pillars identified for the study.

Access-related issues

A number of factors mainly drawing from the possibilities of closing the digital divide; new opportunities for e-commerce; and, the increased recognition of the business and economic benefits of the ICTs have stimulated many nations to develop their national information infrastructures all over the world since the Maitland report
was tabled in 1984 (Independent Commission for World-wide Telecommunication Development, 1984). The policy and infrastructure issues relating to enabling of the environment, deregulation of markets, the risk of exclusion and the supply and demand constraints dominate ICT research at one end of the spectrum (Independent Commission for World-wide Telecommunication Development, 1984; Hamelink, 1999; Kenny et al., 2000; DFID, 2002; WSIS, 2003).

At the other end of the spectrum, the non-governmental organizations argue that unequal access issues are not just between the North and the South, but also within the South, and unless this is addressed, the ICTs will remain in the hands of the urban elite (Arunachalam, 1999; O'Farrell et al., 2000). The telecentre approach is an intermediary effort undertaken by various development organisations, especially the NGOs to address the gap until the technology reaches 'all' people (Rose, 1999; BICA, 1999; ITU, 2001). However, these intermediary organisations also face 'access' issues at their local settings as 'access' has traditionally been a non-entity to the disadvantaged and the under-privileged in many societies (Madon & Sahay, 2002; Shadrach, 2002a). There are a few assessment exercises underway (Gomez et al., 1999). The access to basic services such as health, education and social welfare services have proven hard for the poor, let alone access to the ICTs. The 'access' issues, therefore for many pro-poor ICT interventions, are no different from those addressed by the development world. As explained above in Section 6.2.1 and in Section 5.4 of the previous chapter, the evaluation based on the 'Pondicherry Framework' focussed on the social and technological factors that enable/disable people's ability to access the benefits passed on by the ICTs. The evaluation highlighted a number of access-related issues as important while evaluating ICT initiatives in rural areas.

Content-related issues

It was evident from the evaluation exercise that the issues around 'Content' are important while assessing the impact of ICT initiatives in developmental interventions. As scholars argue, the present study also indicates the fact that Access and Content issues are inter-linked as the evaluation points to the need for locale-specific, demand-driven content for witnessing a good access rate, as also stated by
BalaJi et al. (1999) and Armstrong (2002). In order to achieve this, as reflected in the email consultations carried out in this research, the people should be consulted at every stage to get the content right. In addition, as discussed in chapter 2, the role of the ICT projects has been at the centre of several debates as the expectation level exceeds the traditional information services offered by the libraries, traditional print and electronic media, the government's public relations agencies and similar entities. Scholars see the ICTs to be opening up possibilities for a new two-way relationship between the information providers and the recipients, be it from government to citizen, or citizen to government, private to citizen and so on (Dotforce, 2001; Westcott et al., 2001; Tettey, 2002).

The present study, which evaluated the 'Pondicherry Framework', and the ICT triangular model, in particular, emphasised the above issues. The questionnaire compiled by the users that tested the framework contained more than 20 questions dealing with the issues of content and the potential role of the ICT centres. As indicated by Ballantyne (2002), this study also found out that many individuals in the community are unaware of the fact that their knowledge is valuable and useful. 50% participants of the present study felt that they possessed valuable knowledge that could be shared. Based on the present study, the project implementers consider it important to motivate the production of local content as an instrument to the upkeep of the communities' cultural and societal values. Making such content visible is the responsibility of intermediary civil society organisations. In doing so, the study also points to the importance of local language issues. Hence, as stated by Avegrou (1998), while an ICT intervention must be evaluated thoroughly by the content it offers, it is equally important to assess its capacity to capture local content that connects with the local tradition and appropriateness.

The study also revealed the importance of promoting local ownership and participation in the shaping up of the content capturing and delivery mechanisms of the ICT intervention. Many experts find this aspect important as the government's top-down approach of delivering content without any consultation has invariably failed in the past. The way in which content is created and exchanged is as important as the content itself (Ballantyne, 2002). Hence, the present investigation points out that it is highly important for the ICT centres to apply the appropriate methods to
document and disseminate information in formats that are acceptable to the local settings.

Addressing language issues is another challenge facing the ICT centres at the local level. Much of the content available on the Internet is in English (Lavoie & O'Neill, 1999), although not everything is relevant to the poor. The intermediaries such as the info centres have undertaken to translate the global content into their local languages. The present study recognises that these local actors need analysis, adaptation, translation and synthesis skills if they are to blend the foreign and the local content to create new forms of content that is specific to the communities they serve. The availability of these skills in an ICT centre may serve as indicators for the evaluation exercise. Based on the experience gained in Pondicherry, the arguments put forward in Section 4.5.1 gain importance while evaluating an ICT initiative.

Partnership issues

The importance of partnerships highlighted by a number of scholars (Fuchs, 1998; Robinson, 1998; Richardson, 1999; Mansell, 2002) has been reflected throughout the present study, in particular, in the researcher's preliminary consultations described in Section 5.2.2 and in both the email discussion lists discussed in Section 5.2.4. However, the field study among the beneficiaries significantly confirmed this aspect. The expectation level on the ICT intervention in Pondicherry has been very high. The participants expect the ICT intervention to provide a number of services in partnership with various public, private and local authorities. A few of their expectations range from creating job opportunities for the local unemployed skilled and semi-skilled workers to negotiating with local industries for skilful employment, and liaising with the Fisheries department of the government to provide handheld devices to track fish density in the sea and so on. The importance of partnerships with government agencies for providing wireless equipment for sea-to-shore communications and local entrepreneurs and professionals to provide daily news over the cable TV networks are a few examples of the many such requests.

Due to the relatively high costs of implementing ICTs in rural areas, very few local organisations or entities can afford to proceed with meeting the above demands. This
only calls for creative and multi-sectoral partnership possibilities in order to generate strong, collaborative efforts and to ensure project objectives. The study also revealed that only through the creation of local, private and public sector collaborations, ICT projects will be able to better equip themselves with the human, technical and financial resources that are needed for the ICT initiatives to become self-sustaining while also contributing to sustainable development results. The study also resonated with the need for linking micro-finance institutions with the ICT intervention which has been felt in two other studies (Richardson, 2000; ITU, 2002). The majority of the participants found that the information supplied by the ICT intervention would indeed be helpful if a small amount of capital was made available to them. This would enable them to undertake self-employment activities. There is a great need to link up the participants with the marketing agencies that promote agricultural produce and commodities.

The present evaluation framework provided for studying the sustainability aspects of the project. Open-ended questions brought to light the need for stronger partnerships. Although the MSSRF has forged appropriate partnerships in the area of technology development, it must however be stated that the ICT intervention in Pondicherry will have to go a long way in forging many more such partnerships in order to supplement its human, technical and financial needs. To some extent the MSSRF initiative has established partnerships with the government and research organisations, but again, based on the great demand, the project should establish partnerships with many more public and private sector entities. In addition, the 'Pondicherry Framework' allowed for the identification of local champions and politicians to promote the initiative.

Sustainability issues

In sharp contrast to the sustainability debate on ICTs that concentrates on the aspect of cost-effectiveness (Bayes et al., 1999; Khumalo, 2001), the 'Pondicherry Framework' looked at the content, staff skills (McConnell, 1998), the community's capacity to adapt, learn and apply knowledge (Ballantyne, 2002), ownership, content flow, participation and others issues as the factors underpinning sustainability. In addition, the framework considered marketing of the intervention and demonstrating its benefits to the non-users as a key to sustainability.
The present evaluation identified the need for sensitising the government officials and the private sector entities about the merits of ICTs, and considered this as an element for the sustenance of the project. The partnership issues discussed above can only mature when the benefits of the intervention are made known to the authorities as well as to the end-users. A mechanism by which this information could filter both upwards and downwards was found to be helpful. Another point that emerged, as indicated by Richardson (2000) was the need for integrating the ICT initiative with micro-credit organisations as a way forward to sustain the demand for self-employment-related information requested by the beneficiaries. The present arrangement of the MSSRF to encourage the volunteers to use the facilities of the centres for undertaking job typing and word processing tasks has proven very helpful. This may be the first step towards identifying a solution to financially sustain the activity once the funding stops.

The involvement of women in the intervention has been recognised as important in the present evaluation. The 'Pondicherry Framework' highlighted the role played by the women entrepreneurs who not only advance their own social and economic well-being, but can also provide ICT access to other women and men. This is evident with the efficient functioning of the Embelem centre that is run by women self-help groups. Their involvement has proven successful in not only generating income, but also helps in empowering both women and men in realising their benefits from government sources. This is in line with other evaluations carried out in Bangladesh (Bayes et al., 1999; Richardson et al., 2000). The involvement of women has been instrumental to the success story of the MSSRF intervention.

