AN EVALUATION OF THE INFORMATION DISSEMINATION MECHANISMS FOR SMALL SCALE SUBSISTENCE FARMERS

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Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

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Date   **:**   **3ʳᵈ March 2006**

Abstract

Rural communities depend on the use of natural resources surrounding them for their daily livelihoods. These communities have in the past lived off these resources amid the day-to-day natural threats that pose a threat to their environmental resources. These communities depend on tending the land and rearing livestock to provide for their day-to-day needs. The only period when these communities decide to sell what they have produced is when they have unexpected surpluses that were neither planned for and these are normally sold to derive extra income.

Given the total dependence on the use of their natural resources as a means of their survival one would expect this group to be provided with relevant information and be kept abreast of developments in the sector to enable them to produce better and derive surpluses that will generate extra income. This is unfortunately not the prevailing arrangement, very often these communities are left on their own to fend for themselves using knowledge and practical experience that has been gained over the years. In other instances the nature of the information provided is in most cases such that it does not lend itself for easy use by a person who is either semi-literate or illiterate. For those who can read the information it is not always forthcoming or does not deal with the relevant local issues, and lack of supportive infrastructure also adds to the farmers ailing conditions.

The kind of agricultural research as well as extension services provided to these farming communities is still lagging behind due to a number of factors, these include; poor interaction with the farmers in an effort to identify and prioritize their needs, high level of illiteracy, insufficient resources, low levels of income and a host of other related problems.

Adomi et.al. (2003), in their study on crop farmers' access to agricultural information in rural areas of Delta State Nigeria, also stress the importance of farmers having access to agricultural information if their agricultural efforts are to succeed. They further emphasize that farmers need to share knowledge and experience with farmers who operate under similar conditions, this will enable them to adapt and replicate experiences learnt from other farmers. Most importantly farmers need to be provided with information on access to credit and information from research institutions.

The paper intends to look at challenges facing small-scale farmers in as far as information dissemination is concerned, appropriate techniques that can be applied to overcome these challenges and use lessons that have proved to work for countries operating under similar conditions.

It is important to remember that farmers irrespective of their scale of operation, are managers in their own right, they are constantly facing challenges, are forced to make choices and decisions that will determine the future of their farming enterprise in the cut-throat competitive environment. The livelihoods of their families depend on these very decisions. Therefore providing timely, accurate, reliable and user-friendly information at affordable prices is their only hope for survival in the present free-market economy.

Opsomming

Plattelandse gemeenskappe is afhanklik van die gebruik van natuurlike hulpbronne in hulle omgewing vir hulle daaglikse bestaan. In die verlede het hierdie gemeenskappe van die hulpbronne gelewe in die teenwoordigheid van daaglikse natuurlike bedreigings wat die omgewing bedreig. Die gemeenskappe is afhanklik van die bewerking van die grond en die teel van lewende hawe om te voorsien in hulle daaglikse behoeftes. Die gemeenskappe besluit om te verkoop wat hulle geproduseer het slegs wanneer daar onverwagte oorskotte is, waarvoor ook nie beplan is nie, en dit word gewoonlik verkoop om ekstra inkomste te genereer.

In die lig van die totale afhanklikheid van die gebruik van hulle natuurlike hulpbronne as manier om te oorlewe sou 'n mens verwag dat hierdie groep van relevante inligting voorsien word en op die hoogte gehou word van ontwikkelings in die sektor om hulle in staat te stel om beter te produseer sodat daar surplusse vir ekstra inkomste sal wees. Dit is ongelukkig nie die heersende reëling nie. Baie dikwels word hierdie gemeenskappe aan hulleself oorgelaat om self die mas op te kom, of die aard van die inligting wat verskaf word, is in die meeste gevalle so dat dit nie maklik gebruik kan word deur 'n semi-geletterde of ongeletterde persoon nie. Vir diegene wat wel kan lees is die inligting nie altyd beskikbaar nie of handel nie oor die toepaslike plaaslike omstandighede nie. Die toestande word ook vererger deur die gebrek aan 'n ondersteunende infrastruktuur.

Die soort van landbounavorsing, sowel as uitbreidingsdienste wat aan hierdie boeregemeenskappe voorsien word, raak egter agter vanweë 'n aantal faktore, insluitend swak interaksie met die boere by die identifikasie en prioritisering van hulle behoeftes, 'n hoë vlak van ongeletterdheid, onvoldoende hulpbronne, lae inkomstevlakke en 'n hele aantal ander verwante probleme.

Adomi et.al. (2003), in hulle studie van saaiboere se toegang tot landbou-inligting in die plattelandse gebiede van die Delta Staat in Nigerië, beklemtoon ook die belangrikheid van boere se toegang tot landbou-inligting vir die sukses van hulle boerdery-aktiwiteite. Hulle beklemtoon verder dat boere kennis en ervaring moet deel met ander boere in soortgelyke omstandighede. Dit sal hulle in staat stel om ervarings wat by ander boere geleer is, aan te pas en te repliseer. Die belangrikste is dat boere inligting moet kry oor toegang tot krediet en inligting van navorsingsinstellings.

Hierdie werkstuk kyk na die uitdagings vir kleinboere met betrekking tot die disseminasie van inligting, toepaslike tegnieke wat gebruik kan word om hierdie uitdagings die hoof te bied, en lesse wat gewerk het in lande waar soortgelyke omstandighede heers. Dit is belangrik om te onthou dat boere, ongeag die omvang van hulle boerdery, bestuurders in eie reg is. Hulle moet deurgaans uitdagings die hoof bied en word gedwing om keuses te maak en besluite te neem wat die toekoms van die boerdery-onderneming sal bepaal in die genadelose kompeterende omgewing. Die lewensonderhoud van hulle gesinne hang af van hierdie besluite; gevolglik is die voorsiening van tydige, akkurate, betroubare en gebruikersvriendelike inligting teen bekostigbare pryse hulle enigste hoop op oorlewing in die hedendaagse vryemarkekonomie.

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CHAPTER 1

INTRODUCTION

1.   Introduction

Information plays a pivotal role in enlightening people, raising their level of education and this in turn translates into improved standard of living participating in decision-making processes, advancing democracy and making informed decisions. Chapter 2 of the Bill of Rights of the Constitution of South Africa fully acknowledges the right of people to have access to information. The Promotion of Access to Information Act was also passed to ensure that nobody is denied the right enshrined in the Constitution.

Although information is said to play a critical role in agricultural and rural development, provision thereof has not received enough attention to warrant this widely held belief. Rural communities and farmers are on day to day basis faced with critical decisions that could have far reaching implications on their farming ventures. When one considers the fact that agricultural production often forms the mainstay of the rural economy, then accessing the right information at the right time, and making informed decisions becomes even more important for ensuring sustainable livelihoods for these communities.

Matthewman as quoted by Morris and Stilwell (2003) share the same sentiments by confirming that information is critical for farmers to maintain livelihoods or to gain a competitive edge in a rapidly changing economic and production environment where traditional farming methods might be insufficient to meet the new demands.

Even though some of the information needed by the farmers is often provided, there are often problems in as far as accessing this information is concerned. Problems such as extension officers not being in a position to disseminate this information due to problem of staff shortages, literacy level of the farmers and poor infrastructure in most of the rural communities are often cited (Aina as quoted by Adomi et.al. 2003). Nigeria has suffered a similar experience as observed by Youdeowei (as cited in Adomi et.al., 2003) where a wealth of research findings exist that never reach the rural communities because of the ailing economic environment that impacts on information and documentation services.

Government agents experience various problems in as far as dissemination of information to their front line staff is concerned who also have to share similar information with the rural farmers. The unit responsible for the Marketing of Agricultural Information Services, in the Eastern Caribbean shares a similar kind of frustration. Their frustration is based on the fact that information provided to the ministry is often locked away and the front-line staff that mostly needs the information to share with their clients on the latest from the markets is denied access to this valuable resource.

Hann (as cited in Omekwu, 2003) also observed that developing countries faced problems in acquisition, retrieval, processing and dissemination of various types of information. According to Omekwu (2003) Nigeria's problem is compounded by scarcity of reliable statistics, data and information. Where information is available there is often the problem of *data confusion* where different sources feed in different estimates for the same crop and time period. He further warns of the dangers of data or information inadequacy, which he contends will lead to reinvention of the wheel, reduced innovation, and retardation in the march to self-sufficiency in food and fibre production as well as planning, monitoring and evaluation without the availability of relevant information to guide this process. He also expresses his doubt on whether any nation can control the trend of its food and fibre production if it does not make agricultural information control a national priority or mandate.

1.1   Conducting an information needs assessment

In order to ensure that appropriate information is provided to those who will benefit from it, a number of factors need to be taken into consideration. An understanding of why the information is needed, what purpose it will serve, and how this should be provided are amongst the most important questions that should at all times guide providers of information.

In an attempt to understand the needs of those who will be on the receiving end, an information needs assessment is one way of ensuring that information provision efforts remain focused. In the case of the Eastern Caribbean the group responsible for Agricultural Marketing Information Services used the following approach, in its information needs assessment;

Their starting point entailed the identification of different types of users as well as prospective users in order to address specific needs for each target group. Their target group included:

- Farmers
- Researchers
- Agricultural Planners
- Extension Officers
- Exporters

Information on what the needs of these users were was collected by means of a questionnaire where a structured interview was conducted with each member. The main purpose of conducting the interview was to seek answers to questions relating to the following:

- Information sources used by the group for the marketing of non-traditional crops and how often reference was made to these sources
- Which sources of information did the group find most useful and why
- The need for information provided by the Market Intelligence System (MKIS) as well as the need for additional information not provided for by the system

- What the information provided by the system was used for
- Whether users could make sense of the content and suggestions on how this can be improved
- Whether the current presentation was appropriate and any indications on the preferred manner in which information can be presented.

Analysis of information provided through these interviews threw light on the type of information that was used and needed by each group and why this kind of information was needed. This also helped those providing information to plan ahead in as far as the information products and services for the individual groups are concerned. Aiyepeku as quoted by Omekwu (2003) shares the same sentiment by emphasizing the following:

"Until specific audiences within the developing countries are identified and the information needs of each are ascertained, efforts at designing effective information systems will continue to be governed by the finding agencies, researchers and the priorities of information specialists rather than being a reflection of the identifiable information needs of the users in those countries."[1]

It also came out of the information needs analysis of the Eastern Caribbean group that farmers preferred the radio program as one effective method of dissemination of information. Zijp (1994) also supports this preference by asserting that rural development demands that rural people be provided with information that they need in forms that they can understand. Information gaps within the MKIS were also identified, and these included: *market forecasts, monitoring of additional markets, contact details of exporters for specific crops* and *transportation choices that were at the farmer's disposal*. This assisted MKIS to reevaluate the kind of information that they provided and identify those areas that needed immediate attention.

Conducting an information needs assessment could serve as one method that institutions can use as their sounding board in order to check if they are really addressing the felt needs of these communities.

1.2   Factors that prevent the free flow of information

Although it is almost a forgone conclusion that provision of relevant information plays a key role in guiding the decision making process, there are a number of factors that often hinder the free flow of information to where it is mostly needed. Some of the bottlenecks include information inappropriately packaged or in a format that is not in line with the literacy level of the target audience, not conducting enough research on what the intended users needs are, conducting and providing research results on issues that are not relevant to the rural communities and failing to engage these communities on what their real needs are instead of what we perceive them to be.

