CHAPTER I - INTRODUCTION

Universal access is a means to promote economic growth and development, consolidate democracy and human rights, and increase the capacity of ordinary people to participate in governance

- *South Africa's former president, Nelson Mandela.*

Synopsis

In this chapter, the background of the study with the explanation of the value adding model is given. The problem statement, which comprises the lack of case studies on how to implement a telecentre in order to address the specific needs of a rural agricultural community, is explained. The aim of the study, which involves research on the information needs of the community, how information should be made available in order to address these needs and what technologies should be used, is described thereafter. This is followed by an exposition of the research hypothesis, which is based on the fact that it is possible to develop guidelines towards the establishment of a telecentre in a rural agricultural community in South Africa. The nature of research is described, followed by a description of the literature study and the practical implementation of the pilot project. The research group is then described. The definition of terms comprises an explanation of 16 terms applied in this study. Thereafter, the literature study is explained, the research procedures are given, followed by a short extract of the interpretation and recommendations, which are discussed fully in the last Chapter. This is followed by an outline of the structure of the study as a whole.
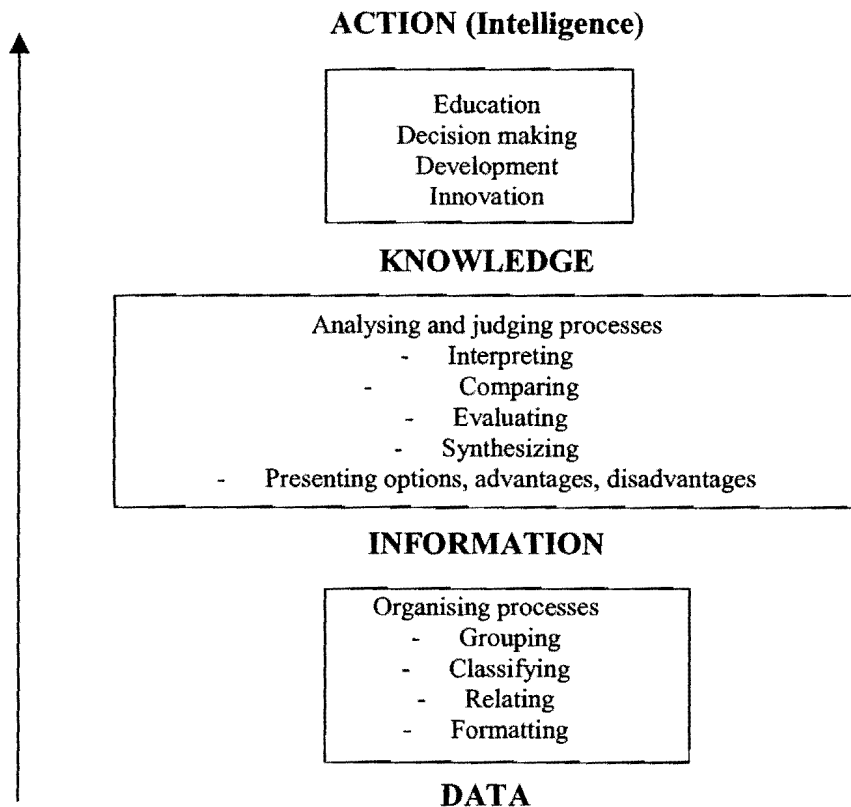
1.1   BACKGROUND

Thabina is a rural, farming community in the Northern Province of South Africa that has recently established a WUA (Water Users Association). They would now need information on farming and irrigation practices, and would now also have to communicate with other WUA's and with other agriculture-related organisations.

This pilot project was undertaken in order to develop guidelines towards the establishment of a telecentre for this farming community at Thabina, by which means the farmers could obtain agricultural related information in order to address their specific needs. They needed information on irrigation methods, land care, mechanisation, etc., and to communicate with other agriculture-related organisations.

This is a research and pilot development project at Thabina. The first phase of the pilot project was the preparatory phase and comprised a background study on telecentres, as well as the necessary information needed for the establishment of a telecentre. It was foreseen that the telecentre could be established in the existing building, but it had to be secured first. A manager was also appointed by the Department of Agriculture, Land and Environment.

It had then to be established what kind of information would be needed by the Development Committee. It was foreseen that the type of information needed from the centre would at first be agriculture-related information, and that afterwards the centre would be developed into a multipurpose centre where information on tele-medicine, tele-schooling, etc., could also be obtained. The question was, what would be necessary to uplift the social and cultural activities of this rural agricultural community in South Africa by means of the establishment of a telecentre? Very little information on this topic is currently available and with the pilot project it was envisaged that research could be done in order to find solutions on how to develop the rural agricultural community by the value adding model (Boon, 1992) - where data is converted into practical, applicable information that could lead to knowledge that leads to action - the obtaining of the knowledge by means of a telecentre:

Value adding model (Boon, 1992)

ACTION (Intelligence)

| Education |
| Decision making |
| Development |
| Innovation |

KNOWLEDGE

| Analysing and judging processes |
| - Interpreting |
| - Comparing |
| - Evaluating |
| - Synthesizing |
| - Presenting options, advantages, disadvantages |

INFORMATION

| Organising processes |
| - Grouping |
| - Classifying |
| - Relating |
| - Formatting |

DATA

These value-added processes have as their purpose the promotion of data to information, to knowledge to actions, actions such as *decision-making and development* (Boon, 1992):

Data are facts and concepts, normally structured according to some or other method of organisation.

Information is regarded as data in an appropriate and usable form and is regarded as a homogeneous entity. What might be regarded as information by one user in a particular situation, could be data for another user and knowledge to the third.

Knowledge is information processed by an individual or group within an existing knowledge with a view to appropriate actions.

Intelligence is the ability of an individual to adapt to the demands of the environment in a coherent manner.

Development can be regarded as a process, a condition or a combination of the two. Sometimes development is also seen as synonymous with modernisation or transformation. There are three core values of development:

- sustaining life (ability to provide basic needs)

- self-esteem (personal growth)

- freedom from servitude (ability to choose)

Development may be described as a complex process that to a large extent depends upon the internal, innovative capabilities of individuals and the community, in a context of established norms, opinions and values. Development can also be stimulated, facilitated and funded by external communities and individuals. Development has its basic origin in the calling which God gave to man, namely, to manage his creation. Development includes socio-cultural, educational and economic change, to name just a few. It is primarily concerned with the wellbeing of people – for example, in a material, cultural and religious sense. It entails quantitative and qualitative change and progress: sustained improvement in the standard and quality of life.

The pilot project was initiated at the beginning of 2000, after the WUA had been established. Workshops were held with the Development Committee appointed by the community. During these workshops, it became clear that the farmers needed the information to be obtained from the various technologies to address their needs. As explained in chapter IV, approval had to

be obtained to commence with the pilot project, and afterwards the pilot project was executed according to the various phases.

1.2   PROBLEM STATEMENT

There currently exists a lack of case studies on how to make the necessary information available to a rural agricultural community in order to have self-sustainable development. It is possible that the real and identified needs of a rural community could be addressed by the applicable communication tools offered by a telecentre. There are, however, no existing guidelines for the introduction of these tools through a telecentre serving a South African rural agricultural community.

The pilot project was undertaken in order to determine whether the information needs of the rural community at Thabina could, by means of ICTs, provided by a telecentre, be sufficiently addressed.

Although various telecentres have been implemented nationally and internationally, the reason for the failure of most of the current established telecentres in South Africa (by the USA), is that they were established as 'boxes from the sky' – which means that no surveys of the real needs of the specific communities were made beforehand and telecentres were often imposed on the local community .

1.3   THE AIM OF THE STUDY

The primary reason for this study was to define directives, or guidelines, for the establishment and the infrastructure of the establishment of a telecentre in a rural agricultural community in South Africa.

It was the aim of this research project to determine:

- The specific information needs of the community of Thabina and,

- if addressed, would enable them as a Water Users' Association (WUA), to become self-sustainable.

- How information could be made available to them and in what form it should be introduced to be understood by this mostly illiterate community; and

- Which technologies should be introduced to the community, i.e. appropriate technologies to obtain the necessary information to become self-sustainable and to address their specific needs.

1.4   RESEARCH HYPOTHESIS

It is possible to establish a successful telecentre in a rural agricultural community in South Africa on condition that community ownership is established from the beginning by means of personal stakeholder involvement. This is possible only with knowledge of Development Support Communication (DSC); sufficient knowledge of the information needs of a specific community; and the necessary knowledge on how to obtain the desired information from a variety of technologies in order to address these needs of the community.

1.5   NATURE OF RESEARCH

The research project comprised a survey among stakeholders, interviews and participant observation of the interaction between role-players during workshops. The methodological perspective can be described as broadly qualitative – allowing the voices of the participants to be heard during the research.

It also comprised a literature study on DSC and related communication paradigms, as well as the steps to be taken in order to establish a telecentre in a rural agricultural community in South Africa. Research methods comprised participant observation during the workshops held, as well as personal interviews with the members of the Development Committee.

The Researcher, by means of participatory communication and observation, made sure to obtain the opinions of the members of the Development Committee on the establishment of a telecentre in their community. The questions asked and interest shown in the pilot project indicated that there was undoubtedly a need for purposeful communication. Practitioners should be involved in preparing media campaigns (which medium for what kind of information to be disseminated) that will address the information component of development needs, (thus) audience characteristics, and our knowledge of them are central topics in what is generally called social marketing (Burton, 1998:89).

1.6   METHODOLOGY

1.6.1   Literature search

A literature study was done that touched a number of fields, namely information science and development communication, telecommunications and information science essential for the establishment of a telecentre. In other words, whether

applicable information could be obtained from the technology provided by a telecentre, in order to develop a rural community towards self-sustainability.

1.6.2 Field work

Research field work was conducted by means of interpersonal communication, based on the DSC paradigm, and it comprised interaction with stakeholders, participant observation and personal interviews, as well as demonstrations to the Development Committee of the various technologies. Applicable information obtained from these technologies could address their identified information needs. Field work was an empiric survey of community needs, stakeholder involvement and existing and future infrastructure.

1.7 RESEARCH GROUP

The pilot project was aimed at the farming community of Thabina, situated near Tzaneen in the Northern Province of South Africa. The irrigation scheme of the farmers of Thabina, was identified by the Director of the Department of Agriculture, Land and Environment as one of the irrigation schemes to be upgraded and rehabilitated so that the community to which the scheme belongs, could become self-sustainable. In order to get access to the subsidy scheme for farmers from the Department of Water Affairs and Forestry (DWAF), these farmers had to establish a new order at their irrigation scheme, namely a WUA. This subsidy scheme from DWAF is allocated for bulk infrastructure, such as canals, weirs, pump stations, pump lines and various other agriculture-related issues, needed for sustainable farming.

There are 42 female farmers and 95 male farmers. The predominant ethnic groups are Shangaan (110 farmers) and Sotho (26 farmers). The average age of the farmers is around 60 years and the average number of people per household is 9. The illiteracy rate is 45%. Farming is done by the farmers: 61% full-time and 39% part-time. The major income of the community is pensions, income from formal employment and the sale of farm produce. The sizes of the farms vary between 1 ha (104) and 5 ha (4). The standard of agriculture practiced is sub-subsistence to subsistence – farmers rely on other sources of income to survive.

1.8 DEFINITION OF TERMS

1.8.1 Information

According to Leach (1999:77), information needed at the telecentre for practical implementation is not something which one party gives to another party. It is

interactive, where the rural adults are seen as providers of information themselves – information is shared and the oral format in a workshop situation lends itself thereto, whereas, with verbal communication, it becomes easier for people to get the message. When information is interactive, it is shared by the developer and those to be developed, as the developer has new information and those to be developed have their own information on practices ("how things are done now").

1.8.2 Communication

According to Mody (1991), the word "communication" comes from the Latin "communis", that is "common". The aim of communication as an outcome is to "make common", to share. Communication is achieved when the sender and the receiver have common meaning, that is, when the meaning the sender wants to share is identical ('isomorphic' with) to the meaning the audience receives. Rogers (1995) defined communication as the process by which two or more people share knowledge so as to arrive at a common understanding.