The other main issue highlighted in the present evaluation was the need for training the local volunteers, especially the women. In order to sustain the programme, it is indeed important for the intervention to upgrade the skills possessed by the volunteers. Almost all the volunteers saw the opportunity to learn and impart computer education as one of the motivating factors for their involvement in the project. In addition, their ability to train the local people in using the ICT centre has been found to be far superior and effective than the training offered by the professionals who come from the cities. The evaluation exercise indeed highlighted the sustainability factor as highly important in impact assessment.
Interaction of social and technological factors

The 'Pondicherry Framework' recognises that there are social factors which influence the sustenance of an ICT intervention, while the technological factors play a crucial role in both outreach as well as alienation. The ICT experts and advocates such as the ones witnessed at WSIS (2003) attempt at averting the digital divide as rightly pointed out by Freire (1974) when he wrote, every technological intervention further alienates the poor. In order to achieve this, there should be a clear demand for information and receptiveness to ICT-enabled information services. The present study revealed that the community needs to not only participate in the design and implementation of an ICT intervention, but also demonstrate its aspirations to extend the temporary intervention into ongoing action. The study also indicated that the mere ownership of an ICT programme without linkages to other transforming structures may prove to be ineffective. It was also observed that there existed a linear structure in the villages, where the people expected the ICT centre to provide all the answers for their aspirations. This aspect needs to be studied in detail in any ICT evaluation, for these aspirations alone form the basis for sustaining the intervention. In addition, the capacity of the community to learn new skills, techniques, business models, ideas and roles needs to be explored. The present study explored this area to some extent, but further careful investigation will reveal the total capacity, which would enable the evaluation team to identify learning opportunities for the community.

The extent to which a community is and remains organised seems to influence the use it can make of an ICT intervention (BICA, 1999). This is evident from the fact that the Embelem centre that is run by self-help groups employs more than 20 women volunteers to run the centre, while the Thirukanchipet centre is run by only two volunteers. Although the community in Thirukanchipet is organised, its ability to coordinate the dynamics of the social processes within the community is poor.

Power relationships within the households was obviously an important factor that this study could not enter in a way that would throw fresh light on it. It must be possible to apply some yardsticks such as the one suggested by Frankenberg and Thomas (2001) to gain an insight into intra-household decision-making processes. The macro-
level assessment showed that the Rural Knowledge Centres have brought some changes within the households, at least in the village of Embelem where the centre is operated by 20 women volunteers.

The challenge for the ICT intervention is to be able to recognise the right time to engage with the community aspirations that are triggered by their capacities. The best example in the present study is the fact that the project enabled the fishing community to approach the government for training opportunities to engage in other activities while they are asked to stay away from fishing for two months in a year due to inclement weather conditions at sea.

Studies on social factors that design and impact community access are scarce as opposed to the literature on their effects in shaping patterns of reliance and dependency on one another (Castells, 1996; Dutton, 1999). Communities with more social capital can conduct activities more efficiently, and individuals are more likely to help one another in times of need. As shown in Figure 5.6, the present study revealed that the social capital has not been highly exploited within the community. The story-telling sessions during the fieldwork depicted the sense of unity among the communities, however, the data analysis revealed that the communities are not engaged in too many participatory self-help initiatives. The results provide no firm evidence to suggest that the incidence of community work generally had indeed resulted in furthering specific community aspirations. A participatory approach was observed in the community-project relationship, even though this might not have been previously present within the community itself, strongly suggesting that it was the implementation of the projects that stimulated this. This factor threatens the sustainability of the project initiative.

However, as stated by Rheingold (1993), ICTs have the potential both to reinforce existing social ties and to create new forms of social capital within the villages of Pondicherry. Steered by the Open Knowledge Network project initiated last year in Pondicherry, the individuals in the village stand a chance to become united with their counterparts around the world on common issues, values and interests. Resnick (2000)

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emphasizes the potential value of "sociotechnical capital," which is composed of "productive combinations of social relations and information and communication technology."

The relationship within and between the community, the ICT intervention, the transforming structures, the government and the infomediaries must be studied as in the case of the MSSRF project. In other words, as pointed out by Menou (1999), the relationship between the various direct, indirect and immediate stakeholder groups must be studied in order to assess the effectiveness of the project's sustainability (Batjes-Sinclair & Khadar, 2002; Stoll et al., 2002). These relationships seem to reflect the effects of the technological and social factors discussed above, so that good relationships breed healthy aspirations and accomplishments, which in-turn strengthen the relationships.

The essential lesson from this study is that ICTs can be used to create, promote and enhance valuable social relationships, but only if one recognizes the risks and limitations of any given technology. One should also keep in mind that not all social ties are equal. As pointed out by Granovetter (1973), even weak ties are an extremely important form of social capital, since they allow us to expand our social networks. ICTs can often facilitate the processes, augmenting rather than replacing the sort of rich interaction that can only take place face-to-face through the open knowledge network programme that has been recently added as a layer to the ICT intervention in Pondicherry.

The 'Pondicherry Framework' identified the issue of integrating both the traditional and the new media in the intervention. The dissemination of appropriate and locally relevant content and services to the majority of the population, which includes the illiterates, women, the aged and the disadvantaged, extends beyond the Internet and specific new technologies. As suggested by Mansell (1999), huge investments and strategic interventions by the policy-makers and funders will be necessary to take advantage of the new technologies.

The framework enabled the identification of the areas where one technology strengthens the dissemination power of another, such as the newspaper produced
electronically with its content received through the world space radio, or the fax messages sent across to the villages using the computer network over space spectrum radio towers. The usage of black boards, public address systems and televisions are also evidence of this fact. It was evident that the traditional media such as the public address systems are still popular in Veerampattinam village, and there are demands for similar applications in the other villages. The present study also identified a number of other possibilities to converge both, the traditional and the new media for delivering services effectively, notably strongly argued by Skuse (2001).

Language issues play a key role in the people's ability to access information. In the present study, the people expected the ICT centre to supply information in the language and the formats that they are familiar with. As Tamil is the predominant language spoken in the region, the ICT centres are expected to maintain their databases in Tamil language. As rightly pointed out by Lovoie & O'Neill (1999), much of the content required by the communities is in English, even the huge amount of content produced by the government and various research institutions in India (Shadrach, 2002). This major gap leaves the ICT interventions to undertake tasks such as adaptation, translation and dissemination of global content in vernacular languages. It is therefore important to assess the quality and the extent to which the information pertaining to local needs is translated into the vernacular languages.

This issue is very critical as people are quite often used to accessing information through media sources that are widely available. In the present study, it was observed that a majority of the households owned televisions, and watched the programmes for more than four hours a day. It is therefore important for the ICT centre to establish fruitful partnerships with the local cable operators to 'push' information. The business model of Cable televisions in India can serve as the best fit for expanding the Internet services in many developing countries. In the present study, the usage of the audio-visual media was more preferred than a computer-based information service by the beneficiaries.

It must be recognised that computers and Internet-based information services are linear, and therefore seldom offer opportunities for people to interact. Quite often, it helps if the ICT-led interventions personnel listen to the community carefully for
gaining an understanding of the types of the channels of communication used (Richardson & McConnell, 2000). Community-based communication processes will help content 'pitching'. On-the-spot interviewing carried out by the researcher raised this issue in the present study. The local people are often eager to use the technologies that are familiar to them. In the present study, the local people expressed their interest to use video cameras to document the poor public facilities in their villages. Thus, in this way, they were willing to communicate their grievances to the relevant authorities instead of having face-to-face meetings with them.

6.3.4 Role of transforming structures

An ICT intervention in any setting starts out as a transformation process, but quite often the implementers do not realise that theirs is one of the many transforming structures that aim to play a role in creating livelihood opportunities for the poor. In a typical village, the other transforming structures would include, the schools, the hospitals, the cooperative initiatives and the various government departments. Only the Sustainable Livelihoods Framework explores the role of the transforming structures directly in any development programme (Carney, 1999; Carney et al., 1999; Ashley & Hussein, 2000) while the other approaches deal with this issue in an indirect way. The present study tried to identify the direct, indirect and immediate stakeholders of the MSSRF project. This was helpful in further identifying the external influences that enable or disable the people's ability to access, assimilate and use information for their strategies for improved livelihoods.

The present study should have focussed on these transforming structures much more than it did in order to identify the strong and weak linkages between these institutions and the intervention under investigation. Further, it should be possible in an evaluation exercise to map the linkages between the people and these transforming structures as has been carried out in the case of information-focussed research in the past (Balaji et al., 1999; ITDG, 2000). However, since the present research was limited in its scope, only the immediate and the direct stakeholder groups were identified.
In order to assess the contribution made by these structures to the people's livelihood opportunities, it is important to study the vulnerability factors affecting the people and the role played by each of these structures in performing the obvious changes in people's lives (DFID, 1999). When it comes to impact assessment, this means that changes in measurable entities, for example, cash and yield must be assessed not in their own right, but in terms of the contributions made by these structures to that achievement. The contributions may be direct, for example, adding to income, health, food, etc. or indirect affecting their assets, activities and opinions and ability to cope with shocks, etc (Ashley & Hussein, 2000).

The present study focussed heavily on understanding the way the people lived their lives while giving some importance to what they aimed at achieving in the process. It was obvious in the present study that the people were vulnerable in many respects and the roles played by the identified transforming structures were very limited. This has in-turn resulted in the people's dependency on the well-functioning knowledge centres to such an extent that they expect the centres to replace some of the government's functionaries.

6.3.5 Evaluation indicators

The indicators applied in the present study were based on the questions asked by the evaluators. As discussed in the previous chapters, these indicators referred to the ICT-related issues of access, content, partnerships and sustainability and the indicators relating to social and technological factors. However, the indicators can also be clustered to indicate the following yardsticks recommended by UNESCO (1997): indicators of information availability; indicators of use; indicators of user satisfaction; indicators of local control over information flow; indicators of social and economic impact; indicators of knowledge base; and, indicators of participation in government programmes. In addition to the above set of indicators, the present study also concentrated on gender-related indicators as suggested by APC (2000).