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[1] Omekwu, C.O. National Agricultural Information Management System in Nigeria: A Conceptual Framework, Library Review Volume 52, Number 9, 2003. p. 444

According to the Economic Commission for Africa information poverty of the developing countries manifests itself in a number of key activities these include:

- Rural dwellers failing to access important information on time e.g. market produce prices, bulletins dealing with pest infestation
- Information presented to the rural communities is often presented in a written form making it impossible for those with low levels of literacy or no literacy skills to make use of this information
- Rural communities often find it difficult to share information and experience amongst themselves beyond the face-to-face contacts
- Indigenous knowledge is seldom documented and stored thus leading to future generation losing out on this valuable information.
- There is poor linkage between researchers and field workers, very often field workers have limited access about information on communities that they are expected to serve as well as current research findings on these communities, while researchers on the other hand have little access to up-to-date information form the field.
- Most of the government plans and decisions are based on insufficient information that the government has at its disposal
- Lack of quality communication services dedicated to serve the rural areas is a major stumbling block to rural development. Once these barriers are overcome, the impact of distance will be minimized
- The situation in developing countries does not easily lend itself to the exchange of information between one another.

A common mistake often made by outside agents is convincing farmers to do away with their traditional methods of doing things and their indigenous knowledge, making them look at these as primitive and backwards and urging them to go for the so called *new and improved technology*. What these agents overlook is the fact that the very knowledge and experience that has been gained over the years can be adapted to supplement what they are in the process of introducing. The current methods can also be adapted to increase the level of productivity and provide resources that can cut down on tedious hours of work.

Schoen (quoted by Coetzee et.al.,2001) list five common mistakes that are often committed when developing communication strategy, these are: *mistake in choosing a target audience, mistakes in deciding on communication objectives, mistakes in message design, mistakes in choosing the means and media to get a message across to the audience*, and *mistakes in organizing communication effectively*.[2] Schoen recommends the following nine steps to avoid committing the above mistakes:

- Determine issues that are top on the priority list
- List all role players
- Conduct an analysis of the target group
- Formulation of clear objectives

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[2] Coetzee, J.K., Graaff, J., Hendricks, F., Wood, G. (Editors). 2001. Development: Theory, policy and practice. Oxford University Press, Cape Town, South Africa. p444.

- Design appealing and understandable message elements
- Select the media
- Communication design
- Pre-test material, and
- Develop an action plan for implementation of the strategy

Over and above these prescripts both Hornik and Schoen (quoted by Coetzee et.al., 2001) stresses the importance of strategizing information campaigns according to the audience, and even go as far as possessing sound knowledge about the audience.

In other instances limited resources prevent those responsible for disseminating information from doing so. Staff shortages also add on to problems that prevent free flow of information. Another important consideration that needs to be taken into account is to first find out what the needs of the target audience are and thereafter present responses that have been adapted to suit the local conditions as well as incorporating local knowledge. Conducting a needs assessment as discussed in the preceding section, will prevent repeating common mistakes that are often committed by those responsible for providing information.
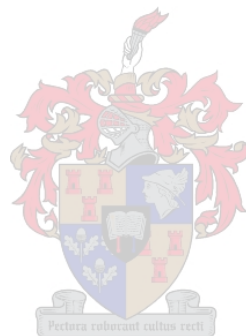
CHAPTER 2

RESEARCH PROBLEM AND METHODOLOGY

2.1   Study aims and objectives

The overall aim of the study is to look at the information dissemination mechanisms used for the subsistence farmers and means of improving existing information efforts, with special reference to the following areas:

- Information resources at the disposal of the small scale or subsistence rural farmer
- Different mechanisms used for disseminating information to the small scale rural farmers and factors that influence the choice of different information dissemination mechanisms
- Information needs addressed by these mechanisms and what informs the providers on what the specific needs are
- Effectiveness of these information dissemination efforts.
- Areas that need to be worked on in order to improve the flow of information
- Lessons that can be learned from countries and provinces operating under similar conditions

2.2   Research Methodology

The study will make use of the literature review approach. Different literature on the dissemination of information to the rural communities will be examined. The intention of the literature review will be to find answers to questions raised under the research problem. Specific *case studies* will be used to underpin certain aspects/findings of the literature review. Comparison on how different countries operating under similar conditions in as far as dissemination of information is concerned will be made. The aim of this approach is to learn from what other countries have already done or failed to do and recommend ways of improving on these while learning from the good work that other countries are already doing.

Reference will also be made to the *information dissemination practice* of the Department of Agriculture, Conservation and Environment in the North West Province of South Africa on their information dissemination efforts. This will be an effort to compare South African practice with what the rest of the world is doing and hopefully learn a few lessons in order to improve on service delivery standards.

Finally an analysis of the findings will be made in an effort to draw *common best practice* through and recurrent problems that were experienced throughout the reviewed literature. The conclusion and recommendations section will highlight those lessons that are worth taking to the next step and adapting in order to ensure that *effective information dissemination does take place within the rural communities.*

CHAPTER 3

LITERATURE REVIEW

3.1   Why do farmers need information? The case of Kenyan fish pond smallholders

It is first and foremost important to have a common understanding on why farmers need information and how this information can help improve their lot. By so doing those who are responsible for fulfilling this role will not miss the mark in terms of what the actual needs of these farmers are.

Shibanda (1999) shares with us the experience of providing information to the Kenyan fish pond smallholders. Pond fisheries is gaining popularity among Kenya's densely populated areas. This major farming activity assists poverty stricken households to provide food and income for their families. Due to this important contribution made by these fish pond fisheries, it is of utmost importance that farmers be provided with the right information in order to make the right choices and decisions for the continued survival of their families. Small scale fish farmers have come to appreciate fish as serving as a buffer to the annual household supply of food and income especially during the poor cropping seasons and famine. The project on its own has secured the following for the otherwise poverty stricken households:

- Ensuring food security
- Providing cheap animal protein
- Poverty alleviation
- Compensating for the otherwise expensive lake and ocean fish
- Providing extra source of income
- Giving new meaning to the farmers existence by raising their level of self-esteem and pride in achievement

Provision of information to these smallholders is treated as a commodity and serves as an important resource as it guides the small farmer in making informed decisions and improving farming practices. As a risk taker, the farmer needs current information and to stay informed in order to avoid and minimize risks. Shibanda describes these farmers as managers in their own smallholdings thus constantly looking for quality and sufficient information that will assist them to arrive at the right decisions.

One *information provision* constraint that was identified with the group was the prevalent level of illiteracy that stood at 54 percent among male and a staggering 99 percent among females. The group was also confronted with the problem of lack of technical and scientific knowledge as well as basic skills in areas of farm management practices. Lack of appropriate training and monitoring skills has led to farmers neglecting their ponds resulting in poor quality of water and breeding diseases which cause fish deaths.

Farmers are determined to integrate their smallholder pond fisheries with crop production, livestock and beekeeping. Government on the other hand does not seem to show the same level of commitment through offering support in the form coordinated information, communication and training of extension officers. In order for farmers to remain competitive and enjoy good returns, training should be offered in the following areas of pond-fisheries:

- Fish culture: mixed crop/fish/poultry/livestock farming
- Manuring of fish ponds – chemical fertilizer/organic manures
- Stocking of fish
- Construction and care of fish ponds
- Identifying areas of pond fisheries

The above list bears testimony to the fact that farmers are faced with a number of challenges and choices to make. In order to ensure that farmers remain focused and make informed decisions, farmers have to develop farm management strategies that will enable them to allocate their scarce resources and achieve set objectives. Farmers decision making process constitute formulating an opinion on the rightness and the wrongness of any course of action. As CGIAR (as quoted by Shibanda, 1999) aptly phrase it, farming is not just a collection of crops and animals to which anyone can come with any form of input and expect positive results. It is instead a *complicated interwoven mesh of soils, plants, animals, implements, workers, other inputs and environmental influences with the strands held and manipulated by a person called the farmer, with preferences and aspirations, attempting to produce output from the input and technology available*[3]

Rogers (quoted by Shibanda, 1999) points out to various stages that farmers go through before adopting any new information, and these include:

- Awareness stage – where farmers learn about new ideas. Farmers learn from sources such as farmer training centres, local meetings, extension agents, agricultural research stations, film shows, radio, newspapers, neighbours and friends, government officials and cooperative societies.
- Interest stage – where farmers develop interest in new ideas and make enquiries in order to obtain more information. Information may be acquired through reading literature including reports.
- Evaluation stage – smallholders start to be innovative and try out new idea in order to decide on its viability.
- Trial stage – when a farmer is keen to exploit full use of the new idea and any related information.

Shibanda (1999) reminds us that farmers involved in pond fisheries should be regarded as managers of their own holdings, requiring knowledge and quality information in order to

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[3] CGIAR quoted by Shibanda, G.G. 1999. Optimising fisheries information for decision making among Kenyan fish pond smallholders. Library Review, Volume 48, Number 8. p.411

assist them in their decision making process and help them avoid risks in their intended line of action.

3.2   Preferred information dissemination methods for limited-scale landowners

Cartmell II et. al. 2004, conducted a study to examine methods of information dissemination preferred by limited-scale landowners in Lincoln County, Oklahoma. If information was to be used as a tool that was meant to empower the farmers then the manner in which it was packaged and delivered needed to be closely looked at. Seeing that information is often presented in various forms, the daunting task is often to identify the most appropriate method of presentation and delivery that would make sense to your target audience. As Pounds (quoted by Cartmell II et.al. 2004) points out, knowing where people look for information is one part of the puzzle for extension communicators but establishing where they finally find the required information is another part of the puzzle that needs to be solved.

Studies show that clientele preferences are a reality and these vary according to the kind of audience being served. Given the difference in preference shown by groups and individuals it is quite evident that no single method of delivery will be suite everyone. The challenge is finding the most appropriate method that will in the end make a positive impact on the lives of the target group.

Previous studies also show that preference on informational delivery methods are influenced by a number of factors such as demographic characteristics like age, income, formal education and farm size. (Iddings & Apps, as quoted by Cartmell II et.al. 2004). The diverse methods of information dissemination that exist, then call for extension to understand the type of technology their audience own and use regularly. (Orr, as quoted by Cartmell II et.al. 2004).

The findings of the study conducted by Catrmell II et.al. (2004), showed that the group preferred the use of direct mail as the primary method of information dissemination. This method was further supplemented by secondary sources of information such as television, magazines, videos and the Internet. It was quite interesting for the study to reveal that more than half of the audience did not use the cooperative extension service. Although the respondents pointed out that they often used extension and the Internet to source relevant information, it was quite evident from the study that even with the prevailing advanced method of technology, and receiving information through direct mail still remained the preferred choice. And this was a preference indicated by all three age group categories namely; 31-50, 51-70 and the over 70 age group with different ranges of educational training.

For any information dissemination initiative to remain focused and purposeful it is first and foremost important to establish what the needs of the diverse group and what the preferred method of dissemination would be, this approach will surely make an impact in the lives of the target audience.