Communication is also defined by Nair and White (1994:155) as a "two-way process of convergence, rather than a one-way, linear set in which one individual seeks to transfer a message to another". Communication is often used as within the first type of the two types of definitions of communication identified by O'Sullivan *et al* (1994:50): "The first sees communication as a process by which A sends a message to B, upon whom it has an effect. The second sees communication as a negotiation and exchange of meaning in which messages, people-in-cultures and 'reality' interact so as to enable meaning to be produced or understanding to occur". The pilot project was based on the latter.

The interpersonal process of communication is basically represented by the following, where S is the sender, M is the message, and R is the receiver.

$$S \longleftrightarrow M \longleftrightarrow R$$

Persons who are visible and/or audible to each other (or both) can take turns at being sender or receiver as they converse. The arrows going both ways show that the sender and receiver can modify the message until it conveys the meaning they intended. It is

therefore the needs and preferences of the audience, which should dictate how the producer designs media messages. It is important that both parties in the communication process acts as the receiver, as well as the communicator of messages – this is how mutual understanding is established by means of feedback.

1.8.3 Development Communication (DC)

DC is described by Malan (1998:51) as all forms of communication that are used for the improvement (such as social upliftment by means of capacity building through training) of an individual, community, or a country's material, cultural, spiritual, social and other conditions. Culturally, the areas of development and communication will overlap to the extent that both involve processes of making sense, giving meaning, reaching goals, improving and finding solutions, creatively changing the environment, and creating visions based on values and beliefs.

1.8.4 Development Support Communication (DSC)

DSC is a strategy for reaching specific groups of people with new ideas, information, and technologies to get rural communities to participate in development programmes. In the comparative table of Jayaweera and Amunugama (1989:60) it is pointed out that DSC differs from DC in the following respects: DSC applies to micro or local entities, it is goal-orientated and concerned with effects, time bound, message-orientated, uses a whole range of culture-based media, is invariably interactive and participatory and it has gained enormous credibility.

DSC is communication that is specifically designed to support a particular development programme. It can therefore work effectively within its limited sphere, even in the absence of DC throughout the rest of society. Within DSC the negotiation and exchange of meaning of culturally determined interaction is of primary importance (Jayaweera, 1987:xviii).

1.8.5 Participatory communication (PC)

Participatory communication is a means to help establish or enhance dialogue and interaction among people who share concerns about issues and problems. The basic tenet of participatory communication is that the communication process is more important than the production of media products (Richardson, 1997). UNESCO also defined PC in 1978 as the social process in which groups with common interests

jointly construct a message oriented to the improvement of their existential situation and the change of the unjust social structure (in Mody, 1991:30).

1.8.6 Sustainable development

"Basically it has to do with democracy, with participation, with spreading of knowledge and insight and ability to take care of our future" (Fraser and Villet, 1994:1). According to Agunga (1998:29), it embraces issues like participation, integration, collaboration, delegation, linkage, co-ordination and teamwork – all of which imply communication.

1.8.7 Telecentre

The term telecentre has been used to describe a broad range of services, including commercial call centres, satellite offices with facilities (e.g. fax, telephone, computing, Internet) use. Bagley *et al* (1994) notes that in the United States the term telecentre often refers to a "telecommuting centre", in other words, a location (usually urban) where workers can work by using telecommunication technology to keep in touch with their main offices. When used in this sense, a telecentre is the same as a "tele-work" centre; - a centre that helps telecommuting by bringing the work to the workers, instead of vice versa (Campbell, 1995a).

For the pilot project, however, the term telecentre will comprise the following - characteristics of both a Multi Purpose Community Centre (MPCC) and an USA telecenre, as based on the paper by Benjamin *et al* (2000).

- **Location:**

  The telecentre should be, like the MPCC's and USA telecentres, located in a formal building that is durable, provide protection to equipment and is more spacious to allow for the possibility of expansion of facilities. It will therefore be accessible to the community and become associated in the minds of users with other resources.

- **Infrastructure:**

  A typical centre should be well equipped with a variety of equipment and offer a wide range of services, from telephony to fax, photocopying, Internet and other computer-related services such as the creation and printing of CVs and documents for the WUA, as in the case of the pilot project. Whereas MPCC's

equipment is usually relatively new, the equipment for this centre should be bought second-hand, due to a lack of funds. It is foreseen that all this equipment would be used to their full, as the equipment was identified by the Development Committee as applicable, in order to address their information needs. Although training would be provided to the Manager only, it was foreseen that this Manager could train the rest of the users. Unlike the USA telecentre, the equipment of this centre should be insured and have adequate protection. One of the lessons learned from Benjamin *et al* (2000), is that there is a great demand for telephony, which is why it was foreseen that at least four telephones should be installed in this telecentre.

- **Staff**:

The owners and managers of Vodacom shops reflect a more uniform grasp of business, and although the USA provides training, the manager, or intermediary of this telecentre, should, in the case of Thabina, be trained in business and in computer literacy by the Researcher. The strength of the management should lie in the managers' understanding of the local community and his/her vision for growth and expansion in terms of impact on the local community.

- **Ownership**:

Like both the USA telecentres and the MPCCs, this telecentre should be community owned by the Development Committee, appointed by the community itself. The community should then be able to drive its own upliftment through the opportunities presented. As with a community owned MPCC, the provision of services could be hindered through the lack of funding.

- **Users**:

The facilities and services should draw users from different age categories and occupations. Although non-telephonic equipment is rarely used, it was foreseen that the users should make ample use of the fax, computer and the Internet. The users of the MPCC are often unable to afford the cost of many of the services (Benjamin, 2000), and it was foreseen that this might also be a weakness in this telecentre.

1.8.8 Management

Management is probably the most important issue to receive attention in the process of establishing a telecentre – they will inevitably lack experience and training (Malan, 1999:6). If not computer literate, a manager can be seen as a person(s) to be trained, to translate the media messages into an understandable, digestible (indigenous) language, as most of the members of the community in a rural area, would be (computer) non-literate. During the research for the pilot project, it became apparent that only one of the members of the Committee was computer literate. Although the manager appointed was not computer literate herself, she was more than eager to learn the operation of the various technologies. As she was dedicated, it was foreseen that she would be able to teach the other members of the Development Committee how to operate the computer, fax and photocopier. Training will be necessary in all stages of telecentre projects – not only to the manager, but to users by the manager … in order to upgrade skills as technical and content requirements change (Anderson *et al*, 1999:4). As Richardson (1997:2) mentioned, there also needs to be a focus on training of the manager and commitment to spend money on it both in the short and long term.

1.8.9 Community

A community telecentre is essentially a commercial facility serving a rural region … located in a village situated in the centre of the region (Ernberg, 1999:9). The 'community' telecentre attempts to generate a public good but eventually the telecentre can and should charge fees for its services. The relationship that the 'community' telecentre has to the private sector is three-fold:

- Business people can use the facility and develop new skills and services there.

- They can also use the infrastructure to develop products and services that add value to the investment made in technology and people at the telecentre.

- Lastly, the community telecentre functions as a conditioning program or a 'market maker' for the private sector to eventually develop their eventual entry into the marketplace (Fuchs, 1999:3).

1.8.10 Rural community-orientated telecentres

These are centres that are situated in rural areas and that provide local rural communities with access to ICTs. Usually these centres have training as their main activity, but they may also provide information technology-based services (Conradie, 1998:103).

1.8.11 Modernisation

Modernisation is conceived here as a process of diffusion whereby individuals move from a traditional way of life to a more complex, more technically developed and more rapidly changing way of life. But this is a top-down process, where the developer gives the information to the passive recipients. There is a shift, though, observed by Servaes (1995:39) from modernisation and dependency theories to more participating and normative holistic approaches. Although it was the aim of this project to 'modernise' the community of Thabina, information was shared in a participating manner.

1.8.12 Attitude

Attitude is a relatively enduring organisation of beliefs about an object or situation predisposing one to respond in some preferential manner (Rokeach, 1966:530). According to Agunga (1998:30), (only) when a community develops a vision, it will find the resources to meet its goals. Throughout the workshops on the introduction and explanation of the term telecentre and the demonstration, which were both conducted interactively, the attitudes of the members of the Development Committee, to whom the various technologies were demonstrated, were perceived to be one of interest. It could be said that they were open-minded towards the new information communicated to them.

1.8.13 Attitude change

Attitude change would be a "change in predisposition, the change being either a change in ... a structure of beliefs, or a change in the content of one or more of the beliefs entering into the attitude organisation" (Rokeach, 1966:530). As only one of the Development Community's members were au fait with the computer, the rest of them had to be convinced that the technology could assist them greatly in becoming informed on the various applications of agricultural information, in order for them to become a progressive society.

12

1.8.14 Access

Access refers to the availability of media for public service. It may be defined in terms of the opportunities available to the public to choose varied and relevant programs and to have a means of feedback to transmit its reactions and demands to production organisation (Servaes, 1995:46). It was presumed that after the implementation of the planned project, the community would have access to the various technologies.

1.8.15 Participation

Participation implies a high level of public involvement in communication systems. It includes the involvement of the public in the production process, and also in the management and planning of communication systems. Right through the pilot project, the members of the Development Committee, to whom the technologies were introduced and demonstrated, were interested in the information. They wanted to participate in becoming an information-rich community, as the essential information was made available to them by means of the pilot project.

The Researcher made a study of the technologies to be demonstrated and the information to be obtained from the technologies. After the needs assessment, the Researcher decided on the information that would be essential to address the information needs of Thabina, as "it is better to start with a specific development problem and the context in which the problem is to be addressed, and from there to decide on the most appropriate technology to be used" (Denbigh, 1994, as described by Campbell, 1995a).

1.8.16 Verbal interaction

Verbal interaction is described by Leach (1999:84) as a communication process where reaction, comment and discussion would take place. The pilot project was based on verbal interaction. During the workshops held, the opinions of the Development Committee were aired and verbal interaction took place among the various role-players.

1.9 LITERATURE STUDY

To ensure a sound understanding of DSC and telecentres, an extensive literature study on telecentres, involving international and local telecentre models and guidelines, was undertaken. This was done using the Internet (various Web sites and e-mail to correspond

with various persons in development communication) and the Information Service of the University of Pretoria. The appropriate selected literature on telecentres was thereafter studied and analysed in the context of the role and function of telecentres, international and local. Although the Universal Service Agency (USA) has done extensive pioneering work and has compiled a manual for the establishment of a telecentre, no literature could be found on the establishment of a telecentre in a rural agricultural community in South Africa. But a huge amount of information that could be demonstrated to the illiterate community of Thabina, was obtained from the Internet and various Web sites (see chapter on the demonstration of the various technologies and the information to be obtained from these technologies).

1.10 RESEARCH PROCEDURES

This aspect is described comprehensively in chapter V on page 94.

Personal interviews and workshops was based on participant observation:

- during the **preproduction audience phase,** where the letters to obtain permission to establish the telecentre, and the meaning of the telecentre was explained as well as where the background was sketched of how the telecentre would fit into their management of the WUA;

- during the **implementation phase,** with the demonstration of the various technologies.

1.11 INTERPRETATION AND RECOMMENDATIONS

Chapter VI is devoted to interpretations, conclusions and recommendations. Aspects discussed are the participatory communication process, time-related issues, the needs assessment, the demonstration of the various technologies and the workshop situation.

1.12 STRUCTURE OF THE STUDY

Chapter I comprises the problem statement, aim, hypotheses, nature and methodology of the research project. A definition of terms follows, followed by information on the literature study, analyses procedures and interpretations. In chapter II an exposé of the challenges in DC is presented, including the extension of the Information Superhighway to Africa. Thereafter the role of ICT in agriculture in South Africa is discussed, focussing on the role that telecentres might play in providing these ICTs. Chapter III deals with the preparatory phase in the establishment of a telecentre in a rural agricultural area in South Africa. Chapter

IV deals with the actual implementation of the pilot project planning at the rural agricultural community of Thabina. The evaluation of the core elements of the pilot project is described in chapter V, and chapter VI contains the interpretations, conclusions and recommendations of the pilot project. Lastly, before the references, the abbreviations used are explained.

CHAPTER II - CHALLENGES IN DC

Synopsis

In this chapter, the paradigm shift from DC to DSC is explained. Communication as a mediation tool which brings different social groups together, as well as development, telecommunications and information as a continuously growing resource are discussed.