Developing indicators in the present study involved several trade-offs. The researcher had to accept the total number of 83 indicators selected by the evaluators. Each indicator had a cost in terms of collecting data as some indicators required data that
cannot be reliably or consistently collected over time. The researcher felt that some indicators required re-interviewing of the same respondent, but the administration of questionnaire did not allow for a second interview with the participant. However, the 'Pondicherry Framework' allowed the researcher to apply some of these indicators through observational methods and on-the-spot interviews. The present study included almost all the following indicators recommended by USAID (1996):

- ICT info centre performance indicators such as demand for service, service performance and user behaviour and perceptions;
- Sustainable indicators such as financial sustainability, policy and regulatory environment, and human-resource sustainability;
- Content indicators such as content demand, information online and sector-specific information; and,
- Impact indicators such as economic impacts, social impacts and impacts on organisations.

Although the above indicators were applied to assess the ICT initiative, it should be noted that the indicators will change according to the objectives of an evaluation. The range of skills available in a rural information settings will also determine the complexity of indicators as in the present study, it was felt that some of the indicators were difficult to deal with. While cleaning and interpreting the data, the researcher felt that certain indicators were quantitative while a number of others were qualitative in nature. Hence, under such circumstances, it is better if the tasks of data-cleaning and interpretation are carried out by the evaluators and facilitators jointly.

### 6.3.6 The ICT impact assessment continuum

The questionnaire design, predominantly carried out by the evaluation team, to a large extent, considered the factors identified in Michel Menou’s ICT impact assessment continuum, shown in Figure 4.9. According to Menou, at the lower end of the spectrum, the number of individuals or organisations that have access to the Internet and other ICTs can be measured, based on which the penetration of the ICTs can be assessed. Mere access to technology cannot determine the access level, but even a
single transaction made on the net can take the learning curve a step forward. When these transactions result in exchanges from citizen to government, government to citizen, government to private, citizen to private, and so on, there are ample opportunities to see a number of internet-based applications come into play. Obviously, this would result in certain outcomes, benefits and losses to those who transact on the net. These outcomes will see transformations in societies in both positive and negative ways. But, Menou (1999) argues that these are all effects, more than the impacts of the Internet. The impact will be sensed only when it is equated to learning. By this argument, Menou concludes that impact assessment is in fact a learning curve in due course maturing from mere penetration to learning at the other end of the spectrum.

A number of questions asked by the project volunteers in the present study and the answers obtained were sufficient to draw preliminary conclusions on the factors identified by Menou in Figure 4.9. These issues are described below in the light of the present study.

a) Penetration

The present study enabled the community members to understand the extent of the penetration of technology in their villages. A survey carried out by the MSSRF prior to the intervention showed that the project villages had an average of one telephone per village. Only the Kizhoor village enjoyed five telephone connections, of which only 2 were public lines for a population of 400 households. From the questionnaire survey and the subsequent interviews, it was evident that most of these families had made telephone calls using the phones at the ICT centres. But, the demand for telephones is now diminishing as more households have obtained phone connections by now. Only 68 of the 125 participants had used the telephones in the ICT centres in March 2002. However, the ICT centres have been a catalyst in helping the people to see the need for owning telephones. The penetration rate has grown from 1 private telephone per 400 households in 1998 to 39 for the 125 interviewed in 2002. With no computers in 1998, each of these villages now has 2-5 personal computers. The people's access to computers is often free, while a nominal fee is charged for attending computer-training programmes.
In addition to computers and telephones, at least three of the seven project villages use radio towers to communicate with the hub in Villianur. They are able to access the Internet and the databases held in the file server at Villianur. Through the web cam facility these villages are able to communicate with the government officials in remote locations.

The interviews with the users revealed that they saw no difference between the people living in the cities and themselves when it came to accessing the ICTs. The ‘Pondicherry Framework’ although it did not quantify the penetration level of ICTs in the community in the present study, however, it enabled the project stakeholders to learn about the potentials of its reach.

b) Transactions

The ICT centre offers access to the Internet and an enormous amount of information held in several databases. Of 84 users, 44 of them availed of the market prices held in the ICT centre at least once in a month, while 17 others obtained the same more than five times, and six others accessed this type of information more than 10 times. The survey revealed that even among the non-users (41 of them in the study), the family members of 17 of them regularly used the centre. More than 80% of the beneficiaries do have transactions with the ICT centre at least once each month. More than 17 people access market prices, employment news, government announcements and farming information more than 5 times each month. The number of transactions carried out by each of the centres is more than 500 per month. This is phenomenal considering the fact that each of these centres offers its services to a population of less than 2000 people.

c) Applications

There was no evidence of any citizen to government, or private to citizen e-application in place, however, the beneficiaries were interested in using the ICT centre to lodge their complaints and grievances. Therefore, there is a good opportunity for these centres to act as lobbyists on behalf of the beneficiaries.
regarding their access to various public services. E-Government applications have not penetrated a number of cities and towns in India. It may hence be sometime before these ICT centres would start using any of these applications.

The present study has revealed that the opportunity exists for the info centres to partner with government authorities with a view to start an e-Governance application such as registration of births and deaths, lodging of grievances, and helping governments to collate block level and village level data.

d) Outcomes

From the interviews and the questionnaire survey, it was found out that a number of transactions between the government and the citizens have taken place. Most of these transactions have resulted in some action, for example, seven people found employment in the fire services and some women's groups could avail themselves of a number of loans. The ICT centres have been instrumental in more than 20 women availing the government benefits due to them. The project volunteers shared a number of anecdotal evidences in the story-telling session while the beneficiaries interviewed by the researcher confirmed this. The user registers at each of the ICT centres contain a number of these facts. Although there is hardly any evidence of any major outcomes, it is evident that one of the outcomes of the info centres is the empowerment of women and dalits in the few villages where the centres exist.

e) Benefits/losses

The 'Pondicherry Framework' enabled the evaluators to explore the benefits obtained by the community from the point of view of three different stakeholders, namely, the beneficiaries, the volunteers and the staff. Through the triangulation method, the perceptions were analysed to assess the benefits offered. Further, the questionnaire prepared by the beneficiaries enabled the evaluators to find out if the info centres offered any benefits to the livelihood assets of the natural, social, financial and physical capital of the community apart from benefiting individuals. With regard to losses, it must be stated that the questionnaire did not attempt at recording any losses suffered by the community due to the introduction of the ICT initiative among them.
f) Transformation

The interviews and the questionnaire survey among the project staff revealed that the project addressed a number of vulnerability factors. These include, empowerment of women, equal benefits to all, social inclusiveness and strengthening of social ties within communities. A number of self-help groups have been formed since the info centres have started operating. The women of Embelem have gradually started networking among their peers in other villages. Further, a number of micro-enterprises activities have been initiated in the villages.

g) Learning

The evidence to confirm the role of ICTs in social empowerment and poverty alleviation is apparent in the fact that the women in these villages earn money these days. Not many were able to earn money, as they had never been engaged in any economic activity other than taking care of their homes. In addition, there are a number of women-led self-help groups operating from these villages. The ICTs have empowered the people by providing them with the right information at the right time. This has been evident with the fact that a number of school children after receiving training in the use of computers, are now getting admitted in schools of high standards. A few people have found jobs due to the new skills that they have acquired. In addition, the staff pointed out that the initial fears that the people had to use the centre and the ICTs have been overcome. The people are confident of handling the ICT equipment in these villages, which is not the case even in many cities among the literate.

The people have been greatly empowered due to the information supplied to them. Many of them have approached the government to avail themselves of a number of benefits that they were entitled to. They were kept in the dark before the centre came into being as the government's information dissemination policy had been so ineffective. The people belonging to the lower castes, the women, the disabled and the elderly have especially come to realise their rights through the information about various government schemes given by the centre.
The centre is socially inclusive to all people. This is furthered by the efforts made to enable the community to own the ICT project. The sense of ownership while running the knowledge centres has resulted in these communities enabling their people of all social status irrespective of their caste, creed, religion and other orientations to access the centre. The communities have undertaken to provide rent-free space for running the centre, to bear the cost of electricity, to identify their own volunteers to run the programme, to pay the telephone bill, to appoint the women volunteers and so on. Some women do not come to the centre because there is no monetary benefit. To overcome this, income generation activities must be initiated. The elderly think that the centres have only computers that are solely for the young people. To overcome this, touch screens, multimedia and local language applications should be put to use.

6.4 Challenges faced while employing the ‘Pondicherry Framework’

As the process of inquiry becomes very complex with the application of participatory methodologies, the present study encountered a number of issues. Eliciting people’s own analysis of their poverty and social well-being required a greater and deeper understanding of dimensions of poverty than that initially envisaged by the researchers. The immediate response to the issue of poverty for the evaluators has been the indicators relating to consumer goods, employment and the income level of households. It was felt that understanding the complexity of livelihood strategies was crucial even before assessing the role of ICTs as a catalyst for enhancing the livelihood opportunities of the people. Quite often, it emerged in the face-to-face interviews that the impact of political factors was ranked high in the people’s perceptions and they had a strong sense that political ills had a major negative impact on the society.