3.3   The use of print material in the provision of relevant material

Print material have a supplementary role to play, over and above the face-to-face contact sessions that farmers have with the extension staff. The biggest challenge is in ensuring that this information is presented in a manner that can be understood by the farmers thus enabling them to make use of it. Morris and Stilwell (2003) also believe that print material can play a vital supportive role in extension irrespective of their level of literacy. The winning formula is behind repackaging technical and scientific agricultural information in order to make sure that these are in line with the target audience's information needs, communication and style of language, as well as the level of reading and education. It is further stated that providers should also understand factors affecting readability, conduct readability assessment and pretest prepared material on intended audience. All these should be determined through the needs assessment that was mentioned earlier on.

Behrens and Evans (as cited in Morris and Stilwell, 2003) warn against the wrong assumption that is often made by the extension service that of overestimating the ability of its audience to read and clearly understand printed material. Studies conducted show that this is not always the case given the fact that material is often made of complex content, using words that are not easily understandable and a style of writing that does not suit this type of audience. These problems can be overcome by understanding the level of development of the target audience as well as identifying their needs.

The foregoing discussion points out to the fact that providing information that will help improve the livelihoods of the rural poor is quite a tall order. It requires careful planning, a clear understanding of the real needs as opposed to perceived needs of the beneficiaries as well as regular interaction with the target group.

The National Department of Agriculture also publishes information sheets known as *Infopaks*. These are aimed at empowering emerging farmers on various topics examples of which include but not limited to: *animal and crop production, poultry production, horticultural production, diseases and pests, basic marketing information, veld management* and *livestock identification*. Publication dealing with animal health is jointly published by the Department and the Agricultural Research Council. The information is in the form of booklets and pamphlets and this information can be downloaded from the departmental website. Extension officers find this information quite useful especially during farmers' information days, these are user friendly with illustration and others are even printed in the local language.

Commodity organization, *SA Grain*, produces a monthly magazine targeting grain farmers. This is a publication that can be used by both large and small-scale farmers, but due to certain limitations ordinary farmers in the rural areas might not be in a position to access useful information carried by the monthly bulletin. Firstly it comes at a price and is written in both English and Afrikaans. The publication however carries an insert made up of four pages written in Sotho and Zulu/Xhosa on issues related to grain cropping and a guideline on activities that can be carried out during different seasons. These inserts

serve as useful supplementary information for extension officers and during farmers' information days, more so that *SA Grain* does not have any restrictions on the duplication/reproduction of this material.

There are many forms, media and platforms in which this information can be packaged and passed on to the target group. The following section will examine the various forms that can be employed to make sure that information is disseminated in an efficient and effective. The various challenges and shortcomings presented by these formats and ways of dealings with these obstacles will also be suggested.

AgriConnect publishers have recently introduced *Ubisi Mail* as part of the *Dairy Mail* periodical. This is a new magazine by the commodity group, Milk Producer's Organisation of South Africa. The magazine will cater for farm workers on dairy farms as well as new dairy farmers. The organization will initially print 10 000 copies per quarter. The aim is to reach as much as 50 000 people living and working on farms as well as some 25 000 rural dwellers. This is a new initiative and it is hoped will make a valuable contribution to the very limited print material for the emerging sector.

Limited as the material appears to be there are still efforts made to accommodate the needs of the emerging farming community, and it is also encouraging to see new initiative such as *Ubisi* mail also adding to this limited collection.

3.4   Newspapers and newsletters as sources of providing information

Newspapers and newsletters dedicated to local conditions and events serve as an important source of information for the rural farmers. Information covered in the articles is often informed by the needs of the local communities as well as their active participation in influencing what the local paper covers, through raising questions and writing to the editors of these papers.

Efforts have been channeled towards producing information in print form at the level that can accommodate both emerging farmers and farmers. The *Nu-farmer* published monthly is one such example. It is in the format of a newspaper and published once a month and covers a range of topics that are quite useful to the emerging sector. Topics covered include livestock and crop management, starting up small agricultural enterprises, preventing, identifying and dealing with diseases and pets in livestock, crops and vegetables. The language is simple and quite easy to follow with clear illustrations and pictures. The publication is often delivered free of charge in large batches of approximately 500 to the various North West Agricultural District Centres thus making information easily accessible to the emerging farmer.

Bembridge (1997) also points out that parastatals, NGOs and agricultural departments have in the past years produced newsletters and journals that were targeting extension officers and those farmers who could read in the small-scale agricultural sector. Many of these are no longer in production. Extension officer however have to rely on manuals on extension methodology which have fairly limited circulation but are nevertheless still

available. Efforts have also been made by government departments, parastatals and NGOs to produce information brochures aimed at supporting small-scale agriculture. These include simple two page leaflet, information brochures and booklets published in English and the local language. These are produced in different format using relatively cheap material in some instances to glossy expensive material in other cases. The publication are meant to assist small scale farmers in their day to day farming activities and also serve as back-up information for extension workers.

Table 1 published by Bembridge (1997) show a summary of publication aimed at the small scale farmers.

Crop Production

Area	No of publications	Subjects
KwaZulu/Natal	11	Maize, beans, potatoes, intercropping, sugar cane
North West Province	19	Maize, tillage, groundnuts, sorghum, plant nutrition, sunflowers, potatoes
Eastern Cape	5	Maize, pineapples, potatoes
Gauteng	1	Food production
National	7	Compost making, sweet potatoes, sorghum, soil fertility
Total	**43**	

Fruit and Vegetable Production

Area	No of publications	Subjects
KwaZulu/Natal	12	Mangoes, pawpaws, citrus, avocados, bananas, guavas, deciduous fruit, pruning, gardening
North West Province	6	General fruit and vegetables, trench gardens, seedling production
Eastern Cape	12	General fruit growing, citrus, general vegetable growing, gardening
Gauteng	3	Food gardens (Newsletters)
National	1	Fertility trench
Total	**47**	

Table 1:   **Summary of available small-scale farmer publications on crops and horticulture according to area, 1996**

Bembridge (1995) notes with concern that although information was regularly availed to the rural farming community, there were no efforts made to evaluate the impact it has made on the livelihood of the farmers. Due to the fact that the written information was provided to a very limited audience, it had very little impact on the lives of the small-scale farmers and contributed very little in narrowing the gap between research, extension workers and the masses of disadvantaged small-scale farmers. Interviews with field staff confirmed that most of the information was not widely distributed and not used

adequately. Technical leaflets were often distributed without proper steps taken to ensure that a specific target audience was reached and whether information was interpreted correctly by the intended beneficiaries.

Cameroon has had an interesting experience in as far as the dissemination of information through the local newspaper and newsletters are concerned. Mundy and Sultan (2001) share this experience where monthly distribution of approximately 30 000 copies of *La Voix du Paysan* (The Farmer's Voice) takes place internationally targeting French-speaking African countries. This initiative started after a group of farmers visited Burkina Faso and wished to share their experience with those who remained behind. This led to the development of an information bulletin to share their stories. The practice continued and was subsequently used as a platform for discussing rural issues. Today the newspaper is used as a medium through which researchers, extension agents and technicians convey information using technical and scientific articles. Topics covered include cropping techniques like methods of eradicating pests, weeds and diseases, advice on livestock production and marketing farm produce.

Given the fact that articles produced are of a scientific and technical nature, Mundy and Sultan (2001) suggest that journalists should rewrite these articles in an effort to simplify technical and scientific information into commonly used language for the benefit of the farmers. This goes as far as translating scientific and technical names of plants and diseases into local languages. Efforts of this nature could go a long way in ensuring that important information reaches and benefits the intended audience; however a word of caution should go towards the translation process, where the gist of the original message as conveyed by the experts should not be compromised. It would be advisable for the experts to give the translated information a thumb's up before it is distributed to the masses.

Another important factor as observed by Mundy and Sultan (2001) is that of balancing the content of the newspaper. The newspaper should at all times sufficiently represent the voice of the rural people. Given the vast circulation of this newspaper it is important to bear in mind that the farming conditions are not uniform throughout the country. In order to overcome this problem articles cover for example information that would appeal to farmers in the dry cotton lands in the north of Cameroon to crop farmers in the south, and to market gardeners of those living in the urban areas. In some instances those responsible for the papers often decide to produce different editions for specific regions dealing with the local conditions. Depending on the availability of resources, this could be quite a costly exercise leading to spreading resources that could have been used elsewhere, very thinly.

Allowing farmers to read about experiences and conditions of other areas might also serve as a source of motivation or giving them new farming ideas. In order to also ensure a balanced coverage articles should also include general articles, training and discussions. There should also be enough pictures and illustrations in order to carry the appropriate message across.

Farmers are encouraged to send in letters and share their own experiences, challenges and successes. Responses to the letters are often thereafter given and these letters are often used as a basis for running articles about issues of common interest especially those of a technical nature in the forthcoming editions. Issues requiring legal or administrative investigation are also given the necessary follow-up and responses are printed for all to read.

It is also worth mentioning that this noble venture has had its fair share of setbacks in as far as distribution of the newspaper is concerned. Private firms find it easier to deliver in urban areas as opposed to the rural areas. Rural areas also experience transport problems and the mail service is often slow and unreliable. A follow-up attempt involved making use of distribution networks that were serviced by rural correspondents who contributed articles to the paper. This did not seem to work also as they were more skilled in writing rather than selling. This led to the training of distributors for the different parts of the country. This unfortunately did not yield desired results because selling papers in the rural areas proved to be an unprofitable venture.

Print media plays a crucial role as a vehicle for information dissemination in the farming communities; however involvement of the beneficiaries should not be overlooked as this will ensure that the content remains relevant and the level of presentation is done in a manner that can be easily understood by the farmer. Very often those providing this kind of service have a tendency of overlooking the needs of intended beneficiaries from this kind of service as well as their level of literacy; this results in providing information that is not in line or even accessible to the rural poor.

Print media could make a significant contribution given the fact that no sophisticated infrastructure is required for distribution even up to the far flung rural areas. However it does have its downside and these are often overlooked by those initiating the process. Low levels of literacy as already mentioned poses one serious problems. Overheads for initial production are often carried by the producers and sponsors, with the hope of selling the paper once it gains popularity, this often results in the coffers running dry, sponsors loosing interest and rural communities, due to their low levels of income, not being in a position to pay for this commodity. Publication of this nature fail to attract advertisers to the fact they do not enjoy that wide circulation and it is mainly targeting the rural areas with high levels of unemployment.

Distribution channels have their own setbacks; those who initially volunteer to take care of this function usually leave once a better paying job offer comes their way. Poor infrastructure and lack of transport hampers the already struggling distribution channels.

Even though this might seem like a lost battle, the papers still fulfill an important role in as far as the dissemination of information is concerned. Not all rural dwellers are illiterate, there are young aspirant farmers who have been to school, retired professionals who venture into farming and even those without any educational background can rely on their children and grandchildren who go to local schools. If the level of enthusiasm often shown by farmers who are often eager to get a copy once these are distributed is anything

to go by, one can safely assume that they do realize some form of benefit from using the paper. One can hope that the publication benefits the farmer in a manner that was initially intended and not other unrelated benefits such as using the paper as wrapper in some local tuck shop or laying it inside the kitchen cupboards. Well that's just a thought and an observation made. Once more this is not a norm but relates to a few isolated cases.