The various ICTs and DC are looked into and the communication tools such as the Internet, telematics and ICTs are explained. The question of the possibility to extend the Information Superhighway to Africa, including problems and solutions, is discussed. Afterwards ICT in agriculture in Africa is explained, and the discourse is then narrowed down to ICT in agriculture in South Africa as such, with the role that telecentres might play in bridging the gap between the 'haves' and the 'have nots' of ICT, or the information rich and information poor, as described by Britz and Blignaut (1999:115).

2.1 OLD VERSUS NEW PARADIGMS IN DC

New information technologies continue to offer great opportunities for African countries in accessing information needed for development from the industrialised world with greater ease and at a lower cost (Alemna, 1999). The dramatic acceleration in the development and use of ICTs during the last few years has set in motion a worldwide process of transition from the Industrial to the Information Society.

Since its inception, DC has been a dynamic discipline, evolving and adapting to new development paradigms. In the past, development approaches were top-down and based on economic development and the transfer of technology and information. Today, participatory and people-centred development approaches are used - such as DSC. A variety of communication models and approaches have been developed in the last 25 years. Now researchers in DSC can draw upon the lessons learned to use communication technologies, methodologies and techniques in the most effective manner to promote sustainable development efforts and to adapt to changing societal needs. "Village communities need to be empowered so that they can be in a position to put forth their ideas as 'equal' actors in the process of development planning, design and execution" (Malan, 1996:18).

The major challenges facing the world today include managing the environment in a sustainable manner, managing the exploding rate of population growth and urbanisation,

ensuring food security, meeting health, education and literacy needs and eliminating poverty (Malan, 1996). Meeting these challenges requires information, knowledge and a participatory process of social change, and communication is an essential element in this process. Establishing a dialogue with people can empower them to take decisions for their own development. Communication is essential in order to increase participation, provide information for change and innovation and help in the sharing of knowledge and skills (Balit, 1996:1). As old as the concept of communication might be, dating back to the inception of mankind, there are as many theories today relating to it. For the development sphere, the concept of DSC has been established.

2.1.1 A paradigm shift in communication strategies: DC versus DSC

The 1980's have seen what is sometimes called a paradigm shift, described as a movement, from the concept of DC with its emphasis on top-down, big-media-centred government-to-people communication to DSC, focusing on co-equal, little-media-centred, government-with-people communication. Moreover, the situation is complicated by the theoretical upheaval following the 'paradigm shift'. In his survey of international research, Halloran (1987:146) describes critical scholars' "dissatisfaction and concern at the lack of progress, confusion, etc., in development communication ...". This might well be due to the fact that communication took place according to the top-down DC paradigm – if it is taken into consideration that the DSC paradigm was initiated in later years only.

What are the differences between these two often used theories - the Development Communication (DC) and the Development Support Communication (DSC) paradigms? Why is the one acknowledged as 'old' (DC) and the other as 'new' (DSC)? These two theories have vast differences which are compared according to the following categories (Malan, 1996:16 and Servaes, 1995:48):

Development Communication	Development Support Communication
Source:	
University-based	Development Agency-based
Structure:	
Top-down, authoritarian	Horizontal knowledge-sharing between benefactors and beneficiaries
Paradigm:	
Dominant paradigm of externally directed social change	Participatory paradigm of an endogenously directed quest to maintain control over basic needs
Level:	
International and national	Grassroots
Media:	
Big media: TV, radio and newspapers	Small media: video, film strips. Traditional media. Group and interpersonal communication
Effects:	
To create a climate of acceptance by beneficiaries for exogenous ideas and innovations	Create a climate of mutual understanding between benefactors and beneficiaries

2.1.2 Communication as a mediation tool

Communication is a mediation tool which brings different social groups together to discuss their interests and needs to reach a consensus for action. Communication technology and media are useful tools in this process, but should not be considered as an end in themselves. Sustainable people-orientated development can only be realised if information and knowledge are shared and beneficiaries are involved and motivated. This indicates that "the essence of involving rural people in their own development lies in the sharing of knowledge. Sharing is not a one-way transfer of

18

information; it implies rather an exchange between communication equals. On the one hand, technical specialists learn about peoples' needs and their techniques or production; on the other, the people learn of the techniques and proposals of the specialists" (Balit, 1996:5). He also said that DSC efforts begin by listening to people and taking into account their perceptions, needs, knowledge, experiences, cultures and traditions (1996:6).

2.1.3 Development and telecommunications

The question should be asked whether the Information Superhighways are perhaps becoming a more important part of the infrastructure than ordinary highways (Ernberg, 1999:2). The vital importance of telecommunications for economic, social and cultural development is clearly established. No economic, social or cultural development can occur without telecommunications - but it should be implemented in a participatory manner - according to the needs of the particular community (Ernberg, 1999:5).

The rapid development of IT and telecommunications in industrialised countries threatens to leave the developing countries even further behind, while, ironically, the information-intensive service sector is a sector where developing countries could compete successfully with advanced countries. This is because information is a global entity – connecting by means of telecommunication ensures the provision of information, globally available, whether you are from a developed or developing world. This is evident, for example, by the increasing number of information processing jobs, outsourced by transnational companies to developing countries, but only to localities where adequate telecommunications are available (Ernberg, 1999:3, Agunga, 1998:20 and Anderson *et al,* 1999:3).

2.1.4 Information as a global resource

It should be borne in mind that information is not only a non-polluting and renewable, but also a continuously growing, resource (Ernberg, 1999:3). Today, information is increasing: instant contacts between millions of people through computer networks trigger chain reactions, not unlike nuclear reactions. Access to this global resource is becoming the driving energy of development, and is as important as access to roads and to electrical power. IT and global telecommunication and computer networks will have the same, if not greater, impact on society, as the invention of electricity. In the

rich world it will soon become as cheap and easy to plug into the global information resource when one needs to know something, or wishes to share knowledge with someone, as it is to connect to and use electrical power to shave or vacuum (Ernberg, 1999:3). According to Britz and Blignaut (1999) the concept of information poverty and richness are closely associated with the concept of information technology. The nations that have adopted and applied new innovations in technology have a competitive edge over their rivals. The existing disparities in wealth and standards of living between nations of the developing world and the developed world, is, according to them, to a large extent a function of technology (1999:112). According to them, information poverty is caused by reasons such as the unavailability and inaccessibility of information, the inability to give substantial meaning to available information and specific information environments (1999:116). They therefore describe the prerequisites for information health as education (cognitive abilities to give substantial meaning to information), information literacy to be obtained through information literacy programmes (the ability to know when someone needs the information, identify and find the needed information, evaluate the information, organise and use it) and the availability of essential information (availability, usefulness and accessability of information which is needed for development) (1999:116).

2.2 INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) AND DEVELOPMENT COMMUNICATION (DC)

It is generally accepted that the emergence of new ICTs is contributing to the creation of a new 'information society' that heralds profound changes in many walks of life (Conradie, 1998:99, Burton, 1998:90, Beyers, 1996). It is also apparent that there are both opportunities and threats inherent to this emerging communication dispensation. For developing countries the question that should be afforded high priority is not whether they should participate in the Information Society, but rather how information technologies can effectively be applied to development. The importance of information in the development process is increasingly recognised, not only by those involved in development work (Leach, 1999:71; Andreasen, 1995:316 and Louw, 1995:58), but also by the potential recipients of such information:

We (peasants in Burkina Faso) want to be informed because we have information needs … We know that the problems we face are faced by people elsewhere. People have found solutions to these problems, but we are not aware of the solutions found … What should

20

we do to find information? We desire that the institutions that work with us help us to find approaches and structures that can satisfy our information needs (Leach, 1999:71).

As indicated above, "there are needs for telecommunications in rural and remote areas but there is not yet a market" (Ernberg, 1999:10). It is also generally accepted that the emergence of new ICTs are contributing to the creation of a new "information society" that heralds profound changes in many walk of life (Conradie, 1998:97). Clearly, access to advanced telecommunications has little meaning unless people have a use for such tools. This means that the introduction of telecommunications in rural areas must be done as part of a concerted effort by all concerned sectors to develop a rural community or region, for example by means of (Ernberg, 1999:10):

- Supporting and diversifying local economic activities (e.g., by promoting the creation of co-operatives and small enterprises);

- Improving social conditions (e.g., health care, social security, etc);

- Improving access to education, vocational training and culture.

2.2.1 Development and the knowledge industry – historic tendencies

Information is vital to participation and empowerment, and is an essential resource for building knowledge, engaging in dialogue and decision making (Burton, 1998:94). Research in information and communication technology has shown that information technologies play a potentially significant role in socio-economic development (Mukasa, 1998:7; Malan, 1996; 1998; and Rogers, 1962:99).

Access to telecommunication networks are becoming a high priority in developing countries, especially in the rural areas, where the majority of the population lives. It is regarded as an excellent way of bringing telecommunication to these areas. Over the last couple of years, numerous initiatives in the area of infrastructure development and applications have been launched by the South African government in order to implement its vision of an open democratic society (Snyman & Snyman, 2000:3-6). To list but a few:

- The promulgation of the *Telecommunication Act no. 103 of 1996*. The Act provides for, among other matters, the establishment of an independent regulator, the South African Telecommunications Regulatory Agency (SATRA), responsible for licensing monitoring. The Act established the

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Universal Service Agency (USA) responsible for ensuring universal access to all telecommunications service.

- In May 1997, Telkom was given a license which stipulated that Telkom has to provide a total of 2,81 million new access lines in 5 years.

- The Department of Communications has launched Info.com 2025, a collection of short- and long-term projects which, collectively, are intended to establish a networked information community that empowers people in the way they work, live, and play and to make South Africa globally competitive.

- A Task Group on Government Communications (Comtask) was appointed in December 1995 to investigate and make recommendations about government communication and its structures, media-ownership and control, the relationship between Government and the civil society. The Comtask report strongly supported the establishment of Multi-Purpose Community Centres (MPCC's) which can disseminate useful information about Government and other matters.

(The ideal is that) messages are not simply transmitted from authorities to passive recipients, but are part of a dialogue where both the sender and receiver of information are engaged in constructing reality and generating new knowledge from the existing technical, scientific, and experimental knowledge (Mukasa, 1998:5).

Demonstrations of the various technologies

It is therefore important to note that the technologies and information to be obtained from these technologies, should be demonstrated to the community, in order for them to become familiar, with not only in the use of the technologies, but also of the application of the information received from these technologies. "Barriers found in traditional society can be 'removed' through … mechanisms: through demonstrations, whereby the developing world tries to 'catch up' with the more developed by adopting more advances methods and techniques ..." (Servaes, 1995:40). As the demonstration is based on oral communication and, if taken into account that most developing communities are illiterate, oral communities, the demonstration could be the solution of bringing the developing community in contact with the various ICTs when demonstrated to them.

The expression "Give a person a fish and the person will eat for a day; teach a person to fish, and the person will eat for ever", could be applied to environmentally sustainable

development - a man develops himself by what he does: he develops himself by making his own decisions, by increasing his knowledge and ability and by his full participation in the life of the community he lives in. A good example of participatory development is the Rural Women's Association at Apel, a small hamlet four hundred kilometres north of Pretoria, that had nothing and was forced to ask questions like 'What is the solution? What should we do next?' Knowledge can be increased by exposing a person to the information that can be obtained from the ICTs by means of a demonstration – information that can assist him in the developing process (Boon, 1992:64-65).

Demonstrations of the various technologies at village level in countries around the world are showing how people of all ages and all levels of education – including particularly, poor and illiterate people – can use these technologies. These examples include application for education and training; for diagnosis of human, animal, plant, soil, machinery and other ailments; management by communities, small businesses and local governments; physical resource planning and environmental management at local levels and rural credit and savings (Woods, 1996, Wyley, 1995:7 and Servaes, 1995). These initiatives demonstrate the potential of the technology for empowering people for their own development.

Bridging the gap by means of the technologies

The central problem of development was thought to revolve around the question of 'bridging the gap' and 'catching up' by means of imitation processes between traditional and modern sectors, between retarded and advanced, information rich and information poor (Britz and Blignaut, 1999) or between 'barbarian' and civilised sectors and groups to the advantage of the latter – in a natural urge towards equilibrium (Melkote, 1991:265 and Agunga, 1998). The technologies to achieve this major advance, already exist in the communication capabilities of broadcasting, telephony, cable and satellites; the processing and interactive abilities of computers; prodigious electronic storage capability and in the abilities of these technologies to communicate in sound, pictures, symbols, graphics, video, numbers and script – and to do so on demand. These capabilities will continue to improve and the costs of the technology will continue to fall (Woods, 1996:1 and Shanmugavelan, 2000).