Application of the ‘Pondicherry Framework’ also required adaptability and flexibility of methods to provide for working in unforeseen circumstances such as the one witnessed in Veerampattinam where a communal riot broke out while the researcher was undertaking observational walks. The present study also catered to building capacity among the local groups in research and enquiry skills offering them with opportunities to evaluate the programme as opposed to their usual role of answering a
set of questions posed by the visiting academics. The study also enabled the local people to contribute to the policy and practice issues through their evaluation outputs. Their findings gain importance when they also discuss solutions to the potential problems facing the info centres.

Problems with implementation of the ‘Pondicherry Framework’ emerged. Experience has shown that for effective outcomes, there needs to be enough preparation time as well as follow-up time allocated to the research. Preparation time for local evaluators is crucial and a study on the same lines as the present one should allow adequate time as a major funded study might do. However, if the ‘Pondicherry Framework’ is employed by an ICT project, it is recommended that sufficient time be allocated for preparation and for follow-up activities as well.

Generating statistical data from answers to the questions that were very elaborative and in-depth in locally identified contexts was usually not possible. Therefore, it was not possible to relate such statistics as were obtained from the results to national and regionally generated data, especially the data collected on the poverty level, community organisation and community behaviour. Information gathered in different contexts through different stakeholders made it very hard to synthesise information for centralised planning. However, since the data interpretation was carried out by the external researcher who also acted as the facilitator of the entire evaluation process, the analysis of data was not very challenging. Comparison of findings across a range of contexts enabled the local stakeholders to identify lessons for learning.

In addition to the above, a number of practical difficulties were faced in the present study while employing the participatory approaches to evaluation. There were high expectations from the participants while participating in the study. Although the outcomes of the study led to learning lessons, the researcher had to assume that the evaluators did not expect any magical solutions to the problems identified. Further, expecting the local people who are poor and powerless to analyse their own situation was really a challenging task. The researcher needed to remind the purpose of enquiry quite often, and remind the local people of their role as the evaluators. The
experience in Pondicherry showed that the local people were willing to cooperate despite the fact that their participation in the research was not going to benefit them monetarily. The local people remained very enthusiastic when they felt that the researcher was communicating very honestly to them.

The skill level required for the research was multiple. Not only did the local people have to demonstrate their ability to frame questions for inquiry, they were also expected to peer-review and critically look at their own research instruments. Although this activity did not prove very challenging, the activity did not also prove to be easy as at times, the evaluators were not able to agree upon the decision to ask or not to ask certain questions. Only when the local people are sensitive to gender and power relations within their local settings, they are able to undertake the evaluation. Hence, application of the ‘Pondicherry Framework’ may not prove to be simple for the non-local people. Also, successful application of the framework requires good communication, facilitation and conflict negotiation skills.

The ‘Pondicherry Framework’ does not offer a clear choice and sequence of methods for enquiry. The enquiry process needs adaptability according to local sensitivity and circumstances. Hence, the framework demands good team working skills and a high level of understanding between the researcher and the evaluators. In the present study, the researcher felt that getting the right team requires considerable networking and preparation. While combining the local people with his own research skills, the researcher had to step down from his position of a specialist to a generalist in order to gain the comfort level with the evaluation stakeholders.

Last, but not the least, the researcher felt that the application of the ‘Pondicherry Framework’ may be easiest for those researchers and local people who are willing to work as a team. It requires a tremendous amount of commitment on the part of the external researcher and his/her willingness to stay with the local community for a period of time and identify with their cultural and social beliefs.
Chapter 7: Conclusions and recommendations

The World Summit on the Information Society (WSIS, 2003) declaration provides ambitious targets such as wiring all villages, networking all schools and universities and connecting every place on the earth through telecommunication infrastructure. In this context, the ongoing transformation of rural information systems, albeit witnessed at a very slow pace, is the first step in rural informatisation. This, in turn can be seen as a possible answer to alleviating poverty in developing countries. In the recent past, in India alone, we have witnessed the growth of over 2,000 info kiosks catering to about one hundred out of the 600,000 villages. Therefore, it is now possible to assess the process.

With the private sector increasingly keen to capture the rural information market, it is anticipated that in addition to the small number of existing donor-funded pro-poor information initiatives, there will be tens and hundreds of thousands of private sector initiatives during this decade in the developing countries. It is therefore vital that these initiatives function well in order to be instrumental in accelerating the process of an ICT-led rural knowledge economy. To date, the evaluations of these kiosks have tended to be superficial and reliant on hearsay or anecdote. There has therefore emerged a felt need for an evaluation methodology that will assess the effectiveness of these info kiosks in the rural societies.

The present investigation in the seven project villages of the info village programme of the MSSRF in Pondicherry reported in this thesis was an attempt to address the above felt need. The methodology for assessing the impact of rural information initiatives in developing nations, named in this study as the ‘Pondicherry Framework’ has indeed provided structures for a new evaluation framework. The experience gained in Pondicherry points to the possibilities of strengthening the ‘Pondicherry Framework’ as a promising alternative to the traditional evaluation approaches in information-led interventions.
The methodological holism of the 'Pondicherry Framework' allows the evaluation exercise to consider an ICT entity in ways that range beyond technology and infrastructure. The 'Pondicherry Framework' uses methodological holism to integrate a) participatory approaches, b) the transforming structures outlined in the Sustainable Livelihoods Framework, c) the human rights principles adopted by DFID, d) the impact assessment continuum and e) access, content, partnership and sustainability issues surrounding the ICT-led development interventions.

7.1 The overall conclusion of the study

The 'Pondicherry Framework' is primarily suited for use by local stakeholders of an ICT-led pro-poor information initiative, if this is done with a view to learning lessons with local applicability (rather than merely serving as the evaluation component of projects for donors). The evaluation methodology strongly advocates a partnership between local stakeholders and an external researcher, who represents the transforming structures, who form a team to evaluate a pro-poor information initiative. By combining participatory approaches with the specialist skills of an external researcher as the facilitator, the 'Pondicherry Framework' developed in the present study yielded a substantial quality of data. This enabled the project stakeholders to consider a number of corrective measures for their programme.

The current evaluation literature, as discussed in Section 5.6, shows the result of the tension between the two cultures on the issue of time and timeliness, as set out by Chambers (1983). The 'Pondicherry Framework' provides a fitting answer to activities that can be seen as rural development tourism by putting the last first and offering reversals in learning. Those external evaluators who consider applying the 'Pondicherry Framework' will have the opportunity to learn from the farmers and from the rural poor before attempting to contribute.

The 'Pondicherry Framework' is a methodology for learning in which the focus is on cumulative learning by all the local evaluation stakeholders. Because this is a bottom-up enquiry, the lessons learnt also need to be applied in a participatory manner. Further, the 'Pondicherry Framework' demonstrates the ability to seek and


embrace diversity, rather than characterise complexity in terms of average values. Different individuals and groups make different evaluations of situations using different instruments, which yield different results. Through the triangulation method, their collated output provides multiple possible descriptions of any real-world activity.

The approaches in the ‘Pondicherry Framework’ are flexible enough to be adapted to suit new sets of conditions and actors. However, the limitation of the ‘Pondicherry Framework’ is the pre-requisite that the external researcher is able to identify with the local culture. The role of the ‘experts’ is best thought of as helping the local people in their situation to carry out a study of which they have ownership. This is more able to help them achieve a desired outcome. Hence, the ‘Pondicherry Framework’ demands that the external facilitator possesses good basic knowledge of the community to be studied with particular emphasis on its cultural practices.

The enquiry process invites debate about change. Such debate changes the perceptions of the actors and increases their readiness to contemplate action. The analysis of results and the outcomes presented in this study suggests that the approach allows for changes in perceptions and approaches. This brings about improvement in the ICT intervention and then motivates the people to take ownership of the results and prepares them for action to implement the identified changes. The actions that the community might take include local institutional strengthening so as to increase their own capacity to initiate further developments.

7.2 The main outcomes of the study

As discussed in Section 6.2, the ‘Pondicherry Framework’ produced rich data when compared with the results of studies carried out in the previous four years. The outcomes of the evaluation exercise did lead the local stakeholders to take corrective actions, including that of local institutional strengthening. This has been a major achievement of the present study.

The two significant outcomes of the present study are:
a) A new evaluation framework combining participatory approaches with both qualitative and quantitative forms of enquiry, has added value to the approaches described in the existing literature.

b) The potential for corrective measures by local stakeholders in the info village project that will enhance the efficiency of the project.

It is now left to fellow researchers in the field to take advantage of the 'Pondicherry Framework' and to apply it to their own research situations in other developing countries.

7.3 Reflections on the 'Pondicherry Framework'

A number of challenges and methodological issues emerged during the study. Although the present approach enables the local stakeholders to take control of the evaluation process, it has to be used in conjunction with a skilled researcher. This poses a great challenge for the external researcher and his/her ability to identify with the communities and be sensitive to the local social, cultural and political issues. In an ideal situation the external researcher will know the local language. The researcher will then be able to understand the community better and be able to communicate with the evaluation team without ambiguity and confusion. If this is not the case, the researcher must work in close alliance with either a fellow researcher who has this expertise or a carefully selected bilingual local community member.

7.3.1 Strengths of the 'Pondicherry Framework'

The following key factors are arguably the strong points that favour the application of the 'Pondicherry Framework' in an evaluation programme.