3.5   The use of audio-visual material in the quest to provide relevant information

Most of the agricultural producers in the hinterland are unable to read and write and mostly operate at subsistence level thus necessitating the use of audio-visual and national language materials. As the Delta (Nigeria) study revealed, most farmers preferred oral communication than written sources. Even if farmers were in a position to use written sources or even those that were published in their native language, the study still showed that there were no rural libraries and grassroots libraries that could assist with the dissemination of agricultural information.

The Department of Agriculture, Conservation and Environment in the North West Province of South Africa through its District Information Centres that form part of the Agricultural District Centres does provide material in the audio-visual format. This is usually in the form of audio and video cassettes, Compact discs and slides. Information ranges from livestock and crop production, conservation and environmental issues, animal health issues, poultry production etc. This information is commonly used during farmer's days and information days. This has proved to be a popular method of information dissemination given the level of literacy of these farmers and the fact that certain information is even presented in the local language.

Advantages of using CD-ROMs in storing, transporting and disseminating information

Compact discs have over the years replaced mounds of discoloured paper that is often found covered in dust in most of the offices. This method of information storage saves on space, offers easy and quick access to information required and has the capacity to carry large volumes of data.

According to Zijp (1994) Compact Disc-Read Only Memory (CD-ROM) is a storage medium that together with a microcomputer offers rapid access to a very large volume of data, including;

- text
- sound
- computer graphics
- animation
- slides and
- a limited amount of motion video

Zijp identifies the use of CD-ROM as a medium of transporting information to areas that cannot be serviced by means of highly sophisticated technology and he succinctly sums it up in this manner:

Rural development depends on rural people having access to information they need and can use effectively. Yet poor communications systems make transmitting timely, accurate information to agricultural extension agents, health workers, and others a difficult task. One approach to resolving this problem is to provide rural intermediaries with CD-ROM systems, holding vast amounts of information, graphical illustrations, oral discussions, and slides.[4]

He further goes on to indicate advantages of using CD-ROM and these include:

Storage capacity

Discs hold up to 660 megabytes (latest technology allows 13-54 gigabytes) of data, which is equivalent to 330,000 typewritten pages or 500,000 bibliographic references.

Durability and data safety

Unlike paper material the disc is resistant to dust, humidity, insects and fungi and is not affected by power fluctuations. While floppy discs are sensitive to environmental conditions, CD-ROMs on the other hand are stored and read with laser media giving them better durability. Data contained in the disc cannot be written over or erased by accident.

Compact International Agricultural Research Library (CGIAR) posses one of the world's largest integrated libraries on CD-ROM. The broad range of the 2000 publications selected by CGIAR includes books, field guides, abstracts, annual reports, research highlights, technical reports, training manuals, symposia/workshop proceedings and general and commodity newsletters.

Transportability

Light weight of individual discs makes CD-ROMS a good medium for transporting large amounts of data.

Low cost

The generally low cost of CD-ROMs makes the widely accessible as a storage medium, leading to a high number of off-the-shelf CD-ROMs that can be purchased.

The outlined features make CD-ROM a powerful technology that can be used for storing, transporting and disseminating large amounts of data. This tool can only be useful to those who have access to computers and all the necessary infrastructure that computers

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[4] Zijp, W. 1994. Improving the transfer and use of agricultural information: A Guide to information technology. World Bank, Washington, D.C. p.47

have to run on. This goes on to show that although it is a powerful tool it cannot be used in isolation, necessary planning in line with available resources needs to be carried out before selecting CD-ROMs as the preferred medium for storing, transporting and disseminating information.

3.6 Using an information repository as a source or base for the provision of relevant information

Once the process of identification of the relevant information is dealt with, the challenge will be on those responsible for disseminating the information to rise to the occasion. It would be pointless to conduct an information needs assessment, identify the type of information needed and the manner in which it should be presented, and yet fail to ensure that proper dissemination of information takes place.

3.6.1 Central information management system

The Nigerian government was faced with a similar crisis and those responsible for the management of information sources came to realize the importance of setting up a National Agricultural Information Management System (NAIMS). This was an attempt to bring together all the literature produced by the nation's agricultural institutions and agencies and these included government ministries, departments, specialized units, research institutes, universities, private farmers, workshops, seminars and professional associations. This was set to be a mammoth task given the fact that agriculture did not just confine itself to one sector, in some instances it cut across sectors and related to theirs as well. As Omekwu (2003) describes it, agriculture is not only a discipline but also a domain of human activity that draws information input from all fields of human knowledge and endeavour.

The challenge brought to the fore in the development of an effective NAIMS was to identify agricultural information producers, the type and the frequency with which this information was produced, originality and reliability of this information. This was done in an effort to try and move the control of agricultural literature from the hands of foreign agricultural information services. Some of the shortcomings noted from these foreign information services included; poor coverage of materials published in Nigeria and listing of actual number of books and journals instead of specific articles and contributions covered in these books and journals (for two years in a row the Science Citation Index failed to cite material published in Nigeria).

Omekwu (2003) further points out to critical issues that should be borne in mind in the development of a NAIMS. He is convinced that the operational mandate of such a system should be clearly spelt out. In order for NAIMS to function efficiently and effectively as well as deliver on its mandate, it should be saved from the bureaucratic red tape and bottlenecks prevalent in the civil service. A suggestion is that it should operate as an independent mission-oriented national system that reports directly to the Minister of Agriculture. Due to change in the political leadership that often occurs in the civil service, a mission-oriented information system would not survive in an unstable policy

environment. In order for an information system to function effectively, understanding the needs of those who will be using the system cannot be overlooked. These need to be analyzed and synthesized in order to provide relevant answers through the system. There should also be a clear understanding of characteristics of data that needs to be loaded onto the system. Users requirements will guide the process in as far as the type of information to be collected and most importantly those working on the system should agree on the standardization of data inputs formats, this will ensure uniformity in the data collection process and develop a common communication formats for the system.

3.6.2   The use of electronic catalogue for sharing material

In a similar attempt aimed to bring scientific publication to the developing communities, Dauphine et.al. (2003) share on the use of The Essential Electronic Agricultural Library (TEEAL) as a vehicle for sourcing and disseminating scientific information. The authors define it as an indexed library of key agricultural, environmental and other related science periodicals created to help institutions in developing countries expand their journal collections. TEEAL managed to put together a collection stretching over a period of nine years covering more than 140 scientific journals all compacted on 381 CD-ROMs. Through this initiative, developing countries are in a position to acquire scientific journals at a fraction of what the original price would have cost them. The advantage of sharing resources in this manner also saves researchers time and limited resources on work that has already been done elsewhere. Field officers are also in a position to access information that can be used to address problems facing the developing farming communities. As the authors describe it, TEEAL revolutionizes information access for institutions that cannot otherwise afford the latest scientific journals. It also offers the latest research that addresses challenges such as diversifying crop production, improving soil fertility and building trade infrastructure. Articles published in these journals cover an array of topics in rural development, sustainable agriculture, natural resources, the environment, food processing, veterinary medicine, range management, pest control, animal production, nutrition, agricultural engineering, crop development, economics, soil science and forestry.

3.6.3   Other commonly used electronic catalogues

South Africa also has examples of repositories in the form of databases that host agricultural information; these include National Inquiry Service Centre (NICS) and the South African Bibliographic Network (SABINET). NICS South Africa serves as Africa's database publishing company; it also collaborates with academic societies and organizations to provide an efficient publishing service. NISC's information is provided in the form of CD-ROM, DVD and NISC Biblioline (Online). Material classified under Environment, Earth, Agriculture and Life Sciences by NICS cover databases such as AGRICOLA, AQUALINE, AGROBASE, Digests of Environmental Impact Statements (EIS) and a host of journals, CD-ROMs and DVDs. Information from these databases can be accessed by registered members and institutions that pay annual fees to access these repositories. Libraries around the country rely on the services of these networks to access the latest information in the form of books, journals and research reports. In the

case of SABINET libraries make use of the interlibrary loaning system where SABINET offers its members to exchange information with a fee attached to this kind of service.

Services of this nature are not easily accessible and affordable to the rural farmers. However government departments often use their resources to enable extension officers to access this information and pass it on to the resource poor rural farmers. This service is not readily accessible to the rural farmers hence Bembridge's (1997) assertion on the need for a national research database that can be accessed by provincial agricultural departments and other organizations that are responsible for technology transfer to the rural farming community.

Information from online repositories can only be accessed by those having the means to do so. In as far as transporting this information to the rural farmers, the onus will be on the extension or field officer to search this information, understand it and thereafter share it with the farmers. All this requires time, relevant infrastructure, access to relevant resources, and a clear understanding and interpretation of the technical language that is used in some of the publications. Thereafter the field officer will also have to make time to meet and share this important information with the intended beneficiaries. Due to the fact that information in these repositories is sources from various countries around the globe, with diverse agro-climatic conditions, officers should strive to concentrate on areas that are similar in conditions to the farmer's agro-climatic conditions. On the positive side though a system of this nature assists field officers to stay abreast of the latest developments and research reports that might directly address problems that may affecting the farmers.

3.7   The Role of Information Technology in the dissemination of agricultural information
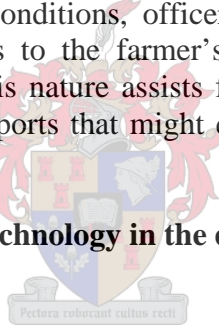
Much as the use of Information Technology has been associated with the developed communities over a long of period of time, it should not be a forgone conclusion that this technology cannot benefit the rural poor in as far dissemination of information is concerned. With some of the odds against these communities such as poor infrastructure, high level of illiteracy, lack of reliable electricity, poor bandwidth, phobia around the use of technology, there is still some form of benefit that these communities can derive from the use of Information Technology.

It is important to remember that Information Technology (IT) alone cannot solve all the problems experienced by the rural communities. IT does have a crucial role to play, with its huge capabilities such as capacity to store vast information, its fast and inexpensive communication channels and the ability to link different media. It cannot however achieve all this on its own. For example IT will not improve the quality of data or information that is fed into the system, as the famous saying confirms 'garbage in garbage out'. It will also not address problems such as failure on those responsible for the provision of information to ensure that information reaches the intended beneficiaries on time in order to take full advantage of opportunities presented by the availability of this

information. Other problems often experienced in the rural setting are lack of supportive infrastructure and relevant training for those who are expected to make use of IT.

The study on, *Cropping in the Ditsobotla and Mafikeng Districts* of the North West Province conducted by Bachtiar et.al. (2003) revealed that the Agricultural Knowledge and Information System is failing to reach the farmers effectively. Small-scale farmers are in most instances not even aware of the relevant information that is meant to improve their farming practices. Commercial farmers on the other hand pay for information sources that are meant to improve their decision making and farming choices.

According to Sun and Wang (2005) IT has advanced at an alarming rate and recent history has witnessed the Internet being at the forefront of modern technology. They further caution that studies on IT infrastructure have shown that access and adoption of new IT are not evenly distributed both spatially and socially. Some areas enjoy better access while others are denied these privileges. IT plays a crucial role in promoting urban and rural competitiveness.

Castells (2000) warns against the tendency of government to preoccupy itself with technology as an end in itself rather than as a tool that can be used to reach certain developmental, social and economic level.

The rural areas are also experiencing infrastructural problems such as poor supply of electricity in areas that would have benefited from the use of this source of energy. The following table provided by Central Statistics Service from the October Household Survey of 1995 conducted in the North West showed that rural areas always lagged behind in as far as provision of these resources were concerned.