However, most of these projects where technologies are introduced, are small, isolated and independent. Very few have spread widely. Even fewer have established a basis for the sustainable funding of the technology on a large scale. These projects also show that the full potential of the technologies lies in combining their separate capabilities into 'integrated

systems' (Woods, 1996:3). An advance in approach to funding the technology can make it accessible and affordable for everyone (Woods, 1996:2).

2.2.2   Introducing communication tools: Internet, telematics and ICTs

-    **Internet**

The Internet, as one of the functions of the computer, forms part of the telematics, described in the next section. It is a medium of communication, and is perhaps the most flexible medium currently available (van Lill, 2000). As such, it has the potential to be integrated within a wide variety of projects that have objectives such as local participation, training, education, research (especially participatory research), technical support and institutional strengthening. Whenever a project involves people who need to communicate and share information across social groupings, between and within organisations, and throughout production systems, there is a need to create flexible systems of communication and information sharing. Projects that might find a role for Internet applications could range from agricultural training to community forestry to veterinary medicine (FAO, 1990 and van Lill, 2000).

In many ways, the Internet is suited to deal with information in a development context as a development communication tool. Information on topics such as tele-medicine, tele-schooling, job hunting, buyer's guides as well as information on a variety of agricultural topics are provided by the Internet (van Lill, 2000). It can also cut across social and geographical distance and help people find new ways of facilitating the flow of information and knowledge. Within bureaucratic organisations it can facilitate new communication patterns and help enable activities that might not otherwise occur (van Lill, 2000). This factor makes it an especially attractive medium for Development Communication. The key to achieving results in new Internet and development projects is to begin with a grassroots, beneficiary-inclusive development communication approach during the planning process (van Lill, 2000).

The Internet is also relatively cheap, powerful, decentralised and potentially an ideal platform to build a flexible and powerful environment for sharing and learning. The Internet is the first communication tool that allows every user to be a sender, receiver, narrow caster and broadcaster in a global sphere (Richardson, 1996; Bie, 1996).

The Internet is a medium of communication - a means by which various Web sites can be visited and by means of which various organisations can be communicated with, as

well as with private people by means of e-mail. It is therefore perhaps the most flexible medium currently available. The Internet may help meet peoples' information and communication objectives, in order to attain their development goals and objectives, but it must be integrated within human contexts and seen as a communication process tool and not simply as a static information technology or uni-directional broadcast medium. According to Bie (1998), the Internet is already making spectacular advances in the developing countries of the world. Despite the mediocre quality of its public telecommunications networks, Africa is trying to break out of its scientific and commercial isolation, by making the most of new technology.

The Internet is also not a panacea for the removal of constraints to rural development, but it does bring new information resources and can open new communication channels for rural communities (Bie, 1996:1). It offers a means for bridging the gaps between development professionals and rural people through initiating interaction and dialogue, new alliances, interpersonal networks and cross-sectoral links between organisations. It can create mechanisms that enable the bottom-up articulation and sharing of local knowledge (Bie, 1996:2), as was envisaged during the pilot project.

- **Telematics**

Telematics is a term denoting the convergence of computing, telecommunications and information (such as databases, CD-roms and electronic mail, as described above) and is not always simple. According to Inyang (1996:1) several problems were encountered when establishing the superhighway in Jos, the capital of Plateau State in Nigeria. According to him, the main problem with an e-mail system is the unreliability of electricity and telephone lines, which were often out of order for days on end. Even when they're working, power surges and poor telephone connections can dash attempts at communicating through telematics.

In theory at least, this ongoing Information Technology Revolution by means of telematics has opened up uncommon opportunities to developing countries in terms of providing low cost access to information, and the amount of users increase day by day. The fastest-growing tool of communication ever, with the number of users expected to grow from 150 million today to more than 700 million in 2001 (Shanmugavelan, 2000). Given that the same trend in user patterns continues, more than two-thirds of these people will be from developed nations. This divide between the North and the South has once again confirmed that history has always widened the

25

gap between the haves and the have-nots (Shanmugavelan, 2000; Moyo, 1994 and Woods, 1996).

- **Distribution of ICTs**

ICT (Information and Communication Technologies) include the above-mentioned aspects – the Internet as a function of the computer, as well as telematics, which comprise computing, telecommunications and information. As we enter into the knowledge-based century, which will be dominated by ICT and Intellectual Property, the developing countries will suffer from unequal distribution of scientific knowledge and be deprived of every reasonable opportunity towards development. "Writing computer programmes and revealing genetic codes have replaced the search for gold, the conquest of land and the command of machinery as the path to economic power" (Shanmugavelan, 2000). While knowledge goes on-line, the Internet divides the educated from the illiterate; the rich from the poor; men from women; young from old; and urban from rural - the information rich from the information poor (Britz and Blignaut, 1999). Predictably, many fear that while ICT connects people who mostly belong to developed nations, it excludes the major population from the developing nations. "To put it in simpler terms, apartheid based on technology has come to exist" (Shanmugavelan, 2000).

- **ICTs, cyberspace and theories in creating an information rich society**

It is generally accepted that the emergence of ICTs is contributing to the creation of a new "information society". A UNESCO (1996) position paper states that for developing countries the question that should be afforded high priority is not whether they should participate in the Information Society, but rather how information technologies can effectively be applied to development (Conradie, 1998:97). People want to participate in their own development so that their information needs may be addressed – by means of oral communication, as the communities to be developed, are mostly illiterate:

"People refer to newer insights on the role and place of communication for development which favours two-way and horizontal communication and techniques to increase people's participation in development and to inform, motivate, and train the rural population, mainly at the grass-root level" (FAO, 1987:4). People need, and want to be informed, in order to be able to take part in their own development – to

become part of the Information Society (Lazerfeld *et al.*, 1944:151). Although researchers expected to find that the mass media had a great influence, they concluded that voting decisions were chiefly influenced by personal contacts and face-to-face persuasion.

Two elements are involved with ICT and development: the notion of a population divided into 'active' and 'passive' participants, or 'opinion leaders' and 'followers'; and the notion of a two-step flow of influence rather than a direct contact between 'stimulus' and 'respondent' (or the so-called bullet, hypodermic needle theory, or stimulus-response theory) (Rogers, 1986:52). But, as mentioned above, people want to participate in their development. Since, the role of 'personal influence' (Rogers, 1986:54) has acquired a high status in research on campaigns and diffusions. Rogers (1986:49) stressed the adoption and diffusion processes of cultural innovation. He distinguishes between five phases in the diffusion process: awareness, interest, evaluation trial and adoption - where 'personal sources' are most important at the evaluation stage in the adoption process.

The Global Knowledge for Development (GKD) model (Mukasa, 1998:24) entails that the diffusionist (stimulus-response) model must not be replaced but be redefined in both horizontal and vertical communication networking structure. People learn from each other and from experts as well as government officials. But such learning must take place in an environment of equitable, fair and just distribution of resources and services. The ICTs will also not replace the traditional means of communication and information flow, as most developing communities are oral societies where the value of interpersonal communication is still regarded as the most common use of communication (Mukasa, 1998:22). ICTs should be introduced in an interpersonal, oral and participant way, integrated with indigenous communication methods .

Opposed to the stimulus-response theory, the technologically approach, Mukasa (1998) sees technology as a value-free and politically neutral asset that can be used in every social and historical contest – he sees the technology as the prepotent factor in development: It sees technology as the driving force to development. "Any technology gradually creates a totally new human environment" (Servaes, 1995:45), or, in other words, the medium is the message (McLuhan, 1964:VIII).

'Cyberspace' as a whole can be seen as an ideal platform to build a flexible and powerful environment for sharing and learning at grassroots level (Mukasa, 1998:4;

and Anderson *et al,* 1999:3): Electronic mail is an uniquely discursive communication mechanism, which can break barriers of time and place (Woods, 1996:2). The World Wide Web is a powerful tool for collaboration and participation (Anderson *et al,* 1999:3). At the same time, interactive multimedia applications are redefining publishing and 'reading'. The cultural impact of ICTs has been demonstrated in business, education, public and private life (Woods, 1996). It was foreseen that by providing this cyberspace to the community, information could be obtained and various ways to communicate would be provided. Moreover, telecommunications may be considered as the "infrastructure of the infrastructure", as it provides tools for the development and efficient use of other parts of the infrastructure - it should be weighed against needs of investment in other parts of the infrastructure, such as roads, railways, water supply and electrification (Ernberg, 1999:3)

2.3 AFRICA ON-LINE?

In rural communities world wide, the lack of access to these technologies is usually a major problem – with South Africa being no exception. The problem becomes one of how to extend the 'Information Superhighway' so that it covers that 'last mile' to reach remote rural areas (Epstein and Bruce, 1995) in Africa. Information technology is with us and it is spreading fast and we should now give thought to how to ensure that this last mile of its tentacles will be of benefit to the most economically insecure. We need to harness the potential of the Information Superhighway so that its messages are in direct response to local geographical, cultural, socio-economic and linguistic needs.

2.3.1 Extending the Information Superhighway to Africa

Is it possible, though, to establish a telecommunication network in Africa? To some researchers such as Zongo (1996), a global society is already rapidly being established in Africa, especially looking at electronic communications through small local network's telematics. Ernberg (1999:12) pleads to plan for the global village now, and not just to talk about it. NGOs have taken a leading role in developing computer-assisted communication in a number of initiatives to improve African network connectivity (Mukasa, 1998:13): African Council on Communication Education (ACCE) is spearheading efforts to train the media personnel in a range of issues including Environmentally Sustainable Development (ESD), consumer education, and electronic communication. It is supported by the United States Educational Scientific and Cultural Organisation (UNESCO), the United Nations Environmental Program

(UNEP), the Friedrich Ebert Foundation (FES) and the International Development Research Centre (IDRC) (Mukasa, 1998:21). A global society is "emerging with pervasive information capabilities that makes it substantially different from an industrial society: much more competitive, more democratic, less centralised, less stable, more able to address individual needs and friendlier to the environment" (Adam 1996:1; Mukasa, 1998:9 and Shanmugavelan, 2000). Adam then asks whether this is a "wish list" to a rural researcher in Africa.

This aspect seems, however, to have potential, as the importance of connecting the information poor to the Information Superhighway can not be stressed enough, and has been researched by the South African Government, as discussed previously.

Unless African countries become full actors in the global information revolution, the gap between the haves and have-nots will widen, opening the possibility of increased marginalization of the continent. On the other hand, participation in the information society offers tremendous opportunities for Africa to leapfrog over passed developmental deficiencies into the future. African scientists and researchers can participate fully in the global scientific community through direct access to the Internet, the global network of networks, by implementing these ICTs and informatics, which is the integrating of computer, satellites, VCR, telex and fax with the conventional telephone, television and radio (Mukasa, 1998:2 and Shanmugavelan, 2000). If this could be achieved throughout Africa, particularly in rural areas, people will have dramatically increased access communications and information, accelerating and bolstering sustainable development (FAO, 1987:2).

Problems with the establishment of telematics

The lack of adequate infrastructure is the key problem in establishing telematics in Africa. Nigeria's phone lines can go off for days or weeks on end, and it takes persistence and follow up by repair technicians of NITEL, the national Phone Company, to get the lines fixed. Power supply is also a problem – too little and too much. "We lost a modem during one power outage, which was followed by a power surge: the next morning, we found the modem all burnt up and melted. Luckily, there was no combustible material nearby so the fire didn't spread" (Inyang, 1996:2). The lack of information also acts as a barrier to development – information provision is seen as a formidable factor in determining whether developmental efforts in Africa are successful or not (Leach, 1999).

Another problem is the costs of production, transport and storage of books and periodicals: It costs too much to be affordable to African libraries - all but done in by years of structural adjustment programmes and, as for individual communications, rural researchers can not depend on deteriorating postal services, as telephone calls are too expensive and the phone systems too unreliable (Adam, 1996:1). He continues by saying that for the moment most Africans wanting access to e-mail or larger Internet services are dependent on the telephonic intervention of third parties, usually in the United States.

Telematics as a solution

African researchers should look at telematics - to replace the printed word with databases, CD-ROMs and electronic mail. To connect to electronic communication networks, rural researchers need networking tools (software, hardware, etc). African decision-makers, researchers and field workers also need the resources to maintain electronic information systems. Sustainability is the key concern, as, sooner or later, local resources will have to replace short-term external funding and technical expertise (Adam, 1996:1).