Combination of field methods: The framework allows for a combination of field methods to be employed. Rooted in the participatory approaches, the application of
the framework has the character of an action research study, offering possibilities to apply a variety of data capturing and analyses techniques.

**Skills and resources:** The 'Pondicherry Framework' enabled the local stakeholders with minimal skills to carry out the investigation in the villages of Pondicherry. Their ability to design the data-collection instruments, carry out data-gathering, interview people and discuss the results demonstrates the quality of the local capacity, while reinforcing the arguments put forward by scholars to 'put the last first'. As opposed to many expensive evaluation exercises, the 'Pondicherry Framework' is a very cost-effective method and at the same time, it creates a vast learning opportunity for the stakeholders.

**Knowledge sharing:** The framework also allows for knowledge sharing by the beneficiaries with their own peers while a series of story-telling and focus group meetings also allows for peer-to-peer learning processes. The present study, as a process that led to learning while doing, enabled the local stakeholders to gain a better understanding of the programme context and the coping mechanisms applied at each instance. This knowledge-sharing activity was very rich. In addition, as the process led to identifying lessons rather than measuring the success rate, many learning points emerged out of the data-analysis work. It was clear that when results are shared among the project stakeholders, the activity enables them to plan corrective measures that result in improved action.

**Simplicity:** The other strength of the framework is the simplicity of its application. Whilst it is often argued that evaluation frameworks are complex, and therefore need a range of skills, the experience gained in Pondicherry demonstrates that this framework requires the employment of fairly simple tools and techniques deriving from methodological holism.

**Strengthening the local skills base:** The present study enabled the strengthening of the local skills base in carrying out the evaluation. For the first time, it was evident that the local people were seen as the evaluators rather than the mere subjects of evaluation as has usually been the case in the past. Not only did they appreciate their newfound role, but they also felt highly empowered. This adds to the strengths the
local people already posses and offers them ownership of the process and its various elements. The framework offers opportunities for the researcher, who acts as the facilitator, to transfer a number of his skills to the local team, especially in the areas of sampling, interviewing, data-collection and analysis.

**Pillars of ICTs**: As discussed at various points, the evaluation focussed on the role played by the ICTs through the identified four pillars. The findings while analysing the four pillars of ICTs: access, content, partnerships and sustainability, explore the relationships between the ICT intervention, the transforming structures and a number of social and technological factors.

**Involvement of project volunteers**: As the framework calls for local people's participation rather than paid-staff for carrying out the evaluation, the sense of commitment to exercise increases tremendously. Their role as the main evaluators allows them to not only own the process, but also the outcomes of the evaluation. This new status enables them to consider undertaking corrective measures, which, if only the external evaluators were involved, would not be possible.

**Knowledge of the local culture**: The framework depends heavily on the local stakeholders' knowledge of the local cultural and political issues. This adds to the relevance of the outcomes. This is especially true in the area of the roles played by the transforming structures and the relationships between the people and the transforming structures. These findings enable the ICT intervention to be culturally appropriate and sensitive to local practices and beliefs.

**Use of findings**: The uses of the findings are seen in improved learning and work practices. At the same time, the 'Pondicherry Framework' is not an exercise merely to assess the success of the intervention. As witnessed in Pondicherry, the application of the framework in a programmatic context offers a tremendous opportunity for employing the findings as corrective measures for strengthening the local capacity.

**Win-win situation**: The beauty of the 'Pondicherry Framework' is the win-win situation it offers to the evaluation team. The framework does much more than helping the donors to assess or monitor the progress of the projects they have
financed. It enables the main stakeholders to learn important lessons for improved action. Hence, the outcome is positive as the framework is aimed at strengthening the intervention.

7.3.2 The weaknesses of the framework

The following key factors are arguably the chief weaknesses that need to be strengthened in the process of applying the ‘Pondicherry Framework’ with different programmes in other parts of the world.

The first-ever exercise: Since this was the first ever use of the framework, the challenge is to induce the research community to test the concepts and principles of the ‘Pondicherry Framework’ as soon as possible. Until more field studies have been carried out using the framework, the methodology is in danger of remaining unnoticed.

Credibility: Although the work has been carried out by a researcher based in an academic institution in the UK with considerable credibility in the field of information science research, the framework still needs marketing. If successful marketed evaluation experts can be persuaded to accept and refine the work.

Indicators: The social and the technological factors in the framework are extremely dynamic. It may not be possible to develop a set of indicators with permanent relevance to the technological factors, as the technology is fast changing. The social factors taken into account in the present study are specific to the project evaluated. It is obvious that there will be other local variations elsewhere. Testing the framework in other continents will help research in this field to identify common minimum factors for consideration.

Commitment by the staff: Full and whole-hearted participation by the local people and the project staff, in particular, is essential in the framework. If the staff members are not committed to carry out the evaluation, there is little or no scope for the successful application of the framework.
The composition of the evaluation team: The bringing together of a team that includes project staff, with local stakeholders as the lead evaluators, and an external researcher as the facilitator, is likely to be difficult. Further, the need to have an equal number of women evaluators as part of the team may not be possible in certain places. The framework can yield good results only if the principles outlined earlier in this thesis are adhered to.

7.4 Perspectives and recommendations for further research

Based on the experiences gained in Pondicherry, the following key points as potential future research themes are recommended:

- The 'Pondicherry Framework' should be applied in a number of ICT-led information projects in other developing countries in order to gain more experience of using the methodology.
- The MSSRF Rural Knowledge Centres project can be viewed as an ICT intervention that converges both the new and the traditional media. The 'Pondicherry Framework' should be applied in projects that use the new hybrid technologies such as the handheld devices, web TVs, and the Simputer for further validation.
- The evaluation of the women-run 'Embelem' centre in Pondicherry demonstrated that the project is well-run in comparison with others, and at the same time it has been effective in changing the power relationship among the members of the community. Hence, it will be worthwhile to investigate whether women-run ICT initiatives have the potential not merely to realise the fullest benefits of ICTs but also to empower the whole community, not only the women.
- The impact assessment continuum fitted in the framework is a good indicator for determining the effects of an ICT intervention. However, it will be worthwhile to determine an appropriate statistical method that could help the study to place the intervention more precisely on the learning curve.
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BMBF see Federal Ministry of Education and Research


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IDPM see Institute for Development Policy and Management

IDRC see International Development Research Centre

IFAD see International Fund for Agricultural Development

ILO see International Labour Organisation


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ITU *see* International Telecommunication Union


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M. S. Swaminathan Research Foundation, 2001. *Assessment of impact of information technology on rural areas of India*. Chennai: MSSEF.


NIH see National Institute of Health.


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UNCHS see United Nations Commissioner for Human Settlement

UNCSTD see United Nations Commission on Science and Technology for Development

UNCTAD see United Nations Conference on Trade and Development

UNDP see United Nations Development Programme


UNICT Taskforce see United Nations Information and Communication Technology Taskforce


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USAID see United States Agency for International Development


WSIS see World Summit on the Information Society


Loughborough University

Appendix - 1

Questionnaire to assess the need for evaluating ICT-led rural information projects
(February - April 2000)

(Each section in this questionnaire seeks your opinion on establishing the need for evaluating ICT-led rural information projects. Kindly put a tick mark (✓) or Asterisk (*) in the relevant box. At the end of each section, you will find a question that seeks your suggestions in a descriptive manner. Please feel free to write as many suggestions as possible which we are sure will strengthen this research further.)

1. Need for the study

1. Do you agree that the ICT-led rural information projects need careful evaluation before replication?
   - [ ] Agree
   - [ ] Disagree
   - [ ] Unsure

2. Do you think these projects often fail due to lack of evaluation done on the ground?
   - [ ] Yes
   - [ ] No
   - [ ] Unsure

3. Do you think that the existing projects are thoroughly evaluated by funders as well as implementers?
   - [ ] Yes
   - [ ] No
   - [ ] Unsure

4. Do you think that the existing project evaluation models are sufficient for evaluating ICT projects?
   - [ ] Sufficient
   - [ ] Insufficient
   - [ ] Unsure

5. Do you think that participatory evaluation model is best suited for rural information projects?
   - [ ] Suited
   - [ ] Uns suited
   - [ ] Unsure

6. Do you support the need for further research in terms of assessing such projects in rural areas?
   - [ ] Yes
   - [ ] No
   - [ ] Unsure

7. Can you name an existing framework that you consider useful for such evaluation?
   (with source, URL, or a contact person, if possible)
8. Your suggestions on establishing the need for evaluating ICT-led rural information projects:

### II. Role of the project

<table>
<thead>
<tr>
<th>How important are the following factors when evaluating ICT-led rural information projects?</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The project is engaged in locating, obtaining and providing information for all members of the rural community as against its capabilities</td>
<td></td>
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</tr>
<tr>
<td>2. The project is engaged in providing information to communities on all subjects as appropriate</td>
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<td>3. The project is able to offer mediation and referral service in collaboration with agencies</td>
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<tr>
<td>4. In actual terms the project is engaged in locating, obtaining and providing information to communities in a variety of formats</td>
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<tr>
<td>5. The project is able to provide information in a variety of means and modes</td>
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<tr>
<td>6. The project is able to promote local culture and language using the technology</td>
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<tr>
<td>7. The project plays the role of a coordinating centre for training-related events</td>
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<tr>
<td>8. The project should or be expected to act as a local focal point for community activities</td>
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<tr>
<td>9. The project is engaged in facilitating development activities</td>
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<td></td>
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<tr>
<td>10. The project has built-in plans for evaluating and reviewing its progress from time to time</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