Source	Urban	Non-Urban
Main energy source for cooking		
Electricity from public supply	75.4	15.6
Electricity from generator	0.3	-
Electricity from solar energy	-	-
Gas	3.4	5.0
Paraffin	16.0	26.8
Wood	3.5	49.5
Coal	1.4	2.0
Charcoal	0.0	0.1
Crop Waste	-	0.5
Animal dung	-	-
Other	-	-
Main energy source for heating		
Electricity from public supply	75.2	15.7
Electricity from generator	0.3	-
Electricity from battery	-	-
Electricity from solar energy	-	-

Gas	1.3	1.3
Paraffin	9.9	20.7
Wood	6.3	54.7
Coal	4.7	4.6
Charcoal	0.1	0.1
Crop Waste	-	0.6
Animal dung	-	0.4
Other	-	-
No heating	2.1	1.8
Main energy source for lighting		
Electricity from public supply	83.0	21.8
Electricity from generator	0.4	0.1
Electricity from battery	0.2	-
Electricity from solar energy	-	-
Gas	0.6	0.3
Paraffin	4.8	18.0
Candles	11.0	59.7
Other	-	-

Table 2:   Main Source of Energy (%), 1995

Although the situation may have changed due to the fact that this survey was conducted in 1995, and also government's effort to improve on provision of services to the rural areas, the skewed distribution of services still persists when one compares the urban to the rural areas. This situation is heavily influenced by the fact that most rural dwellers are not economically active therefore they cannot afford to pay for services of this nature. There should be a concerted effort to encourage rural dwellers to use alternative sources of energy that are affordable to the rural poor such as the solar energy.

3.7.1   Use of electronic networks for communicating farming news and information

Significant strides have been made in the transportation of real time information to the farmer all in the quest of ensuring that informed decisions are made that lead to increased profits. Looker (1993) points out to the fact that some of these efforts date as far back as 1984 when Data Transmission Network (DTN) of Omaha, Nebraska was launched. This network linked electronic microchips and broadcasting in an effort to bring market information and news to the farm homes. This was a great improvement from what used to be a costly exercise in the past, where farmers needed computers to dial up reports by telephone.

Other organizations later joined in the fray; in 1991 the Iowa-based broadcast partners also introduced FarmDayta2. This satellite enabled service that makes use of colour monitors, delivers weather maps and reports and graphs from United States Department of Agriculture (USDA) on crops and livestock. The service makes use of a monitor that resembles a computer screen and an electronic box that receives FM radio or satellite

transmissions. The arrangement is such that the service provider owns the equipment and in order to access the information one is liable for the once-off connection fee and the monthly service fee. Farm Bureau also offers a similar service known as ACRES covering 14 states. ACRES concentrates on state tailored news designed specifically for these states. There is also Globalink affiliated to Professional Farmers of America in Cedar Falls, Iowa. It offers its service via satellite to farmers who have access to a computer. Another service provider known as the Top Farmer Intelligence, formerly known as AgriData Network, from ARI Network offers its service through a computer. It makes use of the phone lines but allows its users unlimited free time on line. Information provided often covers delayed futures price quotes. (Looker, 1993)

The number of those subscribing to the networks varies in line with how the service satisfy their information needs. DTN seems to be the leader of the pack standing at 57000 farmer and agribusiness subscribers. FarmDayta2 has a total share of 16000 subscribers. These two service providers seem to be the main ones holding a significant share of subscribers while the remaining three share a handful of subscribers while still ensuring that clients benefit from their unique services. Their clients seem to be content with the services offered and remain loyal to their service provider. As one Iowa grain farmer who subscribes to FarmDay2 pointed out (Florer quoted by Looker, 1993), he is satisfied with Cindy Ryan's concise markets comments issued four times a day. The farmer also finds it easier to switch from different stories and price quotes on FarmDayta2 platform as compared to the monochrome version of DTN. Florer, also feels that different service providers promote health competition as each one strives to provide a product of good quality with real time data at affordable prices.

3.7.2 Use of electronic knowledge delivery system: Information Village Research Project (IVRP)
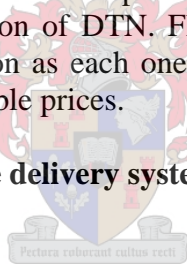
The M.S. Swaminathan Research Foundation (MSSRF) used this project in an effort to demonstrate that information and communication technologies can make a significant contribution to environmentally sustainable rural development through reaching the poor and also assisting them in achieving food security and social justice. During the MSSRF Interdisciplinary Dialogue on Information Technology entitled *Reaching the Ureached* held in 1992, the participants came to the conclusion that Information Communication Technologies (ICT) can make an impact in promoting sustainable agriculture and rural development in the developing economy. In order for any generic information available on networks to be of use to any farming community, it should be presented in a locality-specific knowledge format. In this way farm families, rural men and women will benefit from the use of this kind of information. The research foundation method of information dissemination on new technologies is guided by the statement made by its founder Professor M.S. Swaminathan when he made the following statement:

Whenever poor people derive some benefit from technology, the rich also benefit; the opposite does not happen.

The project was started in 1998 at the village of Villianur in the Union territory of Pondicherry, Southern India. The project participants that is, both staff and villagers, strived to foster a mutual understanding with one another. Other things that stood the project in good stead and would add to the success of the project was the fact that the government in the area was accessible and reasonable telecom infrastructure was already in existence. The community in question was identified because of its high level of poverty. This was not the first project undertaken by MSSRF, the previous one was on community asset building base on biological technologies. This project was already up and running and it was expected the ICT project would complement this project.

The project managed to connect ten villages by means of a hybrid wired and wireless network, made up of PCs, telephones, VHF duplex radio devices and email connectivity through dial-up telephone lines. The advantage of this kind of set-up is that it facilitates both voice and data transfer. Those conducting research for the project found out that before the introduction of this project, eleven villages around Villianur, with a population of 22000 had to make do with 12 public telephones and 27 private ones. And with most families living below the poverty line, owning a Television set could not be entertained as an alternative option. Villagers relied to a great extent on the local shop keeper, the market place and input supplier as the main sources of information. There was no formal link with external institutions that could provide current information.

During its research phase the project realized that the only way its efforts could pay dividends would be through the use of generic knowledge from external sources and transforming it by compiling it selectively, editing and integrating it with the local knowledge in order to meet the information needs of the local community. Everything that the project would end up presenting would be informed by locally relevant information.
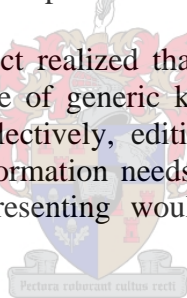
The project outlined clear objectives and these included:

- Setting up of village information shops that enable rural families access to a basket of modern information and communication technologies. Training educated youth, especially women, in rural areas in operating information shops
- Training the rural youth in the organization and maintenance of a system that generates locally relevant information from generic information
- Maintenance, updating and dissemination of information on entitlements to rural families using an appropriate blend of modern and existing channels of communication
- Conducting impact assessment based on organization of surveys, participatory rural appraisal, and other appropriate methods of data gathering
- Building of a model in information dissemination and exchange in rural areas that uses advanced information and communication technologies
- Conducting research on formation of multi-sectoral partnerships (private-public/government-NGOs) with rural communities to form a sustainable model of ICTs for rural areas

- Development of ICT-based applications for rural areas, especially community banking online and distance education, to assess their potential to contribute to the sustenance of a rural ICT programme
- Organisation of workshops and other interactions such as on-site consultations with policy makers to sensitize them to critical issues in the use of ICTs to promote human development in rural areas
- Exchange of research results with telecentre programmes in different parts of the world, to arrive at a more comprehensive picture of impact assessment and sustainability issues and its possible internalization in project implementation
- Development of a set of parameters to make a choice of access technology and technology for powering the access devices[5]

With the above clear objectives it was quite clear what the research organisation has set out to do. They went a long way in attempting to plug the holes that are often left open by those venturing into the information dissemination exercise. The driving force behind the project was to provide content that was in line with the needs of the local communities, those responsible for the project believed that unless people get answers to their specific questions, they will lose interest in the programme as a whole.

In sticking with providing relevant content and packaging it in a manner that can be accessed with ease, the Villianur Centre that was responsible for adding value to the information developed various databases in accordance with the different uses of information. These ranged from current to long term information and covered the following fields:

- Current information e.g. Today's news, meteorological report, vegetable prices today, today's gold and silver prices etc.
- Useful long-term information e.g. government schemes, programmes for people/citizens, programmes for women and youth/students etc.
- Citizens Charter
- Cattle and feeds e.g. use of green fodder, indicators of common cattle diseases etc.
- Health information e.g. TB treatment, addresses of hospitals, health notes etc.
- Agricultural information e.g. Disease control in Brinjal, soil testing procedures, grasses and their uses, sugarcane cultivation methods etc.
- Educational information e.g. distance education, entrance examination, students guide etc.
- General information e.g. emergency telephone numbers, government telephone numbers, national insurance plan, foreign postage rates etc.

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[5]M.S. Swaminathan Research, Centre for Research on Sustainable Agriculture and Rural Development. 2004. Information Village Project (IVRP) Union Territory of Pondicherry. Available on-line: www.mssrf.org/special_programmes/ivrp/ivrpmain.htm

The databases protected users from going through wads of information, bombarded by unnecessary information and give up without accessing the relevant information. Through specific databases users know where to search for the relevant information without any waste of time.

3.7.3 Efforts by organization such as the World Bank and the United Nations

Organizations like the Work Bank have taken the initiative of embracing the knowledge and information aspects of globalization, positioning the organization as the *Knowledge Bank*. Through the Bank's efforts the creation of Global Knowledge Partnership by bringing together of public and private sectors development partners, has been made possible. These partners communicate regularly through a variety of electronic discussion lists. The United Nations has also launched its own ICT Task Force in 2001 in an effort to ensure that developing countries' interests were duly noted in the arrangements being defined by G-8 governments and their private sector constituents.

3.7.4 How Internet access influences performance of rural industry - The case of Jiangsu, rural China

A study conducted by Sun and Wang (2005) in the rural area of China, Jiangsu shed light on some of the interesting findings. The study confirm that the consistent digital divide that exist between rural and urban areas will be with us for a long time, this divide is brought about by access to high speed networks and broadband penetration enjoyed by the urban areas.

Gillespie et.al. (quoted by Sun and Wang) see IT as a tool that presents new opportunities to the rural areas and these are:

- Access to markets: ICT enterprises in links the rural areas to markets in core regions and metropolitan areas
- Access to business services: The Internet could help rural enterprises gain access to higher quality business services at competitive prices by means of electronic delivery
- Access to public services: Citizens and enterprises stand to enjoy improved access to public service e.g. health and education services that would normally be available in the metropolitan areas can be accessed through distance learning or tele-medicine and other innovative technologies.
- Access to information: Rural enterprises can obtain access to valuable information which was not available to them before.