Over the last few years, low-cost store-and-forward electronic communications links to African countries have been established through small local networks in order to help redefine the educational environment and serve as a bridge to the future (Conradie, 1998:107). The World Bank lent US$124 million to Africa for informatics. Governments, donors, NGOs, among others, have invested significantly in the new technology of information and communication (Mukasa, 1998:13). Regional African Satellite Communication Project's (RASCOM) objective is to provide an efficient, reliable and economic means of telecommunications ... to all areas using a regional African satellite system, complemented as necessary by any other appropriate technology that is properly integrated into the existing national networks with a view of fostering the development of African countries (Mukasa, 1998:8). African network users are now lobbying their governments to improve and augment telecommunications infrastructure, particularly to spend money necessary to buy each country a "leased line connection" (Adam, 1996:1). These lines eliminate the need for that third party middleman (or his pre-programmed computer) and allow direct and almost instantaneous links to the Internet (Adam, 1996:1). This is because satellite communications overcome distances ... and low-cost earth stations requiring

relatively little maintenance and technical skills can be installed in remote rural areas (Mukasa, 1998:7).

2.3.2 Advantages of ICT for Africa

It is difficult to introduce and maintain electronic networks in Africa, but it is not impossible. Some of the world's poorest countries, such as Mozambique, Ethiopia and Angola, have already made substantial progress (Mukasa, 1998). Barriers, such as scarcity of primary power and qualified personnel, obstacles to constructing conventional transmission systems and economic constraints to operating these high-tech systems in unprovitable rural areas, can be minimised or overcome, and satellite communications can bring a host of info and knowledge to remote areas (Mukasa, 1998:7).

The cost of equipment necessary for connecting to a national e-mail central (called a 'node') is not so high; a phone line is the only additional resource needed. Using such equipment, an irrigation expert 700 kilometers from his capital can connect to a node each day to contact his colleagues worldwide, to send greetings to his family in the capital city, to develop joint proposals with an international NGO office in the United Kingdom and Uganda, to follow up on the procurement of lab equipment from Germany and to access data bases on the Internet (Adam, 1996:2).

An African forestry researcher in Pont Noire (Congo) can work on a collaborative research with others in the Amazon. Improvement in the quality of research and education in agriculture can be achieved by linking agricultural colleges to the Internet. African researchers can participate both in use and in the generation of knowledge on the network (Adam, 1996:2).

Speed, convenience and low-cost communications are some advantages of electronic communications. A letter sent from Morocco takes weeks to reach Ethiopia. An e-mail message takes less than a day to arrive. Transmission via e-mail costs the minimum a page; a faxed report can cost the whole monthly salary of a researcher. The same report can be transmitted via electronic mail for a fraction of a dollar. The ability to broadcast one message to multiple users facilitates more cost savings and on-line discussions. In fact, some "developing" countries, particularly in Asia-Pacific and in Latin America, are catching up quickly with the so-called "developed" countries (Ernberg, 1999:1).

Digital information about developing countries, but which resides in developed countries, can 'come home' through telematics: through the Internet an African biodiversity researcher can access research undertaken by foreign consultants working in their own country (Ernberg, 1999).

In conclusion, it should be said that it is of cardinal importance to bring ICT to Africa - in order to connect Africa to the Information Superhighway, because failure to bring these telematics to Africa will leave the continent farther behind than ever. This is explained in a communique issued during the Symposium on Telematics for Development in Africa, held in Addis Ababa in April 1995 (Adam, 1996:2):

Unless African countries became full actors in the global information revolution, the gap between the haves and have-nots will widen, opening the possibility to increased marginalisation of the continent. The gap will increase the likelihood of cultural, religious and tribal ghettos, leading to regional and interregional conflicts.

In order to reduce the rapidly increasing gap between the information "haves" and "have-nots", a massive effort must be made to develop the poor countries' capacity to use these new tools so that they can benefit from, and contribute to, the global information resources currently being developed at a mind-boggling pace - which are available through global, user-driven networks such as the Internet and the World Wide Web (Ernberg, 1999:12).

It should also be borne in mind that connectivity should be related to African social, economic and cultural needs. The ability to build self-perpetuating local networks, reaching not only the privileged few in cities but also rural researchers, is very important. The diversity of Africa requires specific national capacity building. Regional co-operation is important. Sub-regional collaboration is also useful to bring resources together and to share links (Adam, 1996:4).

2.3.3 Advantages of linking the agricultural sector in Africa by means of ICT

Despite the fact that information is seen as a critical resource for people and communities in both rural and urban areas, the lack of information provision in the agricultural sector remains a problem. Referring to Africa, Moyo (1994:62) points to the alarming information gap that exists between rural and urban areas and how little is being done to bridge this gap. In the South African context, Wakelin and Simelane (1995:72) point out that "whilst information is becoming increasingly available to

urban-based organisations through the media, modem linkups, workshops and literature, the historical marginalisation of rural-based people continues." This view is supported by Tomaselli (1995), who outlines the urban dominance of the media in South Africa and contends that the disparities between the developed and under-developed sectors of our economy will remain and might even widen.

To a large degree, South Africa still shares the networking problems of developing countries. According to Malan (1999:1), it should also be pointed out that the beneficiaries of information systems are almost exclusively restricted to urban settings in southern Africa. Most of the people in the largely impoverished and underdeveloped rural areas live in "another world". He continues that the media in general has little influence on their lives, let alone the Internet. But what then is the situation concerning agricultural information to be disseminated to farmers?

According to a survey done by Leach (1999), one of the NGOs involved in the provision of agricultural information mentioned farmer to farmer extension (that is using farmers to talk to farmers) as being:

Very effective because they themselves are the ones who interact ... they believe in themselves and the information is grasped so quickly, the diffusion of that information is so easily spread and, as you know, there is sometimes the problem of information not going through because of some structures, problems, all those things... (Leach, 1999:76).

Referring to rural African communities in general, Rosenberg (1993:34) mentions, among other issues, the lack of evidence on "the most effective information transfer methods." Examining East and Central African countries, he comments on how little research has been done on how best to provide the information that is required. Leach (1999:72), referring to information emerging from non-governmental organisation (NGO) circles, also points to "inaccessible presentation formats" and cites this factor as one of the reasons for information not reaching the agricultural sector for whom it should be intended.

It therefore seems important to get the farmers involved in agricultural activities in a dominating oral culture like Africa's together, to communicate by means of workshops and demonstrations so that the farmers as a group can receive the new information in a

group situation. When they are exposed to new information as a group, they can discuss the newly introduced topics and information among themselves.

The role of technology in achieving these social-development goals was placed on the international development agenda by Woods (1996:1):

> "(I) recognise that the new information technologies and new approaches to access to, and the use of technologies by people living in poverty can help in fulfilling social development goals and therefore recognise the need to facilitate access to such technologies".

What will this then mean in practice? Currently, about two percent of all people, schools, clinics, small businesses and communities in the world have access to computer-based technologies and to Internet and Information Superhighways (Adam, 1996:2). Numerous new documents on Information Superhighways define their capabilities in relation to national and global needs and focus on how the technology can be made affordable and/or accessible for the agricultural sector on a large scale. This is not achievable within current traditions.

The answer is to link the communities in the agricultural sector to the Information Superhighway. Paying for a direct link to the Internet can aid these communities in utilizing these meager resources more effectively. For example, communications between agricultural researchers and extensionists will encourage dissemination of new approaches ultimately leading to better maize harvests. Fast Internet communications will improve response to emergencies like drought, locust infestation, epidemic, etc. (Adam, 1996:1).

So far, however, these technologies have not reached the agricultural sector, and the Information Superhighways are separating the 'haves' further from the 'have-nots' and until now, there has been no alternative (Woods 1996:1).

Incorporating culture in development

If taken into account that culture is deeply woven into the lives of the agricultural communities, special reference should be made to culture in the development of these agricultural communities.

There are three assumptions why indigenous culture is the fabric within which development can best be woven:

- Indigenous elements have traditional legitimacy for participants in development programmes;

- these elements contain symbols that express and identify various valid perceptions of reality; and

- they serve multiple functions.

The following social/cultural forms discussed – along with traditional leadership, socio-economic processes, organisational forms, etc. - have clear implications for DSC (Coletta, 1980:17-40):

Traditional communication systems (social exchange, assemblies, etc.) often leave observers amazed at the effective and speedy way that notices of meetings, etc., are conveyed by word of mouth in South African townships and rural communities; indigenous knowledge systems (farming practices, health promotion, etc.); traditional belief systems (especially cause-effect relationships, religious symbols, etc.): It could for instance have grave consequences for land development if community bonds with burial sites and the ancestors are not taken into account. Indigenous technologies and transfer (using local materials and resources, and the transfer of skills to use them) should always be borne in mind when developing a specific community.

2.4 ICT IN AGRICULTURE IN SOUTH AFRICA

Today only a minimum of developing communities are linked to the Information Superhighway. Access to telecommunication networks is therefore becoming a high priority in developing countries such as South Africa, especially in remote areas, where the majority of the population lives and is regarded as an excellent way of bringing telecommunication to these areas.

2.4.1 Rural development

In South Africa, political decision-makers tend to confirm the fact that Information Technology (IT) can be effectively applied for development, e.g. the White Papers on Science and Technology and Telecommunication Policy (Conradie, 1998). Conradie mentions that, according to the White Paper, many political decision-makers have argued that there should be developmental initiatives in rural areas that help to provide public access to ICTs in specially equipped community centres, often referred to as telecentres (1998:98).

In rural areas, communication for development efforts, the communication staff, resources and equipment required to produce the required results and impact should be provided. The extent to which rural societies, in comparison to their urban counterparts, are under-resourced in the areas of electrification, has also illustrated this statistically. A similar imbalance exists in the areas of unemployment and the field of income and education (Leach, 1999).

A holistic approach to rural development should be used, which covers the multi-faceted aspects of life in rural areas and deals, not only with agriculture, but also with health, habitat, nutrition, population and women's issues. Partnerships should be sought with all the stakeholders in the development process. Use should be made of all available media infrastructure and channels, both modern and traditional, in an orchestrated fashion. To be sustainable and not create dependence upon technologies available only in industrialised countries, the communication media suited to the cultural, social and economic conditions of rural areas in developing countries should be used. They should be participatory and interactive (Balit, 1996:2).

2.4.2 Advantages of ICT in agriculture in South Africa

The advantages of ICT in agriculture in South Africa are many. Today there are many Web sites of agricultural-based companies (such as Naspers, the Agricultural Research Council (ARC), the South African Futures Exchange (SAFEX) for market and other financial information, the South African Agricultural Union (SAAU) and Agrimark, to name but a few). From these Web sites, agricultural information can be obtained for any rural community to become self-sustainable, or any commercial farmer to expand his farming activities. Information to be obtained from various agricultural-based organisations will be discussed in the chapter on the demonstration held for the pilot project at Thabina.

It is, however, not so easy for the ICT to reach the rural community and therefore efforts should be made by researchers to link these communities to the Information Superhighway. This can be done by implementing ICT, the key to expanding information to rural villages, by means of establishing a telecentre, a phone shop, etc. This is apparent from the Minister of Agriculture and Land Affairs, Thoko Didiza,'s recent budget speech (2000).

She said, "The challenge for the Government in terms of developing South African agriculture remains the need to deracialise the sector, promote and support economic growth and ensure that in the pursuit of these policies a better life for the people and continuous nurturing of natural resources are attained". It is hereby evident that the South African Government is making efforts to incorporate the agricultural sector in the dissemination of information. This sector is the sector most in need of ICTs, in order for the rural agricultural communities to develop towards self-sustainability.

One of the key initiatives was to broaden access to agricultural services, particularly for those who were without it before. As an outcome of that process, South Africa has identified the constraints faced by previously disadvantaged farmers, prioritised their concerns and developed new instruments for information dissemination among farmers. This could only be done by implementing ICT. All participants in the agricultural sector are involved - irrespective of gender and age: South Africa now no longer finds it rare to find black people, young people and women playing an active role in the agricultural economy.

One of the realities of South Africa is that most black farmers, small or other, have limited access to land and capital – let alone ICT - and have received inadequate or inappropriate research, extension and marketing support. This has limited their ability to grow and has resulted in an undue reliance to a greater or lesser extent on subsistance production. The Government has resolved to deal with all farmers. Recognising that they operate on farms of different sizes (Didiza, 2000).