11. In your opinion, what are the other possible roles an ICT-led rural information project can play?
### III. Technology

<table>
<thead>
<tr>
<th>How important will you rate the following factors in relation to Technology?</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The project is using the local appropriate communication technologies</td>
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<tr>
<td>2. The project is not using any of the technologies that are commonly available and appropriate to the local situation</td>
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<tr>
<td>3. The project has the capacity to provide uninterrupted connectivity to its community</td>
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<td>4. The project is able to negotiate with local service providers and get the best out of them</td>
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<tr>
<td>5. The project staff have enough knowledge on technology related issues</td>
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<tr>
<td>6. The project is able to achieve the best cost benefits for the expenses incurred on technology</td>
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</tbody>
</table>

7. Do you think that the new information and communication technologies are able to make considerable impact as opposed to the existing traditional communication means? Yes/No

8. Do you think that the local language plays a significant role in empowering communities with information? Yes/No

9. Do you think that the project should use appropriate technologies to take care of local language issues? Yes/No

10. Do you think that the project should consider computer literacy aspects while rendering service? Yes/No

11. Which are the appropriate technologies that you would recommend for a rural society in your part of the world? (Please specify your region)
### IV. Training and Gender issues

<table>
<thead>
<tr>
<th>Do you consider the following training and gender-related factors important while evaluating projects</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The project staff have received all required training in order to provide expected services efficiently</td>
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<tr>
<td>2. The project staff have acquired the capacity to train the users of the community</td>
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<tr>
<td>3. The project staff are able to identify their own training needs on the job</td>
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<tr>
<td>4. The project has a defined training plan for the staff as well as the users</td>
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<tr>
<td>5. The project has equal number of female staff on its roll</td>
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<tr>
<td>6. If the project is able to attract a good number of female users</td>
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<tr>
<td>7. If the project has trained enough number of female staff in order to provide efficient service</td>
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</tbody>
</table>

8. Your suggestion on factors that need consideration while focussing on gender and training-related issue:

---

### V. Partnership factors

<table>
<thead>
<tr>
<th>Please answer the following questions that relate to partnership issues</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you consider it important for the project to develop partnerships with other agencies?</td>
<td></td>
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<tr>
<td>2. Do you think that it is important to assess the capacity of the project in developing such partnerships?</td>
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<tr>
<td>3. Do you think that it is important to assess if the project has overseen any partnership opportunity?</td>
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<tr>
<td>4. Do you think that it is important for the project to develop partnerships with the local government?</td>
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<tr>
<td>5. Is it important to develop partnerships with local private industries?</td>
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</tbody>
</table>

6. Please state any important factors that in your opinion form the basis for fruitful ICT partnerships:
### VI. Sustainability and Impact factors

<table>
<thead>
<tr>
<th>How important are the following points while evaluating the impact factor of ICT-led rural information projects?</th>
<th>Very Important</th>
<th>Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The project has drawn up a sustainable plan for itself</td>
<td></td>
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<tr>
<td>2. The project is able to achieve in real terms all the plans for sustaining the project after the funding stops</td>
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<tr>
<td>3. Do you think that it is important to assess if the project has overseen any partnership opportunity?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Do you think that it is important for the project to develop partnerships with the local government?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Is it important to develop partnerships with local private industries?</td>
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<tr>
<td>6. The project has identified any failures or learning points while achieving the sustainability factor</td>
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<tr>
<td>7. The project has the capacity to sustain partnerships while delivering the project</td>
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<tr>
<td>8. The project staff have sustained the training and the skills they acquired on the job</td>
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<tr>
<td>9. The project is able to sustain its content development plans throughout its existence</td>
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<tr>
<td>10. The project has the capacity to sustain its information dissemination skills throughout the project</td>
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<tr>
<td>11. The project is able to sustain its staff members on its rolls</td>
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<tr>
<td>12. In case of staff movement, if there is a plan in place to address the issue</td>
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<tr>
<td>13. The project is able to show evidences of the improvised standards of living of its community members</td>
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<tr>
<td>14. The perceptions of the project staff about their own success is important</td>
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<tr>
<td>15. Any other point which you think is important while evaluating the sustainability and impact factors of the project</td>
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</tr>
</tbody>
</table>
VI. Personal details

Name: 

Title: 

Designation: 

Organisation: 

Mailing address: 

E-mail address: 

Contact telephone numbers: 

URL of the web site, if any: 

Do you wish to be contacted again, if necessary: Yes  No

Please return your questionnaire to B. Shadrach by e-mail at b.h.shadrach@lboro.ac.uk or by snail mail in the enclosed self-addressed stamped envelope.
Appendix - 2

Respondents to the questionnaire survey conducted
February -April 2000

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Michael Menou</td>
<td>Professor, City University, London, United Kingdom</td>
</tr>
<tr>
<td>Professor Robin Mansell</td>
<td>Professor, SPRU, University of Sussex, Brighton, United Kingdom</td>
</tr>
<tr>
<td>Ms Sheetal Sood</td>
<td>Programme Manager, Propoor Portal, Culcutta, India</td>
</tr>
<tr>
<td>Ms Revathi Balakrishnan</td>
<td>Regional Rural Sociologist, FAO for Asia and Pacific, Bangkok, Thailand</td>
</tr>
<tr>
<td>Ms Paula Uimonen</td>
<td>Researcher, Stockholm University, Geneva, Switzerland</td>
</tr>
<tr>
<td>Ms Margaret N Ndung'u</td>
<td>Information and Communication Officer, EcoNews Africa, Nairobi, Kenya</td>
</tr>
<tr>
<td>Ms Janet Toland</td>
<td>Lecturer, Univ. of South Pacific, Suva, Fiji</td>
</tr>
<tr>
<td>Ms Gabriel Accascina</td>
<td>Regional Coordinator, APDIP, UNDP-Malaysia, New York, US</td>
</tr>
<tr>
<td>Ms Emer Beamer</td>
<td>Project Maker, Nairobits, Nairobi, Kenya</td>
</tr>
<tr>
<td>Ms Culie deSilva</td>
<td>Vice President, Lanka Academic Network, Sri Lanka</td>
</tr>
<tr>
<td>Ms Amelia Zambeze</td>
<td>National Coordinator, National Association of Rural Women, Mozambique</td>
</tr>
<tr>
<td>Mr Vikas Nath</td>
<td>Programme Officer, SDNP, New Delhi, India</td>
</tr>
<tr>
<td>Mr Theophilus Mlaki</td>
<td>Director, Tanzania Commission for S&amp;T, Dar es Salaam, Tanzania</td>
</tr>
<tr>
<td>Mr Terry Smutylo</td>
<td>Director, Evaluation, IDRC, Ottawa, Canada</td>
</tr>
<tr>
<td>Mr Robert Davies</td>
<td>MDR Partners, London, United Kingdom</td>
</tr>
<tr>
<td>Mr Peter Bellantyne</td>
<td>Programme Coordinator, ECDPM, Maastricht, The Netherlands</td>
</tr>
<tr>
<td>Mr Michael E Jones</td>
<td>Asian Institute of Technology, Bangkok, Thailand</td>
</tr>
<tr>
<td>Name</td>
<td>Position/Institution</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Mr Geoff Barnard</td>
<td>Head, Information, IDS, Sussex, United Kingdom</td>
</tr>
<tr>
<td>Mr David Toeman</td>
<td>Director, Internexia Sdn. Bhd. Malaysia</td>
</tr>
<tr>
<td>Mr Chris Zielinski</td>
<td>Director, Health Information for Development Programme, Hants, United Kingdom</td>
</tr>
<tr>
<td>Mr Birama Diallo</td>
<td>MCT Country Project Coordinator, Bamako Republic of Mali</td>
</tr>
<tr>
<td>Mr Andrew Mancey</td>
<td>Info Specialist, SDNP, c/o UNDP, Guyana</td>
</tr>
<tr>
<td>Mr Andrew Chetley</td>
<td>Consultant, Healthlink Worldwide, London, United Kingdom</td>
</tr>
<tr>
<td>Dr. Roger Harris</td>
<td>University Malaysia Sarawak, Kuala Lumpur, Malaysia</td>
</tr>
<tr>
<td>Dr T H Chaudhry</td>
<td>Advisor to Chief Minister, Andhra Pradesh, India</td>
</tr>
<tr>
<td>Dr Rupert Brown</td>
<td>Project Officer, GGAP/ELDIS/IDS, Univ. of Sussex, United Kingdom</td>
</tr>
<tr>
<td>Dr Raslan Ahmad</td>
<td>Programme Manager, National IT Secretariat, Malaysia</td>
</tr>
<tr>
<td>Dr R K Pachuari</td>
<td>Director, Tata Energy Research Institute, New Delhi, India</td>
</tr>
<tr>
<td>Dr Punya Prasad Regmi</td>
<td>President, Society for Highland Development, Nepal</td>
</tr>
<tr>
<td>Dr Julita Nawe</td>
<td>Director, University of Dar es Salaam Library Services, Tanzania</td>
</tr>
<tr>
<td>Dr John Daly</td>
<td>Programme Officer, Infodev, The World Bank, Washington D.C., U.S.A.</td>
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<tr>
<td>Dr Gert-Jan de Vreede</td>
<td>Associate Professor Delft Univ. of Tech, The Netherlands</td>
</tr>
</tbody>
</table>
Appendix - 3