The use of IT enables rural enterprises to compete with their urban counterparts in the same markets while benefiting from lower labour costs and overheads. On the downside IT exposes rural enterprises to potential threat whereby the '*natural protection*' of poor accessibility results in economic activity being taken away to the urban centres. The market could also be flooded by imported goods and services finding their way through e-marketing and e-commerce. Intermediaries such as shops, wholesalers and banks lose out in the process. (Grimes, quoted by Sun and Wang, 2005)

To effectively take advantage of IT rural enterprises have to overcome challenges such as lack of broadband Internet access and lack of capabilities/skills and services to use the new technologies. Internet is also often used for conducting information searches and a communication tool as opposed to electronic transactions. The urban areas have been enjoying the use of Internet over time now but the trend has been to avoid electronic transactions on the net.

Sun and Wang (2005) predict that Internet in the rural areas will be less likely to be used for e-commerce because of poor access to broadband service and lack of skills for the technology, thus rural areas might not fully benefit from the use of IT.

A holistic approach need to be adopted in as far as the use of IT in the dissemination of information is concerned. IT should be treated as an enabling and supportive tool that should be used together with other resources. Training on the use of IT should also form an important aspect of the entire program.

3.7.5 Problems preventing growth of Internet in Africa

The important role of information and communication technologies in a number of sectors from distance education to decision support systems, to telemedicine and public information systems cannot be overemphasized. However, the continent still has some challenges to contend with in order to enjoy the full benefits of this technology. It is also sad to note that although a number of countries have links to the Internet, almost ninety percent of the countries in the region have no access to secondary sites.

In an effort to analyse this problem, the African Information Society Initiative (AISI) categorized these problems into four groups, namely *Technical and Infrastructural, Economic*, *Social and Cultural, Political and Regulatory*. A brief look at examples falling within each category will follow;

3.7.5.1 Technical problems
- Lack of African IP registry – that is a center that administers IP addresses and autonomous system numbers and continent-wide directory services.
- Non-availability of interfaces to diverse local languages.
- Difficulty in carrying out peering among national Internet Service Providers (ISPs) in order to reduce costs and maximize bandwidth use.
- Inadequate knowledge of the IP traffic patterns.
- Cost of off-line access to global information.
- Non-availability of tools that can be used as low-cost off-line alternatives.

3.7.5.2 Infrastructural problems
- Insufficient number of experts with knowledge of advanced tools such as Unix, Java, dynamic databases, etc.
- Limited network supportive infrastructure development in suburban and rural areas.
- Inadequate business and administrative skills of the ISPs

- Lack of national inventories, databases on what are possible and organized groups that support growth of the Internet.
- Inadequate private sector involvement in Internet and Intranet access.
- Limited technical assistance to telecommunication operators in improving their services.

3.7.5.3 Economic, social and cultural problems

- High cost and limited use of ICTs to increase access to education and to promote learning.
- Inadequate use of information and communication to inform society and maintain social cohesion.
- Non-availability of local information content and supportive tools for communities.
- Limited availability of information and communication infrastructure for non-market applications such as preventive health-care, job training, informal education, civil participation in governance.

3.7.5.4 Political and regulatory problems

- Lack of an enabling regulatory environment.
- High tariffs on the ICT tools.
- Delays in obtaining license for spread frequency spectrum.
- Confusion between existing laws and those for development of the Internet.
- Legal and intellectual property rights for local innovations and cultural heritage.
- Poor understanding of Internet implication on security, privacy, etc.
- Conflict of interest in moving from public ownership to private, from local resources to foreign direct investment, from monopoly to competition in communication and value-added services.

The above exposition maps out quite an interesting scenario outlining the mammoth challenges that the continent has to contend with. Some of these challenges are already receiving attention though on a small scale and at a very slow pace, the impact of which will be felt in the long run. Some countries together with international organizations are working hard towards ridding the continent of these bottlenecks. Policy documents have also been developed to this effect. Government has an important supportive role to play in order to make this a reality. This also calls for educational institutions to actively lend the support in this challenging arena.

As Ortmann (2000) advises that there is a need to improve the quality of electricity and telecommunication services in the rural areas as this will enable software developers to create effective educational programmes that include workshops, courses and phone-in services for support purposes for those producers who wish to adopt modern information systems. Farm advisors such as extension officers and consultants can help in educating farmers on how to make use of information technologies.

3.8 The Role of extension agents in the dissemination of information to the rural farming community

The important role as well as the impact that could be made by *extension agents* in as far as the dissemination of information cannot be overemphasized. These are officers who act as frontline staff for the department or an agricultural institution given the nature of their work, and are therefore in regular contact with the farming community. Government departments and institutions even go as far as allocating these officers to specific areas in order to take care of the needs of the various groups within the identified areas. This ensures that a rapport is built with the beneficiary group, and the officer in the long run becomes acquainted with the needs, challenges and aspirations of the individual groups. This serves as an important link for the department or institution and enables the service provider to evaluate its impact, refocus on its goals and objectives in order to ensure that maximum impact is achieved at all times.

Leagans (as cited by Bembridge, 1993) defines Agricultural extension as *a system of non-formal education for adults in rural areas which is based on relevant content derived from agricultural, social and communication research synthesized into a body of concepts, principles and operational procedures.*[6] Bembridge (1993) views agricultural extension as a process of working together with rural people in an effort to improve their livelihoods. It is through this interaction that important lessons that are meant to improve the standard of living for the rural communities are shared.

3.8.1 Functions of extension agents

Bembrigde (1993) is of the opinion that extension represents a field of professional education in pursuit of the following:

- educating people about new farming techniques in their own setting and guiding them on how to identify their own farming needs and problems.
- developing leadership and organizational skills among the rural communities
- assisting farmers acquire technical and managerial skills that will assist them in addressing their needs and problems
- encourage them to act in an informed manner

Adimorah (1995) also support the important duty that has to be fulfilled by the agricultural extension services. He views the agricultural extension services division as an important component of the federal and state ministries of agriculture. Officers within this division are spread throughout the state headquarters and areas of local government. The officers are charged with the responsibility of disseminating information to rural farmers on new seeds varieties, distribute and demonstrate the use of fertilizers to farmers and also guide them on the use and safe handling of herbicides. Information dissemination takes the form of lectures, on-farm demonstrations, distribution of leaflets and the use of electronic media. Effective as this arrangement may seem, reservations

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[6] Bembridge,T.J. 1993. The practice of agricultural extension : A Training manual. Development Bank of Southern Afirca. Halfway House, Midrand. P.18

have been raised over the fact that extension officers do not live among the communities that they render service to and also that the language and terminology used is not suited for the literacy level of the rural communities, these shortcomings pose a serious problem to information dissemination efforts to the rural farming communities. The closing of this communication gap can be made possible, according to Adimorah's assertion, by establishing agricultural extension rural information databases within the community.

3.8.2 Extension Service within the Department of Agriculture, Conservation and Environment in the North West Province of South Africa

Extension Services within the department of Agriculture, Conservation and Environment in the North West Province is structured along the same mode. The Head office lends direct support to the Regional offices spread out in the four regions namely Bojanala (Eastern Region), Bophirima (Western Region), Central and the Southern regions. Each one of these region has approximately six to eight, depending on the size of the region, Agricultural District Centres (ADCs) reporting to a region. Each ADC is located within a district covering a number of villages. Villages are in turn grouped into manageable pockets known as Field Service Units (FSUs) where three to five FSU would report to one ADC. Extension officers within the department render direct technical support service to the farmers spread out in most of the province's rural areas.

Extension service has over time built solid working relationship with the farming community, and having served these areas over time, they also have an added advantage of being familiar with the socio-economic and agro-climatic conditions of their allocated areas. They serve as the department's frontline staff in as far as the dissemination of information is concerned. This is quite a mammoth task and they cannot fulfill this role without the support of internal staff within the department. In as far as this function is concerned, extension services uses support of the Information Services unit that operates Information Centres within the department, the departmental Media Unit that produces technical videos jointly with extension services, Veterinary Services directorate that offers the technical expertise in as far as the various aspects of animal health are concerned and agricultural Economics sub-directorate assists with the evaluation of business plans, with other directorates offering general support such as administrative, financial and human resource management support. The functions of the departmental information centres will be elaborated on under the section dealing with Departmental Information Centres – North West Province.

These officers are posted at various FSUs to ensure rendering of efficient and ongoing technical support to the rural farming communities. Well spread as the structure might be, there are still problems hindering the smooth flow of technical services. Officers have often complained about lack of support from staff at regional and head office and existing red tape within government often causes unnecessary delays and failure to some of their service delivery efforts. Lack of resources and poor infrastructure has also been blamed from time to time. Other challenges include lack of training in addressing gender-specific groups, formal training that focused on commercial agriculture using mechanized equipment, lack of support and cooperation from research institutions, serving vast areas

with a large number of farmers who need individual attention, poor relations between Extension Services and Veterinary Services each guarding their turf instead of joining forces, infrequent ongoing on the job training that is meant to keep extension officers abreast with development in their field. All these add to the woes that extension officers have to deal with while in the quest for implementation of service delivery.

3.8.3   Importance of cooperation between extension agents and farmers

Van den Ban and Hawkins (1999) caution that an extension agent should not be regarded as someone who will provide all the answers that will enable the farmer to arrive at all the production decisions. According to the authors, it is important to take cognizance of the fact that the extension agent has only part of the knowledge required while the other part is with the farmer and his family. This is knowledge gained through years of practical experience from tilling the land and this knowledge includes for example value of mixed cropping for risk reduction. It is also interesting to note that the farmer and his family usually provide more information than what the extension agent has to offer. Because of their hands-on experience, farmers often have information such as capital at their disposal, goals, labour requirements for the various cropping seasons, quality of land and money making opportunities. It is therefore imperative that information from both farm family and extension agent is brought together in order to come up with the most productive farming system suitable for a specific area. Given the fact that most of the information from the farmer is not documented, all that the extension agent needs to do is carefully listen to the farmer and his family on how they do things and for what reasons. The extension agent should avoid at all costs the temptation of convincing them to do things his way. Indigenous farmer's knowledge is often preferred for developing sustainable agriculture. Farmers often do things in such a way that they are in sync with the local conditions and this knowledge is often possessed by the farmer rather that the extension agent or researchers.

Another challenge facing agricultural extension agents as observed by Van den Ban and Hawkins (1999) is the formal training that they have been exposed to through the schools of agriculture. Formal training predominantly focuses on plant varieties, fertilizers, animal nutrition etc. This form of training excludes training in changing how farmers operate or do things in order to improve their production that is officers are not offered any form of training in adult education and communication. This scenario Van den Ban and Hawkins aptly describe it in the following manner: *they have been taught what to tell farmers, but not how to tell it to them so that the farmers become more capable farm managers.*[7] Extension education needs to work very hard towards changing this state of affairs if it is to make an impact in the livelihoods of the farmers.

3.8.4   Information dissemination method used by extension agents

Extension agents make use of various methods in an effort to help farmers achieve their goals. These include:

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[7] Van den Ban, A.W. and Hawkins, H.S. 1999, Agricultural Extension. Blackwell Science Inc.USA p.22

- giving timely advice to make them aware of the problem
- increasing the range of alternatives from which they can make a choice
- informing them about the expected consequences of each alternative
- helping them to decide which goal is most important
- helping them to make decisions in a systematic way, either as individuals or as members of a group
- helping them to learn from experience and experiments
- stimulating them to exchange information with colleagues.[8]

Poulton et.al. (2000) look at the role extension services can play in the provision of marketing information to rural farmers. Sheperd (as cited by Poulton et.al. 2000) starts off by clarifying the difference between market information and marketing information with the former consisting of data on prices and quantities and the latter covering a wider concept which includes details on potential market channels, payment requirements, packaging, quality and a host of information required by the producer to make a to make a successful trade including market information. Lee (as cited by Poulton et.al. 2000) proposes the concept of Marketing Extension Workers (MEWs) who should broaden their horizon from advising farmers on what crop and variety to grow within the coming season and the opportune time for growing this crop. The scope should be broadened to include advice on new crops and market opportunities plus forecasts of market trends and expected price movement to guide the rural farmers in their production planning processes.