What remains, is to finalise the characterisation of small-, medium- and large-scale farms, using their capacity to generate income, which could be assisted by obtaining applicable information by means of ICT.

South Africa should continue to engage the World Trade Organisation (WTO) and European Union (EU) and other trading partners to promote the ountry's trade interest. Ms. Didiza (2000) said that South Africa will commence with efforts to increase the economic integration of the southern African region. To be successful in this, South Africa needs to ensure that its resources are allocated, to ensure that there is capacity for the promotion of domestic markets, management of agricultural statistics, the development of defensive trade measures and the promotion of international markets through ICT. She also pointed out that none of the noble ideals could be realised if

farmers do not have access to the appropriate information services - such as the implementation of IT.

The content of information remains a long-term challenge. The Department of Agriculture is in the process of setting up an early-warning and information system for food security and natural disasters as part of a national information system.

During the next five years, a farmer-settlement programme that will specifically target young people and women as beneficiaries will be implemented (Didiza, 2000). The planning and implementation of the resettlement programme will be brought within the restitution redistribution process in the Department of Land Affairs. It will also be ensured that they are synchronised with the services and support programmes provided by the Provincial Departments of Agriculture, Land Bank, National Marketing Council and the Agricultural Research Council (Didiza, 2000).

2.5 TELECENTRES BRIDGING THE GAP

The use of telecentres for development has been discussed by various authors and is used in a variety of countries, mainly in Africa and Asia (Snyman & Snyman, 2000). Ernberg (1999) describes how rural community centres can empower communities in the information society and he shows how access to such technology could be vital to the economic development of disadvantaged communities. Defining information resource centres is problematic, Roman (2000) counted more than 30 names for such centres.

2.5.1 Preconditions and prefeasibility considerations of telecentres

It has been established by several researchers, such as Roman (2000); Benjamin *et al* (2000:8-16) and Anderson *et al* (1999:2) that there are several considerations to be taken into account with the establishment of a telecentre:

-   When selecting locations for telecentres, consideration should be given to the level of potential demand for communication and information services from a large number and a wide range of users. This will ensure utilisation of the facility and reduce the expense to individuals through cost sharing.

-   The proximity of the telecentre to other organisations and institutions that can play roles in using, supporting, maintaining or operating the telecentre should be investigated. Such organisations might include: hospital health centres, schools/colleges/universities, community and cultural centres, religious centres,

libraries, organisations of farmers/fishermen/craftsmen, post offices, local/national government administration offices, radio and television stations, NGOs and community-based organisations, among others, (Anderson *et al.* 1999; Shanmugavelan, 2000 and Ernberg, 1999).

- Considerations should include a location that is easily accessible to potential users (i.e. near public transport or within walking distance); the availability of an existing structure (e.g., school building, library, extension office) or a new structure which is suited to use as a telecentre (appropriate lay-out, secure); access to electricity; and connection to telephone lines and the Internet (terrestrial or satellite link). In some situations the development of telecentres may be inappropriate and other types of communication solutions, electronic or otherwise, should be explored.

- Socio-cultural aspects that may affect the utilisation of the telecentre, or which groups within the community have access to the telecentre, should be investigated. To be effective, telecentres need to be integrated into communities so that they lessen instead of widen the communication gaps between the information rich and the information poor.

- As in the case of other communication media, the advocates of Internet and other ICTs for development need to look beyond the technologies "to the social and economic systems in which the media functions and how these systems influence media access, exposure and impact" (Crowder, 1991). What is most important to do in this context, is to pay attention to the communication gaps, based on gender, that often exist, and incorporate into telecentre organisation the differential communication patterns that exist between men and women.

2.5.2 Telecentres - a solution?

The concept (of a telecentre) has already been successfully tried out in rural and isolated areas in many developed countries, e.g., in Scandinavia, the UK, including northern Scotland, Ireland, Australia, Canada, Japan and the USA. The 'telecottage' movement is steadily gaining momentum and national associations of such community telecentres, established in the developing word, could connect people with similar problems and experience of various aspects of community development (Ernberg 1999:10).

Telecentres are based on ICTs. The first ones were built in Denmark and Sweden in 1983-85. The idea has been taken up quite widely in Europe, notably in the United Kingdom (UK), where at the last count there were some 200 telecottages. More recently they have been established in developing countries, and according to Zongo (1996), 9 000 have been counted in Senegal, West Africa. Such facilities are called a number of names, including 'virtual village halls', 'tele-learning centres', and 'tele-cottages' (Anderson *et al.*, 1999 and Conradie, 1998).

Telecentres may employ various types of ICTs and offer services such as access to telephones and fax machines, photocopiers, printing equipment, e-mail, the Internet and electronic networking. Telecentres are also a venue in which new ICTs, such as the Internet, can interface with conventional ICTs (print, radio and video)(Conradie, 1998:98).

The idea of introducing computers and advanced telecommunication services to rural communities where people live the way their ancestors have for generations and are lacking even basic education, may appear inappropriate and too sophisticated, (Ernberg 1999:8). However, if rural areas should be able to compete in attractiveness for business, social and cultural activities with the large cities, rural communities must be provided with at least the same services at the same costs as those provided to the urban population. Arguably, rural communities need even better services to compensate for their geographical isolation and other 'penalties' of being far from the cities and markets (e.g. high transport costs).

The provision of access to ICTs by rural communities in developing countries is likely to go through telecentres. It should also be ensured that this development is as effective, efficient, sustainable and equitable as possible, so that the promise of the technology becomes a reality – a tool in the hand of the rural people.

The telecentre offers ICTs in order to link these communities to the Information Superhighway: Telecentres can empower people by giving them access to other information sources and new communication possibilities, enabling them to exchange expertise, increasing the level of computer and language skills for the current and future work force and enabling communities in rural areas to contribute to and share this knowledge.

The necessity of telecentres, and therefore of the applicable ICTs, are recognised world-wide. Today, the number of telecentres, some of them equipped with only a telephone and a fax machine and others with computers, printers and an Internet connection, is mushrooming all over Africa: "They are springing up everywhere," says Zongo (1996). "We have counted 9,000 of them just in Senegal, in West Africa, where they have opened job opportunities to some 20,000 people within the last five years".

2.5.3 Development possibilities created by telecentres in South Africa

Opportunities

The four case studies mentioned in this section all formed part of the 'Communication for Technological Advancement' (COMTECSA) research programme that the Human Sciences Research Council undertook in 1997 in collaboration with external research partners and organisations such as universities, technikons, and the Council for Scientific and Industrial Research (CSIR) (Conradie, 1998). The four centres studied are the SEIDET telecentre, the Hammanskraal Phone Shop, the Brits Publicity Association and the Micha-Kgase educational telecentre. An in-depth description of each centre can be seen in Appendix A. The main lesson learned from these sustainable initiatives, is the fact that a considerable level of pre-development activity was undertaken, which is why an in-depth preproduction audience research was undertaken during the pilot project - to ensure that the objectives of the pilot project, as described on page 55, could be met. It was proved that commercially-orientated centres with a market effect could succeed if there was strong leadership, of say, an intermediary. The importance of the participative role of the community in establishing these centres, was also very evident.

It is obvious that communities can be uplifted - socially and culturally, by means of applicable information. Without information, no community can be developed towards self-sustainability and it is therefore the core element in developing any community or society. Any community on the road to success should make it their business to determine how ICTs could be applied and the concept of the telecentre implemented to provide these developing communities with the applicable ICTs. This is described in the next section, as the telecentre might be the ultimate solution for bringing ICT to the agricultural sector.

2.5.4 The potential role of telecentres in the agricultural sector South Africa

No information on the guidelines to establish a telecentre centre in the agricultural sector, nor the potential of such a centre, is available in literature. Most telecentres described in literature are established in rural areas, including agricultural areas, which is not to say that these centres were established in the agricultural sector as such.

Telecentres in the agricultural sector have the dual role of:

- Supporting group and community development, as well as

- Supporting commercial development by drawing in more business capacity to support that community - especially by using technology in rural areas to generate additional employment and alternative income (Conway, 1995:99).

In the agricultural sector, telecentres can provide communities with agriculture-related information – information that can lead to the development of an agricultural community towards self-sustainability. The telecentre therefore opens the door to a community by means of providing the necessary tools to communicate, as well as with the necessary agriculture-related information.

One can imagine what such a telecentre could do for sustainable development in rural areas and for bringing people in remote areas in touch with the rest of the world: Telecentres could be used for data processing, for accessing databases (e.g., on market and price information) and for communicating with suppliers and customers (e.g., for marketing and negotiations of deals) by small local enterprises and individual entrepreneurs (Malan, 1999:7). If properly equipped, it could also be used for 'tele-training' (distance learning) and for 'tele-medicine (distance diagnoses and medical advice), so that the local people could learn new skills and get medical advice when needed. Telecentres are also likely to become centres for cultural and social activities, particularly if they are equipped to receive TV and sound broadcasting.

Availability of advanced telematics services in rural areas could not only contribute to reducing the urbanisation process, but may even reverse the trend by making it possible for enterprises to locate some of their business in otherwise isolated areas. The community telecentre could very well function as a remote office for 'tele-working', shared by several city-based companies. This could contribute to attracting skilled people (back) to the rural areas and to reducing transport of people. Such

educated and trained individuals are needed to sustain the process of development and change once the international and government support required to initiate community development is withdrawn (Ernberg, 1999:10).

The telecentre could, in geographically widespread and sparsely populated areas, be used as a local hub where public (and private) telephones located at strategic points covering the area is connected. It could also be complemented with paging systems so that villagers can be notified of incoming calls.

Applications that could be available in telecentres include 'generic' content developed outside the community. The most important applications, however, are likely to be those which are developed specifically for and by the local users. Many segments of the community should be included in the development of specialised applications, including youth and women. The 'generic' applications which are provided for use in telecentres should, where possible, include functions that allow local communities to contribute their own information to the pool of knowledge.

Telecentres are therefore important in the dissemination of information, and Sturges and Neill (1998:72) consider the "nature of the packages into which information is placed is crucial in provision of information to the whole community". Information should be compiled in a easy-to-understand package - preferably in the indigenous language, with pictures and sketches, as the rural people are mostly illiterate, and information should also be explained in an oral manner, as developing communities are mostly oral societies.

Telecentres are not just technology centres - they can also be living laboratories, which facilitate local sharing of information and ideas. A telecentre can take full advantage of global information, as well as facilitate the creation of a common local development vision (Anderson *et al*, 1999). Telecentres are not only a way to provide simple, single-point access to external information and services, but also a facility for local residents and groups to organise village meetings, video conferences and technology training to address their development needs, (Anderson *et al*, 1999:4).

2.5.5 Initiative investigated: Mamelodi Communication and Information Services (MACIS)

In order to obtain relevant information for the establishment of a telecentre, it was decided to investigate an existing telecentre - how it was run, funded, the limitations,

the training, the uses of the centre and the various technologies used. The Researcher decided to pay a visit to an established telecentre in order to obtain information on the potential role of a telecentre. The telecentre in Mamelodi near Pretoria, called MACIS, was visited and an interview was held with the manager, Esmé Modisane. The following aspects, which were discussed during the interview, could be established in the pilot project:

Aim of MACIS

The aim of the centre is to bridge the perception of inaccessibility that surrounds the term 'information', and to introduce information and communication technologies (ICTs) to the community of Mamelodi.

Location and operation

This is a community-based organisation (CBO), registered under Section 21 Company Act (Act No. 61 of 1973). Its mission is to provide information on all aspects of life to community members in order to cope with day to day problems and to improve their quality of life. The establishment of this telecentre originated from the CSIR, wishing to establish a Community Information Centre (CIC).

Funding of MACIS

This centre was funded by various organisations, as well as by the USA.

Uses of the centre at MACIS

On the uses of this particular centre the Manager commented that the centre was used for:

The compilation of CVs

Business plans for businesses

Internet and e-mail were used by the youth

The young also made use of the Info kiosk

The youth also used the centre for drafting assignments and

The computer was used for typing their 'own things'.