ICT experts interviewed during the first field study to India (February - March 2000)

1. Dr N Vijayaditya, Director General, National Informatics Centre, Government of India, New Delhi.
2. Ms Sefali Das, Joint Director, National Informatics Centre, Government of India, New Delhi.
3. Dr Sridhar Sarma, Joint Secretary, Ministry of Rural Development, Government of India, New Delhi.
4. Dr Prema Ramachandran, Advisor to the Planning Commission, Government of India, New Delhi.
5. Ms Malati Rao, Joint Secretary, Department of Health, Government of India, New Delhi.
6. Professor Subbiah Arunachalam, Distinguished Fellow, Dr M S Swaminathan Research Foundation, Chennai
7. Dr V Balaji, Head, Informatics, Dr M S Swaminathan Research Foundation, Chennai
8. Mr K G Raja Mohan, Project Manager, Rural Knowledge Centres project, Dr M S Swaminathan Research Foundation, Pondicherry
9. Mr S P Bobde, Senior Technical Director, National Informatics Centre, Pune
10. Mr M Mogli, District Informatics Officer, National Informatics Centre, Kohlapur District, Maharashtra
11. Ms Cathy Stephens, Deputy Director, The British Council, New Delhi
12. Mr P Jayarajan, Head, Information, The British Council, New Delhi
13. Mr Kumar Tiku, Information officer, United Nations Development Programme, New Delhi
14. Mr George C. Varughese, Vice President, Development Alternatives, New Delhi
Appendix - 4

Evaluation of the Rural Knowledge Centres of the MSSRF using the 'Pondicherry Framework' for the assessment of pro-poor ICT initiatives
Questionnaire survey among the beneficiaries (February - April 2002) (in Tamil)

<table>
<thead>
<tr>
<th>1. இல்லையின் கதைய்</th>
<th>2. கேட்டல்</th>
</tr>
</thead>
<tbody>
<tr>
<td>பெயர்</td>
<td>பார்வை முறை</td>
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</table>

3. முதலிய விளக்கம் எண்ணெய்துவத்து : 

4. குழப்பப்படுத்து : 

5. விளக்கத்து விளக்கத்து ? : ஆய்வுத் தோற்றம் 

6. விளக்கத்து விளக்கம், என்பது? :

7. இல்லையின் விளக்கம் என்பது : 

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8. குடமுடிய போய் விளக்கமாக? சுருக்கமாக பாதுகாப்பு விளக்கமாக
9. சூர்யாயத்தில் குவியின் தொழிலா? இயல்பு தினம் நேரடி அவிதிக்கும்
10. முதல் குறளா படிப்புத்த விளக்கமாக போய்க்கும்?

11. ஆமுகத் பயனும் குறுக்கும்? உடல் பெருவறிய குறுக்கும் எளிப்புச் செய்ய?

12. விளக்கமுறை போராடப்பட்டு கிரிக்கேட்டமாக? அவிதிக்கும்
13. கண்டுமைக்குத் துடுக விளக்கங்கள் வந்து போய்க்கும் விளக்கங்கள்?

14. குலும்புகள் கோளை கூட்டக்கும் எளிப்புச் செய்ய?
15. முதல் பால் எளிதான? அவிதிக்கும்
16. குலும்புகளின் போராடும் விளக்கம் நேரடி இனம் விளக்கங்கள்?

17. குலும்புகள் கோளைகுத்தொண்டு எளிப்பொழிவை விளக்கங்களை? விளக்கமுறை நேரடி எளிப்பொழிவை?

18. போராடும் குலும்பு கோளை சுதை கோளையும் விளக்கை விளக்கமுறைக்குமா? போராடும் நேரடி எளிப்பொழிவை?

19. படிப்புத்த விளக்கமாக மூலம் போராடும் விளக்கப்பற்றியது?

20. உறவு தினமுறை காய்ந்தம் வந்து போய்க்கும் விளக்கமாக?
21. தொன்று பார்வையில் நிரந்தரமான மருமராம்பும் பானையில் பருவாக்கள் கழுத்தில் கருத்திருக்கலாமா; மறுப்பிறகு

22. தொன்று கீழே காலவும் அதிககுருக்கில் அடைப்புகதையாளர்; மறுப்பிறகு

23. முன்னே தொடங்க விசாரா்மாக கொள்ளலாமா?

24. செடிகள் மின்னொளியும் குறியீடுகளும்; மறுப்பிறகு

25. பொறித்தள் திறக்குள்ளடி பாடலி; மறுப்பிறகு

26. மூச்சு தன்மையை பிடிக்க முறையும்?

27. வேலுக்குள் குறிப்பிட்டு விளக்கம் வேண்டுமா; மறுப்பிறகு

28. தற்போதே விளக்கம் தகவலாக கொள்ளலாமா?

29. அய்யம்மன் திறந்துவேற்பிருந்து விளக்கம் கொள்ளப்படாதிருந்தார்?

30. வரலாறு விளக்கம் எனவும் கொள்ளலாமா?

31. இணைப்பு எனவும்?

<table>
<thead>
<tr>
<th>பொறித்தள்</th>
<th>மறுப்பிறகு</th>
</tr>
</thead>
<tbody>
<tr>
<td>மாதிரி ஆறு</td>
<td>மறுப்பிறகு</td>
</tr>
<tr>
<td>இரத்தையையும்</td>
<td>மறுப்பிறகு</td>
</tr>
<tr>
<td>குறுக்காக்கியையும்</td>
<td>மறுப்பிறகு</td>
</tr>
<tr>
<td>காரணியையும்</td>
<td>மறுப்பிறகு</td>
</tr>
<tr>
<td>சொல்லையையும்</td>
<td>மறுப்பிறகு</td>
</tr>
<tr>
<td>தகவலும்</td>
<td>மறுப்பிறகு</td>
</tr>
</tbody>
</table>
32. இருவர் பொம்பானுக்கள் விளையாட்டு அறிவு கருத்து?  

33. தேசியக் குடியார்கள் சமபொழுதுக் காலத்து?  

34. சுமார் பொப்பாடு நடுப்பாச்சி வரும்?  

35. இதன் செலவு விளைப்பட்டு குழுவாளர் விளையாடுக?  

36. குறு குறுகளின் விளையாடுக?  

37. உலக இளங்கள் விளையாடுக?  

38. ஒரு கலநிலை பொழுதுகையானா?  

39. பொச்சு விளையாட்டு சமானமு?  

40. சிறுகுழால் இளங்களை காட்சியானா?  

41. போன்றி குழால் தமிழ் பொழுது காக்காள விளையாடுக?  

42. குறுகள் இளங்கள் விளையாடு கருத்து உருவானா?  

43. பெருஞ்சை தமிழில் விளையாடுக?  

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44. சுருக்கம் விளக்கப்பட்டது என்று நீங்கள் என்பது என்று தொடர்புமின்றி என்று என்பது என்று? அவர்கள் மாறு என்று என்று என்று என்று?

45. சுருக்கம் விளக்கப்பட்டது என்று நீங்கள் என்று?

46. அப்பொழுது குழந்தைகள் என்று என்று என்று என்று?

47. குழந்தை விளக்கமுள்ளது என்று என்று என்று?

48. குழந்தை என்று என்று என்று என்று என்று?

49. குழந்தை விளக்கமுள்ளது என்று என்று?

50. குழந்தை விளக்கமுள்ளது என்று என்று என்று என்று?

51. குழந்தை விளக்கமுள்ளது என்று என்று என்று என்று?

<table>
<thead>
<tr>
<th>குழந்தை விளக்கம்</th>
<th>திறக்கும்</th>
<th>பாடல் 2</th>
<th>பாடல் 1</th>
<th>பாடல் 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>மாகால் விளக்கம்</td>
<td>செய்து விளக்கம்</td>
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<tr>
<td>வேலூர் விளக்கம்</td>
<td>செய்து விளக்கம்</td>
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<tr>
<td>அரசேக்க அதிகம்</td>
<td>செய்து விளக்கம்</td>
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<tr>
<td>தில்லியர் கல்லூரிப் பள்ளி</td>
<td>செய்து விளக்கம்</td>
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</table>
52. குறிப்பிட்டு கூறும் முக்கியமான குறிப்பிட்டுகள் என்றால் என்ன?  

53. முரசுரமன்ற அழியாத விலைமதியின் விளைவுகளுக்கு குறிப்பிட்டு விளையாட்டுச் சீடால்டுகள்?  

54. குறிப்பிட்டு குறிப்பிட்டு விளையாட்டு தொடர்வர் நோக்கம்?  

55. குறிப்பிட்டு கூறும் விளையாட்டில் அமைக்கும் விளையாட்டிகளும் என்றால் விளையாட்டுகள்?  