3.8.5   Relationship between extension agents and research institutions

Mundy (2001) also sensitizes us to the role that partnership between extension staff and researchers can play in making information more accessible to rural farmers. The International Institute of Rural Reconstruction (IIRR) in Nairobi, Kenya found a way of translating research results and communicating these through extension staff. IIRR hosts workshops where scientists, extension workers, NGO staff and farmers participate in the development of information materials. The purpose of these workshops is to translate scientists' language into something that ordinary rural farmers can comprehend. The joint participation is necessary due to the fact that scientists have become attuned to expressing themselves in the scientific jargon oblivious of the farmer's level of literacy. It is also not easy for extension staff and farmers to translate the scientist's language into their everyday language, hence the need to bring all players under one roof in order to ensure that the simplified version still carries the original message. The workshop team is supported by facilitators, editors, artists and desktop publishers who assist participant with professional presentation of their ideas. Extension booklets or a 200-page easy-to-read manual is often produced at the end of the two-week workshop. Participants including farmers and senior scientists are afforded an opportunity to decide on what should form part of the booklets or manual. Farmers are given an opportunity to share their deep and detailed knowledge on crops that they grow, livestock that they look after and the soil that they till.

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[8] Ibid p.22

Producing manuals during workshops circumvent problems that are often associated with publishing of material, such as; time taken to write and re-write drafts, disagreement between authors and reviewers, risk of losing manuscripts and pre-testing information material for its relevance. All these activities are covered during the workshop, saving time that could have been wasted and making sure that the farmer ends up with a product that will help address problems that he has to contend with on daily basis.

The North West Province Department of Agriculture, Conservation and Environment does have a working relationship with research unit within the department namely the Scientific and Technical Services (STS) directorate and the Agricultural Research Council (ARC). Until recently both institutions never had any form of direct relationships with what extension services was involved in. STS decided on research topics and focused mainly on issues that interested them as opposed to what the actual needs of the farming communities were. There was a general perception that research topics were often picked for the purpose of pursuing study interests. This has since changed as now STS participates on joint research projects with extension service. STS jointly run trials on cultivars on areas that are serviced by extension officers. In other instances extension officers identify problems affecting farmers in certain areas or receive complaints from farmers on specific problems and these are then channeled to STS for inclusion in their program.

Due to the limited number of researchers available, the impact of their services has not been spread equally throughout the different regions within the province, in so much that not all request presented receive equal attention. Farmer's participation in the identification and prioritization is still limited; the farmer's involvement only goes as far as drawing the extension officer's attention to a problem that s/he might be faced at the time and relies on the officer to take his problem forward. Depending on the time, STS's priority list and available resources, this request may or may not be acceded to. Results from research conducted is often availed upon request, the unit does not seem to have a structured mechanism for cascading information down to the farmers especially to areas that did not form part of the research but still experiencing similar conditions. Work still needs to be done to improve dissemination of research results.

The ARC currently operates under the *gentlemen's agreement with the department*; there are no formal ties that have been developed as yet although the institution has a representative specifically appointed to serve research requirements for the emerging farmers in the province. The department has worked closely with the ARC on a number of joint projects and the institution has even gone as far as offering training to some of the emerging farmers and extension officers. The department and ARC are in the process of signing a memorandum of understanding in order to structure and formalize this relationship instead of the ad hoc manner in which business is done. Once this has been finalized it is hoped that farmers, extension officers and STS will all work together towards the upliftment of the rural farmer.

Although extension agents play a crucial role in the dissemination of information to the rural farmers, it should always be remembered that this cannot be done independent of

the farmers and also not taking their faming conditions into account. If attention is not paid to the needs of the farmers, extension agents run the risk of missing out on the needs, challenges and aspirations of the very people that they are meant to serve.

3.9 Information dissemination to the rural communities – how can research institutions assist?

Traditional agricultural research and extension have developed and changed over the years. This has all been in the quest for addressing real problems that are posing a threat to the farmer's livelihood. There has also been a close working relationship between the research, extension and farmers.

As Mundy (2001) succinctly sums it, those days are gone where researchers used to work alone in their laboratories and experimental farms, and thereafter pass on the results to extension staff to convey to the farmers without having any inkling of what the farmers needs are or even considering the local socio-economic and agro-ecological conditions. Researchers were pursuing their own interests, without addressing any specific problem per se, resulting in reports gathering dust in the library or research institutes. The information gap was further widened by the fact that extentionists were not familiar with the terminology used in the research reports and could therefore not adequately transfer findings detailed in these findings. Research conducted was also not informed by the needs of the local communities and could there not offer answers to their needs and aspirations. In recent years a number of institutions have developed means of addressing the gap that exists between research and extension. Mundy believes that the general trend of common challenges facing the rural farmers can be addressed through a joint effort between extension, researchers and farmers. These challenges revolve around the following:

- Villagers who are eager to learn improved farming techniques in order to increase their productivity. They have a problem of accessing research institutions that are often situated in remote areas and conducting research that is not relevant to their needs.
- For research to yield practical results, research institutions should have access to land in order to conduct on-farm trials operating under local conditions, researchers who confine themselves to laboratories hardly have the means and the time to make use of the farmer's land.
- Extension agencies are required to train and educate the farmers on improved farming techniques. Training can be imparted through demonstrations that need to be conducted on a piece of land, all this involves time and high overheads that are not within reach for most of the agencies.

Lessons can be learnt from some countries that have found a way around these challenges. Mundy shares with us an experience of an NGO based in Senegal known as Environment, Development and Action (ENDA), that came up with an ingenuous way of dealing with these challenges. The villagers donate five to ten hectares of land to ENDA, the NGO in turn establishes a training centre for the villagers. Extension staff from

ENDA and four trainees from the village reside in the centre, tilling the land growing crops and raising livestock all under local conditions. The team also conducts experiments and demonstrations on new farming methods on the training centres.

Ouayogode (1989) asserts that on-farm research is often regarded as important for ensuring that relevant research results suited to local conditions are produced. Of equal importance is the link that should exist between research and technology agencies in order to ensure effective dissemination of research results. Although a direct relationship exist between researcher and farmer, it should be borne in mind that this relationship cannot substitute the important role that technology transfer agencies have to play. There are technologies that can be transferred with ease from trials conducted on the farmer's field. There are also on the other hand technologies that require for example the production and distribution of inputs, intensive training and a collective action that require the assistance of technology transfer agent. Technology transfer agencies also play a role in the event where results have to be transferred to a large group of producers, beyond the scope of specialized researchers. We are also reminded that simple technology is easily adopted by progressive farmers in more accessible areas as opposed to resource poor farmers.

3.9.1   Effective use of technology transfer strategy

In the case of Guatemala as cited by Ouayogode (1989), National Agricultural Research Agency developed its own technology transfer strategy independent of the government extension service. The Agency was convinced that on-farm research trials would be transferred and adopted directly and spontaneously by farmers. The approach succeeded with commercially oriented small-scale farmers. The same could not be said for resource-poor farmers small-scale who farmed in the more favourable lowland environments. This called for a change in approach that saw the development of systematic links with extension service. The lesson learnt led to the development of the current integrated research-extension program that is reputed to be highly effective.

Zuidema (as cited in Ouayogode, 1989) is also of the opinion that researchers need technology transfer workers who will help them understand the farmer's problems and conditions as well as help facilitate contact with farmers. Technology transfer workers on the other hand need researchers to help them identify scientific approaches required to address specific farmers' problems. The responsibility of producing and delivering effective messages to the farmers rests with technology transfer workers, while researchers ensure that the delivered message is accurate and given enough detail. Technology transfer workers also provide specialized communication services to disseminate new technologies, while researchers concentrate on specialist services like soil testing, pest identification and seed certification. Technology transfer workers provide an important link with regard to feedback on farmer's reactions to new technology; these are later used by researchers for conducting further research.

3.9.2 Farmers' participation in the research process

What should at all time be remembered, according to Ouayogode (1989) is that on-farm research can only be effective once it takes into account the social, cultural and economic environment of the end user. A point also supported by Biggs (1989) when highlighting four methods on how farmers can become part of a research initiative and in the process ensure that relevant research in line with their needs is conducted. A brief summary of these methods follows:

1. Contract participation
This process involves scientists contracting with farmers to provide land or services. The farmer is not necessarily an active participant in this approach. The scientists use the land to investigate the biological relationship that exists between productivity, soils and climate. Observations of these relations under various controlled conditions are observed. Though the approach may not be client-oriented, the research does stand to benefit the client as outcome of the research will inform the client on what best suited for his area and how productivity can be improved.

2. Consultative participation
Scientists find out from farmers on what their problems are and develop solutions aimed at addressing these problems. Biggs compares this consultation to that of 'doctor-patient' relationship. Both formal and informal surveys are conducted to identify farming systems and prioritize problems experienced. A number of solutions are put to the test and the main emphasis is on adapting technology to suite socio-economic and agroecological conditions that the farmer has to contend. The farmer actively participates at the beginning in the identification of the problems and towards the end by evaluating and giving feedback on proposed solutions.

3. Collaborative participation
Scientists and farmers collaborate as partners in the research process. The relationship between scientists and farmers is intensive and continuous in nature. Researchers continuously use farmer's knowledge and experience and work around these to come up with solutions for identified problems. Researchers and farmers take part in meetings which seek to understand farming practices used, prioritize research problems, develop possible solutions, monitor progress and jointly examine research results.

4. Collegiate participation
In this approach, scientists aim is to strengthen farmers' informal research and development systems in the rural areas. The aim of this approach is to empower farmers to conduct research on their own and to ask for support in the form of information and services from the formal research system.

We are also reminded that the above approaches are not mutually exclusive, different settings will dictate on the type that can be used these can be used jointly or sequentially depending on the research problem.

Mundy (2001) also cites an experience of how working with the farmers helped reduce the breeding period for a new crop variety by half. In an effort to address that threat of famine researchers in Luwero north of Kampala, invited farmers to evaluate new cassava varieties. They cooked and tasted these tubers and took home those that they found tasty to grow on their farms. Researchers paid farmers a visit at the end of the season to get their views on how they found the new variety. This approach saw the time needed for releasing and testing new variety cut by half that is from 8 to years to just under 4 to 5 years. This was made possible by the involvement of the farmers at an earlier stage guiding the researcher on what appeals to them.

3.9.3 Setting the right platform for gender-sensitive agricultural research and extension programme

Inputs from rural farmers least of all women, are hardly ever considered when research is considered for the emerging sector. This often results in researchers focusing attention on issues that are not high on the farmer's list of priorities. This kind of research adds no value to what the farmer is trying to achieve.