Limitations of MACIS

According to the manager of this centre, limitations include:

44

fear of technology experienced by the residents of Mamelodi. Presentations are therefore presented to the youth, the adults and the elderly in order to make them comfortable with the uses of the various technologies;

funding, where the unemployed can not pay for the services conducted by the telecentre. The manager herself was at that stage without salary for three months due to a lack of funding. She (the manager) suggested that funding organisations should be contacted for the establishment of a telecentre.

Training of the manager at MACIS

The success of a telecentre also depends on the manager of such a centre. To appoint just any person from a developing community as a manager does not guarantee that the venture will succeed. Such a manager should be devoted to the venture and should be trained according to his level of computer literacy. According to Roman's extensive, international survey (2000), it is worth noting that most of the panelists of his survey disagreed (50%) or strongly disagreed (12%) with the statement that telecentre managers were usually aware of their training needs. If telecentre managers were rarely aware of their training needs, this might mean that they are not aware of their role and the objectives of the telecentre they are called to manage. The role of a manager should therefore be explained to the manager in detail.

On training, she suggested that the manager of a telecentre should be trained in:

Finance, computer literacy, human resources (how to be sympathetic), communication, marketing, conflict management and, leadership skills.

On her own training, obtained from the USA, the Manager at MACIS commented that it was very good and lasted for two weeks. They also train people on Web sites.

This concurred with a survey done by Roman (2000) and the following skills of a telecentre manager were rated as follows:

Technical skills should include computer literacy: word processing, Internet and e-mail (very important); spreadsheets, Web site development and other software and development; other software applications and programs (important); equipment maintenance skills (very important); specific skills such as conflict management methods and techniques (important); monitoring and evaluation methods and

techniques (important); leadership styles and skills (important); and training methods, techniques, design, and organisation (very important).

For the pilot project, the skills in computer literacy, such as word processing, Internet and e-mail, as well as obtaining information from the various Web sites, are seen to be the most important and should be handled once the telecentre is implemented. At a later stage knowledge on equipment maintenance skills and on evaluation methods should be obtained. A short course in organisation and conflict management should be given as soon as possible – depending on the available funds.

Information and communication skills such as presentation skills were seen as very important; the design of a Public Relations plan as important; public speaking techniques and interpersonal communication skills as important; connecting with the unconnected as very important; basic practice of advertising and publicity as important; client identification and segmentation and needs assessment as very important; audiovisual production skills as important; writing skills as important; information seeking and research methods as important; and communication strategies for social change as very important.

CHAPTER III - PREPARATORY PHASE OF

THE PILOT PROJECT AT THABINA

Synopsis

This chapter comprises the background information on the pilot project at Thabina. It starts with the origin of the pilot project, which includes how the pilot project was initiated, and answers to the question why this specific community was identified and why there was decided on the establishment of a telecentre. Justification of the project is explained and the profile of the community of Thabina, where the pilot project was executed, is given. The planning of the process, with an outline of the pilot project and specific reference to the aspect of the communication paradigm, as well as the communication methods used, follows. The chapter concludes with the discussion on how the objectives and the perspective could be reached.

3.1   PILOT PROJECT SUMMARY

3.1.1   The origin of the pilot project

As Media Liaison Officer of the Institute for Agricultural Engineering (ARC-ILI), an Institute of the Agricultural Research Council (ARC) in South Africa, the Researcher attended a meeting of the Development Committee of Thabina in February 2000. The Development Committee consisted of 15 elderly African male farmers and one African woman, appointed as extension officer by the Department of Agriculture, Land and Environment. This meeting, like the succeeding workshops, took place in an existing building where the Development Committee gather for their meetings. The communication took place in English.

The rural agricultural community at Thabina had recently established a new order at their irrigation scheme, a WUA, and the Researcher attended the meeting in order to obtain information for a press release on this topic. This press release was written on behalf of Loxton Venn Associates (LVA), consultants appointed by the Department of Agriculture, Land and Environment of the Northern Province (NPDALE) to rehabilitate the irrigation scheme and to establish a WUA.

During this meeting it became apparent to the researcher that this WUA would now need ways to communicate with the Department of Water Affairs (DWAF), the Water

Research Council (WRC), other WUA's and other agriculture-related organisations. They would also have to obtain information on various agriculture-related topics, identified by the researcher, which could be obtained from various ICTs such as the Internet, e-mail and various Web sites. During the tea break, a discussion with Dr Rutherfoord of LVA was held to explain the concept of a telecentre to him and it was decided that the Researcher would look into the possibility of establishing a telecentre at Thabina. After a workshop held with LVA and the Development Committee at Thabina (as described in the following chapter) in March 2000, it was decided that the information to be obtained from the ICTs should be explained to the Development Committee, in order to commence with the establishment of a telecentre as a pilot project.

3.1.2 Why the community of Thabina?

The "poorest of the poor" must be identified and their interest taken into account in project design (McNamara, 1998:33). The Department of Agriculture, Land and Environment had therefore identified this community of Thabina to be developed in order to become self-sustainable. After establishing the WUA, it was evident to the Development Committee that they would need systems to enable them to communicate with other WUA's, the DWAF and other agricultural organisations. According to an assessment of their needs, they would need information on agriculture-related issues such as farming mechanisation, pesticides, fungicides, how and when to irrigate, market and market trends and on how to correspond (write letters, receipts, etc.) with other agriculture-related organisations.

It was also envisaged to, eventually, understand all the links and sources of agricultural information and knowledge so that it could become possible to plan interventions that could improve the system of information exchange and thereby improve these farmers' agricultural knowledge and the value of their practices and knowledge – "an approach to map the communication networks which exist in an agricultural system and to identify the main factors which play a role in shaping agricultural and rural development" (Raminez, 1995:2). According to Wyley (1995:6), systems to communicate development information in rural areas of Africa have been "wasteful, inefficient and haphazard" and to avoid this, the oral communication system of the community was taken into consideration during the

preparatory phase of the pilot project, and participant communication was used during the workshops.

3.1.3 Why a telecentre?

The pilot project comprised guidelines for the establishment of a telecentre for the rural agricultural community at Thabina. By means of this telecentre, members of the community could be exposed to various fields of computer technologies and the information to be obtained from these technologies - in order to become self-sustainable.

Such an electronic network could be seen as a town square and library all in one: a repository of knowledge and an opportunity for interactive discussion. As opposed to libraries and the mass media, electronic networks engage millions of users in interactive learning in a 'virtual college'. The availability on the Internet of thousand of news groups on almost every topic, mailing lists, on-line data bases, files and on-line books create conditions under which an agricultural community in a remote region will have access to telephones and computer facilities, so that it can participate in knowledge generation and use.

The nature of the ICTs used in this centre could be an effective tool for development, and the success of telecentres in Europe suggests that telecentres may also be an effective mechanism for making the Internet and other ICTs available to rural communities. This explains the recent initiation of a number of telecentre pilot projects in developing countries (Anderson *et al*, 1999 and Conradie, 1998).

The term telecentre has been used to describe a broad range of services, including commercial call centres, satellite offices and facilities (e.g. fax, telephone, computing, Internet) use. For the pilot project, the concept telecentre meant the fusion of telecommunications, information, and multimedia and computing functions to help address a variety of community problems and needs (Fuchs, 1999). Services offered would range from basic e-mail to full Internet connectivity. Although books and periodicals would be available, this telecentre would not be a library. It was also envisaged that, eventually, the community of Thabina should take ownership of the telecentre, as people to be served by the project must accept it as their own.

Justification of the pilot project

Several aspects, according to Mody (1991) were taken into account in order to justify the pilot project:

According to Mody (1991), the recipients must express a need, which should be addressed. Absence or lack of a need is negative and harmful, as was the case with the community of Thabina – they could not develop towards selfsustainability due to the lack of applicable information. This deficiency was felt by the community and expressed by them. After the demonstration, the Development Committee agreed that they needed a telecentre by which means they could obtain various information and through which they could communicate with other organisations.

Alternatively, Mody (1991) explains, a need might be observed by a development planner as a discrepancy between the quality of life individuals should experience, and their present knowledge, attitudes, and behaviours. The pilot project was based on the latter alternative: a need was observed by a development planner, the Researcher. The content of the information presented to the Development Committee had advantages over the prevailing knowledge held by them. These advantages were economic (more money, land and food) and social (more power, community approval, status and influence). The content was also timely, as the Development Committee had recently established a WUA and would need more and more information regarding agricultural practices. The information was also applicable, as it contained information on markets and trends, crop cultivation, daily market prices and various other aspects necessary for the WUA to operate successfully. The information was also simple enough to be understood by the Development Committee as various print-outs – full colour pictures of the information to be obtained from the Internet - were distributed during the demonstration held.

Mody (1991) suggests that when elderly people are addressed, a serious form should be adopted. As the pilot project was aimed at the members of the Development Committee, it was decided to adopt a serious form, as prescribed by Mody (1991). They were all mature adults and most of them illiterate, which is why the translations by a local teacher were necessary.

Unobtrusive observation was followed by unobtrusive documentation of observations. All documentation was done by hand and by a small tape recorder hidden under the

table. As a variation on group discussions, this method of information collection is often called the group depth interview, or the focus group interview. Ideally, these group interviews were conducted in a quiet informal atmosphere, where a small group of farmers (the Development Committee) was interviewed. The meetings were also scheduled to take place at a time suitable for the committee members, on a day they could all be present due to a local meeting they had arranged beforehand.

3.1.4 Development of the Thabina community as such

Commercial success requires sound commercial planning, while community acceptance needs good community-oriented planning and involvement – commercial planning will not necessarily lead to successful community upliftment, while planning to better the community will not automatically result in financially viable activities. But communication based on the DSC paradigm, still forms the sound basis for any development project (Conradie, 1998:111).

The concept of the information to be disseminated must therefore be taken into account. The White Paper on Science and Technology (South Africa, 1996c:10) leaves little doubt about the importance of information and communication in the development process: "The ability to maximise the use of information is now considered to be the single most important factor in deciding the competitiveness of countries and their ability to empower their citizens through enhanced access to information".

This project involved the upgrading of the community's social and cultural activities for community development by means of introducing the technology and thereby exposing the community to applicable information for development. As mentioned, the community was developed by the value adding model of Boon (1992) (as discussed earlier) where data was converted into practical, applicable information that lead to knowledge, that lead to action – the implementation of the knowledge. This information played an important role in the decision making, creativity and innovation of the community – to be able to expose this community to development by means of tele-working, tele-training, public administration, remote access to health care (tele-medicine), etc. besides the traditional use of the telephone.

Both workshops, held during the preparatory phase (Chapter III) and the implementation (Chapter IV), were held in the existing building on the premises at

Thabina – a building familiar to the Development Committee, where they regularly hold their meetings. The communication flow was horizontal, as needs were discussed throughout the workshop and the various technologies were explained. Due to a lack of electricity, the demonstration of the technologies was done by means of a laptop. As this was an illiterate, oral society, various print-outs of information to be obtained from the technologies were explained and handed out.

3.2 PLANNING THE PROCESS

The pilot project was undertaken for the rural agricultural community at Thabina. As they are an oral community, the communication strategy to be used, was at first investigated by the Researcher.

Role-players were identified as the Development Committee, LVA as consultant on behalf of the NPDALE and the Researcher. These role-players were identified according to psychographics (fears, hopes, motivating factors), occupation (farmers, consultants and researcher), interest (all parties had development as an interest) and experience (illiterate farmers, consultants and researcher of DSC).

3.2.1 Outline of the pilot project

Research was done in a participant manner, based on the DSC paradigm, where a climate of mutual understanding was established by means of group discussions - a form of interaction with role-players and personal interviews with the members of the Development Committee.

During the workshops it was agreed that once the Development Committee agreed that a telecentre had to be stablished, the telecentre would be implemented in an existing building. This is a bricks and mortar building in which the Development Committee regularly have their meetings. Although not situated in the community itself, the building is situated at the edge of the irrigated land and also next to a small co-operative where the community buys farming and day-to-day requirements. Once supplied with electricity, it would be furnished with a computer (with a modem and Internet facilities), a photocopier, fax and telephone lines. Here the community would be able to obtain agriculture-related information and communicate with other agriculture related organisations. The telecentre would be implemented in various phases, as described in the next chapter. Briefly, it comprised the following steps,

executed by means of participant communication, where a free exchange of ideas took place:

First of all, the concept of a telecentre and where it would fit into the management of the WUA was explained to the Development Committee. An in-depth needs analysis was executed by the Researcher and a demonstration of the various technologies and the information to be obtained these technologies, were executed and evaluated. The needs analysis was executed in order to understand the needs of this community, and of the information needed by the community in order to comply with these needs, for them to become self-sustainable. The demonstration of the various technologies was executed in order for the Development Committee to realise what services such a telecentre could render them. The demonstration of the information to be obtained from the technologies was also done so that the Development Committee could identify the information they would need in order to become self-sustainable by means of the establishment of a telecentre for the agricultural society of Thabina.