56. குறிப்பிட்டு கூறும் முக்கியமான வகைகள்  

- முற்றிலும்  
- பெருமைகள்  
- சொல்லங்கள்  
- விளையாட்டிகள்  
- முயற்சிகள்  
- பாடல்கள்  
- கௌராண்டீசியன்  

57. என்று பொருளாயுள் குறிப்பிட்டு குறிப்பிட்டு அறிவிப்பிட்டுராள்?
58. அதேவாறு பொழுதுபோன்ற பாசம் நீக்க வேண்டாம், தம்புறல் எடுக்க வேண்டுமா?  

59. மபபோபப்பப, ஜாலம் பற்றி கேத்தவர்?  

60. ஞாலம் தம்புறலும் தம்புறல் செய்யப்படுமா? பாகங்கள் பார்ப்புக்கும் செய்யப்பட்டு வருமா?  

61. ஓவியில் ரோப் கொண்ட பால்பாண்ட்டைப் பலதம் பாய்ப்படுமா? அவைகள் இணைந்த உற்பாண்டு பாப்புப்பாண்டில் பாய்ப்படுமா?  

62. மேல் ரோப் வீட்டில் என்றெட்டுக்கேத்தவர்?  

63. ஆயிர எண்ணிக்கை ஞாலம்போது செய்யப்படுமதிக்குமா?  

64. ஆயிர விலையெடுத்த செய்யப்படுமா?  

65. சிறிதவுடன் அன்றித்து பாய்ப்படுமா?  

66. அப்படி பலகல்பை என்ற முனிவருடன் வேலை என்று வையுள்ள செயல்பால்?  
   • அளவு பொருளினால்?  
   • மபபோப்பால்?  
   • சிற்றுநெடுக்கப்பால்?  
   • கொண்டாட்டவளைனால்?  
   • சம்பவப்பால்?  
   • கவுரைந்தால்?  

66. இவ்வாறு என்றெட்டுக்கேத்து பலகல்பை என்று வையுள்ள செயல்பால் வையுள்ள செயல் என்று வையுள்ளது?  

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67. வெப்ப வளர்ச்சியானது அழைக்கப்படும் சரியான தெரியலாமாதா?
Evaluation of the Rural Knowledge Centres of the MSSRF using the 'Pondicherry Framework' for the assessment of pro-poor ICT initiatives

Questionnaire survey among the beneficiaries (February - April 2002) (in English)

1. Your details:

<table>
<thead>
<tr>
<th>Name</th>
<th>Sex</th>
<th>Age</th>
<th>Educational qualifications</th>
<th>Occupation</th>
<th>Monthly income</th>
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</tr>
</tbody>
</table>

2. Village:

3. Other skills known:

4. Land ownership:

5. Are you engaged in farming? Yes/No

6. If not? Why?

7. Place of work:

8. How do you commute to work: On foot/By bus/Own vehicle

9. Do your relatives live abroad? Yes/No

   Do they help you? Yes/No

10. How do you share your domestic work among the family members at home?
11. What kind of difficulties do you face? Why do such difficulties occur?

12. Do you occupy any public position in the village? Yes/No

13. If you help others, how do you do that?

14. Do people fight in the village? Yes/No

15. Do people steal in the village? Yes/No

16. How many times a week do you visit Pondicherry?

17. Do any members of your family drink? Are there any problems due to that?

18. Do you have to bribe anyone for any public service? For what kind of service do you have to bribe the officials?

19. How far do you/your children have to walk to attend school?
   Primary school       Middle school       Higher secondary school

20. How far do/did you/your children have to travel to attend college?

21. Have you been involved in any community work? Yes/No

22. Have you approached any public official with your grievances? Yes/No

23. How many animals do you have?
24 Is your land a cultivating land? Yes/No
25 Do you get enough water for irrigation? Yes/No
26 How many times a day do you go out fishing? Yes/No
27 How many times a year do you harvest your produce? Yes/No
28 Is the weather conducive for your occupation? Yes/No
29 What kind of difficulties do you face while farming/fishing?

30 How are the road facilities in your village?

31 Do you have any of the following?

<table>
<thead>
<tr>
<th></th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
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<tr>
<td>Bore well</td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
</tr>
<tr>
<td>Own vehicle</td>
<td></td>
</tr>
<tr>
<td>Own house</td>
<td></td>
</tr>
</tbody>
</table>

32 Are food items very expensive?

33 Do your children have mid-day meals at their schools?

34 Where do you find employment opportunities?

35 Why is it very difficult finding employment these days?
36. Do you have small business skills? Have you been engaged in any small business in the past?

37. What do you need for self-employment/small-business?

38. Have you borrowed any loan from a bank at anytime? Yes/No

39. If so, at what interest rate?

40. Do you get your wages in full? Yes/No

41. What do you think about the Rural Knowledge Centres?

42. Do you have any other centre such as the Rural Knowledge Centres?

43. Do you visit the centre? How many time a month?

44. If you don't visit, do your family members visit the centre? If so, how many times a month?

45. If you don't visit, what are the reasons for not visiting the centre?

46. What kind of information do you get in the centre?
47 Have you used a computer at the centre? If so, for what reasons?

48 What kind of information did you obtain when you visited the centre?

49 Were you satisfied with the information passed on to you?

50 What kind of information do you expect the centre to hold?

51 How many times have you visited the centre for the following reasons?

<table>
<thead>
<tr>
<th>Details</th>
<th>Daily</th>
<th>Twice a week</th>
<th>Once a week</th>
<th>Twice a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market prices</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment opportunities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government announcements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farming-related information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To obtain 'buy and sell' information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To learn typing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For typing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To learn computers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus time table information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read daily newspaper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To telephone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
52 Should the centre function in the evenings and during holidays?

53 Will you share your knowledge at the centre for the benefit of others?

54 What kind of benefits have you received from the centre to date?

55 Where else other than the centre will you go to seeking information?

56 What kind of help does the centre offer?

- For children :
- For the elderly :
- For women :
- For the farmers :
- For the fishermen :
- For the public :
- For the village, in particular:

57 Will you lodge your complaints and public grievances at the centre?

58 Do you find government information at the centre?

59 What kind of government information have you obtained at the centre?

60 How will you go to the centre? How far is the centre from your home?
61 Do you usually read the news on the black board only? Or do you also enter inside and read the news on the computer?

62 Have you read the centre's newspaper "Namma Vuru Seithi?"

63 What kind of information did you find useful in that newspaper?

64 Will you advertise in that newspaper?

65 Will you like to receive news on a daily basis?

66 In what format will you prefer receiving the daily news?
   • In print
   • On the radio
   • On the television
   • On the black board
   • On the computer

67 What kind of information do you need in order to improve your livelihood standards?

68 Any suggestions that you wish to offer for the betterment of the centre?
Evaluation of the Rural Knowledge Centres of the MSSRF using the 'Pondicherry Framework' for the assessment of pro-poor ICT initiatives

Questionnaire survey among the project volunteers (February - April 2002)

1. Your personal details:

<table>
<thead>
<tr>
<th>Your name</th>
<th>Your place of work</th>
</tr>
</thead>
<tbody>
<tr>
<td>How long have you been associated with the project</td>
<td>How many hours a day do you work?</td>
</tr>
<tr>
<td>Your native village</td>
<td>Your monthly income</td>
</tr>
</tbody>
</table>

2. Your family details:

<table>
<thead>
<tr>
<th>Name of your spouse</th>
<th>Spouse's occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spouse's monthly income</td>
<td>Spouse's native village</td>
</tr>
<tr>
<td>Parent's details</td>
<td>Children's details</td>
</tr>
</tbody>
</table>

3. What are the main reasons for your volunteering at the Centre?

4. Have you been personally benefited by working at the Centre? If so, can you elaborate?
5. What are the benefits offered by the Centre to the community?

a. For individuals

b. For the community

c. To the natural environment of the community

d. To the physical infrastructure of the village

e. Economic wellbeing
6. What are the demands that the Centre is not able to meet?

7. What would you do in order to improve the service standards of the Centre?

8. What kind of training needs do you have in order to perform effectively?

9. Any suggestions you might wish to offer?
Evaluation of the Rural Knowledge Centres of the MSSRF using the 'Pondicherry Framework' for the assessment of pro-poor ICT initiatives

Questionnaire survey among the project staff (February - April 2002)

1. Your name:

2. Your place of work:

3. Your role in the project:

4. How long have you been associated with the project?

5. What is your main activity?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Direct</th>
<th>Indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information gathering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information dissemination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content editing</td>
<td></td>
<td></td>
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<tr>
<td>Web development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware/network maintenance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database maintenance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Networking of people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other duties (please specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Who are the main target groups of your project?

7. What are the perceptions of these target groups about your project?

8. What would you consider as the main strengths and weaknesses of the project?

9. What are the main challenges faced by the project?
10. Can you describe the key benefits passed on to the communities in the following ways:

For individuals

a. For the community

b. To the natural environment of the community

c. The physical infrastructure of the village

d. Economic well being
11. What are the main vulnerability factors the project aims to address?

12. Are there evidences to prove that the use of information and communication technologies has made some positive changes among the communities?

13. If information supplied by the project empowers the people to exercise their rights, are there enough evidences to prove this fact?

14. How would you describe the social inclusiveness of the project? What are the challenges faced?

15. Are there any technological hitches that you have faced during the last year? If so, how have you overcome those problems?
16. What motivates you the most to contribute your skills and expertise to the project?

17. Do you think that your contribution has indeed resulted in meeting the project's goals and objectives?

18. What are the future plans of the project?