3.2.2 Communication based on the DSC paradigm

For instance, one particular Phillipines project (Richardson, 1997), drew attention to the fact that for many rural people, interpersonal communication or peer communication is the primary means of communicating and exchanging knowledge (Richardson, 1997:6; Leach, 1999; Mukasa, 1998). Anderson *et al* (1993:3) proposes the creation of ways to combine this with electronic media processes, which should increase the effectiveness of both. Because the community of Thabina is an oral community, this project was based on interpersonal communication, where a local teacher translated the information into the indigenous language.

The execution of the pilot project was based on the pluralistic paradigm of Development Support Communication (DSC). This paradigm is seen by O'Sullivan *et al.* (1994:50) as a negotiation and exchange of meaning in which messages, people-in-cultures and 'reality' interact for meaning to be produced and understanding to occur. Throughout the pilot project, the negotiation and exchange of meaning by means of culturally determined interaction was of primary importance.

As a strategy, DSC can mobilise people for action, promote co-ordination and linkages among groups and stimulate awareness of, planning for, and participation in development. As a strategy for ICT applications, development communication

"(should) begin with the needs of people in rural communities and grassroots agricultural organisations and works to establish vertical and horizontal channels of communication" (Richardson, 1997). This is the reason why, first of all, a needs assessment of the community of Thabina and the analysis thereof were based on the DSC approach, which was applied according to the following aspects:

- Participatory problem analysis and development planning took place via dialogue and consultation. This ensured information flow among the role-players and promoted local information networks; it linked rural knowledge and information systems and helped integrate indigenous and scientific knowledge (such as the story-telling described later); and it empowered the local people to take control of their own development processes (Raminez, 1995:2).

- A good understanding of local communication patterns and processes of the community of Thabina was essential for the telecentre development to ensure appropriate applications of technologies and content to the local situation and for harmonisation and integration with existing communication channels and processes. This includes cultural and social norms, where and how people communicate, what is communicated, and by whom. This information was collected during the discussion of the current needs, with the Development Committee.

- "The choice of technology was to be 'appropriate', that is, affordable and environmentally sound" (Agunga, 1998:32). If we are to speak of effective information and communication and knowledge in support of development strategy, we must see the intended beneficiary in terms of a human agency, a rational and actively involved individual whose indigenous information and communication structures (community) will form the foundation for the cocktail strategy (Mukasa, 1998:4). The research of the pilot project was therefore executed by means of oral, interpersonal communication, in order to take the indigenous communication structures (oral communication) into account.

- One of the important barriers to information flow is linguistic (Boon, 1999). For the pilot project, a translator (local teacher) translated the English into the indigenous language. Centres without the services of trained DSC

professionals have little chance of being widely used and the researcher of the project was a student in Development Communication who, after the literature study, supported the idea of the DSC paradigm.

- The content might be right, but if the presentation is not appropriate, the communication process will not be successful (Leach, 1999:72). It was therefore decided that the basis of this project would be participation-as-an-end, which enhances peoples' ability to become active in development programmes and processes that they themselves articulate, plan and initiate (Melkote, 1991:262), based on interpersonal communication in this oral society. It was hoped that the oral approach in the group situation of the pilot project would build trust by means of personal contact. This would therefore ensure that the information to be communicated, could be trusted.

Based on knowledge obtained from the Internet and publications such as *Communicare*, the Researcher decided to executed pilot project by means of the DSC paradigm and that the research would be conducted orally, as Thabina is an oral society where most of the recipients (members of the Development Committee) are illiterate. Speakers involved in conversation had direct contact with the Development Committee. They could see/hear the reactions and resistances of those they were addressing and could adjust their words and gestures accordingly (Mody, 1991).

3.2.3 Communication methods used during the research process

Communication methods were chosen to fall within the DSC paradigm and research was done by means of participant observation during the workshops where the concept of the telecentre was explained, how this telecentre would fit into their management and also during the demonstration of the various technologies. Personal interviews with the members of the Development Committee to discuss their needs, fears and their expectations were also used as a research method.

The DSC paradigm is described by Brundtland (1989:14) as "meeting the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs". According to Malan (1998:65), development is usually seen locally as the process of "enabling people to achieve their aspirations by improving their present situation". This implies that people are helped to help themselves through a process of change, which includes development of skills, self-

image and courage. Development also involves raising expectations to new levels and getting involved to reach those new expectations (ESKOM, 1995:6).

3.2.3.1 Verbal communication

In order to obtain information on the communication with people from a developing world, Mr Johann Adendorff (an expert in cross-cultural communication and a consultant of LVA) was contacted and two meetings were held with him in his office at Nylstroom. During these meetings with Mr Adendorff, it became clear that in the African culture, questionnaires appeared to be a threat. Africans are suspicious about giving personal information, because they think that, as in the old regime of which they still have a negative connotation, it would be used for taxation or other purposes. It was therefore decided that no questionnaires would be used, but that research for this project would focus on an oral, participatory approach in which communication would play a dominant role.

The purpose of these workshops was to explain the concept of a telecentre to the Development Committee and where the telecentre would fit into their management of the WUA, to discuss and analyse the various needs; and to demonstrate the various technologies and the information that can be obtained from these technologies. During the workshops, focus was on the communication process as a "facilitated intervention ... to catalyse two-way communication, dialogue and problem-solving" (Richardson, 1997:1). The workshops were an interplay between the role-players - the Development Committee, Dr Jon Rutherford, the facilitator on behalf of LVA and the Researcher.

Mody (1991) points out that understanding is based on interaction and discourse where all parties have equal opportunity to explain, interpret, and justify without fear, violence, or sanctions. It can not be repeated too often that an identity of meaning can not be achieved between a sender and a receiver unless both have a chance to participate in a dialogue as they construct meaning. The communication during the pilot project was spontaneous, with good interaction, according to the DSC paradigm

3.2.3.2   Non-verbal communication

Non-verbal communication comprises gestures, body language and facial expressions. It is also appropriate to dress and behave to fit in with the local scene (Mody, 1991). The researcher therefore decided to wear a white blouse and a long skirt during the various meetings with the Development Committee, as in the indigenous culture of the Thabina community, these codes indicated 'femininity and cleanliness'. White is also a colour which conveys the image of honesty, truthfulness and trustworthiness. These concepts were essential to portray, as the Researcher and the recipients did not know to each other and an atmosphere of trust had to be established.

The print-outs distributed during the demonstration was also a form of non-verbal communication. These print-outs were samples of information that could be obtained from the various Web sites, which were descriptive as it contained sketches and was in full colour. (For a detailed description of these print-outs, see the next chapter on the print-outs used during the demonstration of the information that could be obtained from the Internet).

Dr Jon Rutherfoord was appointed by the NPDALE as a consultant, in order to upgrade the irrigation scheme at Thabina. He is very well known to this community and had been working with them for many years. He is also trusted by the community and has acted as spokesman of the Development Committee during this period - including their application for a WUA from DWAF. As he knew this community of Thabina by heart, it was decided that all communication during the preparatory phase should be done through him. He also did an extensive survey of their needs (in collaboration with them), as described in 4.3 on page 72.

During the first interview with the facilitator, Dr J. Rutherfoord, as spokesman for the Development Committee, which took place during March 2000, these aspects were discussed. It was decided that the pilot project was important in terms of the fact that no research had ever been done to determine the specific information needs of a rural agricultural community was, in order to establish a telecentre with the necessary ICTs, to address the specific needs.

3.3 OBJECTIVES TO BE TESTED IN THE COMMUNITY

During the interview with the Facilitator, various objectives were agreed upon which were to be achieved in the long-term:

-       Establishment of access to telecom infrastructures and community information and communication services.

-       Evolution of user-defined services for education and other prioritised purposes, as well as guaranteed sustainability through a gradual implementation of a telecentre concept in a distinct number of phases.

3.3.1   Short-term objectives

For the short-term, two phases were decided on. During the **first phase**, efforts should be made:

-       to obtain the consent of Mr Massoud Shaker, Director of the Policy and Planning Unit of the NPDALE, to execute the pilot project in his province, and to obtain the consent of the Development Committee for the establishment a telecentre at their WUA.

-       to do a needs analysis and to hold a demonstration – according to the identified information needs - to introduce the various technologies and the information that could be obtained from these technologies to the members of the Development Committee.

Information needs in the community should be identified on a continuous basis, info should be collected/updated on a regular basis, appropriate information according to the needs of the community should be collected and stored and to raise funds for the execution of the objectives set out above.

During the **second phase** of the short-term objectives, the following aspects should be addressed:

-       to identify information needs in the community on a continual basis,

-       to provide the Development Committee with local, regional, national and international information as required, and

-       to collect/update information on a continual basis. Once achieved, public telephone services should be rendered to community members and typing,

58

printing, photocopying, public telephones and fax facilities should be provided. Networking with other community resources through referrals should be established and the community should be linked to the world through the Internet by its own Web site.

3.3.2 Long-term perspective

The long-term perspective of the pilot project was also discusssed during this meeting. It was decided by the Researcher and Dr Rutherfoord that a telecentre, which will contribute to sound access to communication and information infrastructures, should be established once the consent of the Development Committee was obtained. This telecentre should be used in such a manner that it would contribute to, e.g. good governance and local livelihood opportunities. The telecentre should be equipped to the extent where it would make more information and communication possibilities available to more people. This would enable, *inter alia,* the farmers and producers to access market information, as well as to participate in relevant decision making processes. The level of computer and other skills for the future work force should be increased and electronic resources could, for e.g. be shared by rural schools. The community should also be enabled to form virtual groups/communities of interest.

3.3.3 How these objectives and the perspective could be reached

Although the emphasis in developed countries has been on the personal computer and personal access to the Internet, this situation is not feasible in rural areas of the developing world at present (Anderson *et al,* 1999:3). The link between ICTs and the local people would most likely have to be made through existing communication channels, such as the consultants and the rural teacher (who did the translation during the pilot project) (Anderson *et al,* 1999:4). Attention to creating and sustaining these linkages was crucial to ensure that ICTs reached their potential as tools for development. In this regard, it was important to direct attention to how the telecentre infrastructure and technology could best be configured or organised to facilitate group use. For the pilot project, the local schoolteacher translated the information provided by the Researcher, both during the preparatory phase and the implementation of the project planning, into the indigenous language (Sjangaan) so as to be understood by

the Development Committee. This was successful, as the teacher not only translated the messages very well, but also because he was well-known to and trusted by the community, as he taught at the local school.

Apart from the linkages between the technology and people, there are potentially new interfaces between electronic and non-electronic media processes. Creative ways of combining these two media will help to increase the effectiveness of both (Anderson *et al*, 1999:4). The creative ways used in the pilot project were to have a practical, detailed demonstration and to circulate print-outs of the variety of information obtained from various Web sites. These were simple sketches in full colour to increase the level of interest, and most of them were very descriptive so as to be easily understood by the Development Committee.

However, ICTs are new to many people in rural areas. To assist these rural people to identify what technological applications, services and content they may need or want, they would have to be made familiar with the uses of these technologies and the potential applications and content appropriate for their situations (Anderson *et al*, 1999 and Ernberg, 1999). Familiarity with the technologies would enable these end-users to have a productive dialogue with the designers and suppliers of the applications and to adapt and create their own content. Ways to accomplish this are study tours, that would take rural people to where the technologies already exist, and/or organising demonstrations of, and training in the technologies (Anderson *et al*, 1999:3 and Leach, 1999:77 – 80). The pilot project comprised the latter, where an extensive demonstration of the new various technologies were introduced, as described in the following chapter.

One of the greatest risks in telecentre development is that the technology will remain 'alien' to the local community and they will feel little involvement or ownership of the telecentre. This of course limits the effectiveness and sustainability of the initiative. This was addressed by engaging the local community in all stages of the development project and by capacity building that could develop the skills of local people to take responsibility for the organisation, maintenance and operation of the telecentre.