A report published by the Commonwealth Secretariat (2001) points out to the fact that women's views are often poorly represented in agricultural research. These are people who are in possession of first hand knowledge and insights on phenomenon like the local weather patterns, crop varieties and planting methods. As the main users of medicine, herbs and perfumes drawn from their local forests, research stands to gain valuable information from this wealth of experience and harness it in a way that can add value to their everyday lives.

The Commonwealth Secretariat recommends methods of ensuring that gender related issues form part of research and extension programmes, and these include:

- Encourage governments, NGOs and commercial organizations to recruit talented female field workers and provide them with the necessary resources.
- Employ a participatory approach to training such that farmers, researchers and extension agents can play their respective roles, utilize their expertise and voice their needs.
- Redesign the training curricula of extension workers so as to include awareness-building concerning the role of women in agriculture and community-based farming systems and the agricultural potential of landless and marginal farm families, which women frequently head.
- Set targets for the participation of women farmers in extension activities and hold meetings at convenient locations, at times when they can attend and with the provision of child-care facilities.
- Provide training in gender issues to agricultural researchers so that they can prepare gender-sensitive technical innovations appropriate and acceptable to women.
- Set the research agenda taking account of the different research interests and needs of women and men, especially the former's different crops, methods of cultivation and use of produce.

- Encourage the emergence of self-help groups which can actively promote issues, including women's concerns, and influence government and NGO activities.
- Work closely with NGOs to disseminate technical messages, new knowledge and appropriate technologies to rural farmers."[9]

These are quite appropriate issues that need to be considered for ensuring that research and extension programme take that needs of women into account. Implementing some of the suggested approaches will surely yield positive results in as far improving productivity on marginal lands and using appropriate technology that is affordable to the rural women.

It will also take more than formal training to sensitize extension workers about the needs of women and the importance of accommodating them in the farming systems. Over and above this formal training extension workers will also need to adopt a paradigm shift in as far as the way they have been conducting business is concerned, in order for the formal training to bear fruit.

Research is also faced with a similar challenge, it is quite a tall order for research institutions as they are still trying to get the concept of research triangle right, where researchers operate together with farmers and extension workers in order to prioritize research needs and identify relevant solutions. Research institutions still have to get used to the idea of involving rural farmers first before even thinking of isolating women farmers in their research projects. Setting meetings during times that suit women using venues that have amenities that can cater for their little ones is quite a thoughtful gesture that might not be feasible in most of the rural areas given the poor living conditions under which they are forced to survive.

3.10   The Role of Agricultural Associations in the dissemination of information to the rural farmers.

Various agricultural associations have an important role to play in the dissemination of information to the rural farmers. This gap has been quite evident in countries where market deregulation has taken place. These associations take various forms and are often prompted by existing conditions to come to the aid of these farmers.

Mundy and Sultan (2001) point out that Cote d' Ivoire is one such country that found itself with this kind of challenge. Deregulation of agriculture in Cote d' Ivoire posed serious challenges for farmers. This meant doing away with guaranteed prices from a government agency and had to sell their produce like cocoa, coffee and rice on the open market. This meant facing fierce competition from established producers from both within and outside their borders. Farmers were faced with new responsibilities of buying inputs such as fertilizers, seeds from the market as well as make their own arrangements for storage and transportation. A national association of agricultural organization known as Association Nationale des Organisations Professionnelles Agricoles de Cote d' Ivoire

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[9] Commonwealth Secretariat. 2001. Gender mainstreaming in agriculture and rural development: A reference manual for governments and other stakeholders. Commonwealth Secretariat, London, UK. p.32

(ANOPACI), saw this opportunity more so that farmers constituted over half of the country's population and thought of a way of intervening. The organization's main focus was on strengthening the farmer's ability to negotiate. The organization came up with a communication approach that focused on the following functions:

- Providing managers of professional agricultural organizations (farming groups, unions, co-operatives) with economic, technical and financial information to strengthen the negotiating position
- Facilitating information flow among different producers' organizations, industry sub-sectors and regions within the country
- Publicizing ANOPACI's position on major agricultural issues, especially on land, agricultural finance, training, research, market organization and prices.[10]

ANOPACI uses a magazine known as ***The Agricultural Professional Le Professionnele Agricole*** as its main tool for disseminating information. It is published on monthly basis with circulation figures that have already gone up to 5000. The magazine is published in French in order to meet the needs of its target market, who happen to be senior staff of professional organization who in turn take it upon themselves to distribute it to members of their organizations. According to the coordinator of the editorial team, the magazine has come a long way in as far as the development of the content is concerned. Emphasis was initially on general topics, news about government and changes in different sub-sectors. This later changed to special issues focusing on each branch of the industry e.g. coffee, cocoa, rubber, livestock, credit, and fish culture. Attention on each branch was on description on economic and technical set-up, using information gathered from different parts of the country. Provision of information was also later shaped by the questions raised by the readers covering an array of topics. This subsequently led to the development of production guidelines informed by questions received from the readers.

It has not all been smooth sailing with the production and distribution of the magazine; it has also suffered its fair share of problems. Distribution channels were done through the 11 district channels that formed part of ANOPACI's distribution mechanism. It later showed that the money generated through the distribution channels was not in the same range as what was initially expected.

The South African Commodity organizations such as Sunflower Production Agencies, Potato Producer's Organization, Red Meat Producer's Organization, and Milk Producer's Organization were also established with the sole purpose of filling the gap that was left open by the government controlled Marketing boards. The focus on these organizations seems to be more on commercial producers. There are a handful of producers who try to accommodate the emerging sector though on a very limited scale. Unfortunately those who stand to benefit from these are affiliated members who pay an annual prescribed fee in order to enjoy services offered by the commodity groups. Membership to the National Emergent Red Meat Producers Organization, though aimed at the emerging sector also

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[10] Mundy, P. and Sultan, J. 2001. Information Revolution: How information and communication management is changing the lives of rural people. CTA, Wageningen, The Netherlands. P.57

comes at a stipulated annual membership fee. That way members stand to benefit from the set objectives as spelt out in Nerpo's Strategic Business Plan.

3.11 The use of the Radio as a means of disseminating information to the rural farmers

Radio is an effective medium that can be used to reach masses of the rural farmers irrespective of age and the level of literacy. Important messages and latest findings can be publicly broadcast to reach all those who have access to this tool. Those responsible for planning the broadcasts should come up with well thought out topics for broadcasting or discussion and the time slot should also coincide with the period when most of the farmers are back home. Farmers, extension officers, research agents and NGOs should all take part in identifying and prioritizing topics that need to be dealt with in order to make the program informative and better focused.

Mundy (2001) shares with us on how a research institute in Nairobi was faced with the problem of making farmers aware of how to deal with the problem of dealing with maize stalkborer. The institute had made a brilliant discovery of how damage to the crop could be significantly reduced by planting Napier grass around the maize plots. Stalkborer moths are attracted and eventually lay their eggs on the grass rather than on the maize. The grass produces a sticky substance that hold on to the larvae once it's hatched and subsequently die still stuck to the grass. The research institute managed to persuade the Gatsby Foundation which sponsored the research in the first place to support a series of radio programmes to broadcast this important discovery. The broadcasts continued throughout the year and also covered discussions on the types of field work such as ploughing, planting, weeding and harvesting that take place during specific periods during the year.

The success a radio programme hinges on the following important aspects; audience research should be conducted in order to ensure that large numbers follow the programme and at the same time attract advertisers and also issues discussed should be related to the needs of the target audience.

The institute's video unit has also gone as far as producing videos aimed at making rural farmers self-sufficient. The unit receives requests from clients such as NGOs and development agencies on the provision of documentaries and training videos. Videos cover an array of topics including stall-feeding livestock, post-harvest handling of crops, irrigation and participatory research methods.

Mody (1991) points out that in the rural areas, availability and access to media are primary determinants. The commonly used form of media is the radio followed by print and television. The use popularity of these is also influenced by the level of literacy, availability of and access to television. It is incumbent upon those responsible for putting together radio programmes to produce something that will capture interests and the needs of the local community. Content should reflect issues affecting or issues of interest to the local community. Knowledge of the local culture should not be downplayed as it will

play a critical role in selecting symbols that would convey common message understood by all. The importance and impact of locally rooted ideas, story lines, characters and media channels should not be underestimated. Pre-production audience analysis will also assist in giving important signposts; anyone involved in designing a message for a specific target audience should consider making use of this analysis.

The provincial department of agriculture, conservation and environment in the North West has a radio slot broadcast by the SABC's Motsweding FM radio station. The programme is known as *Letsema Talk Show* and goes on air every second week of the month on Thursdays between 19h15 and 19h45. This programme is fully funded by the department of Agriculture, conservation and environment and is the responsibility of ensuring the smooth running of the programme and participation by various guests and specialists rests with the Directorate of Communications within the department.

As pointed out by the Communications Directorate on behalf of the department, the following are the department's objective for hosting such a radio programme:

- The radio programme promotes dialogue between our predominantly rural clients and the department on major issues of our department strategies as well as providing a platform for the expression of the needs of the rural clients.
- More than two thirds of the North West province is rural, radio has proved to be a more effective communication medium of broadcasting…..
- Radio remains the most powerful, and yet the cheapest mass medium for reaching larger numbers of people in isolated areas.
- Radio has always been an important tool for the rapid diffusion of important messages on new Agricultural, conservation and environmental production ideas.[11]

Clear as the advanced reasons behind the use of radio may be, the content of the program has over time been decided on an ad hoc basis. As pointed out by the communications directorate, the half a million Rand annual fee that was paid for the weekly time slots have not been adequately utilized. The topics for discussion were also not planned before hand where in some instances the tendency seemed to be just tagging along an official to broadcast on a topic without carefully looking at what could benefit the farmers at that time of the year in terms of on-farm activities. This resulted in the communications directorate reducing the time slots from weekly broadcast to fortnightly broadcasts.

All was not lost as the program managed to sensitize farmers during periods of disease outbreaks or looming drought, giving out advice for example on how to prevent further stock loses. *Grain South Africa*, a commodity organisation has also been a keen participant giving out valuable advice on cropping practices as well as on what to do on the farm during the different cropping seasons. Some effort has also gone into ensuring that the farming community is also made aware of the thematic months during these live broadcasts, examples of these include: *World Environmental Day*, *World Food Day*, etc. Important departmental events have also been broadcast on the program for the benefit of

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[11] Staff Talk. Issue No.1 2005 An Internal Newsletter of the Department of Agriculture, Conservation and Environment. Millenium Printers, Mafikeng.

the farming community. There is still room for improvement and realignment of the program. Firstly it will be of benefit to the department if farmers and field staff could be involved in as far as the planning and making inputs for the contents of the radio slots. Secondly, the department should also make an effort to make members of the farming community aware of the latest policies, available developmental funding and conditional grants as well as conditions attached to these funds. Lack of information on these policies featured prominently during the consultation process that was held with the stakeholders during the African Peer Review Mechanism consultation workshops held during October to November 2005. The program should be interactive in order to allow farmers opportunity to raise questions on these issues. Commodity organisations and research institutions should also work closely with the farmers in order to ensure that the program remains focused and address the farmers' needs.

The use of radio as a medium for disseminating information can only be effective once the needs and challenges of the target audience are known and prioritized. This can be realized by making the target audience part of the team that decides on what forms part of the programme or alternatively provide them with a platform that will enable them to express their felt needs. Consideration should be given to using local and community radio stations that will use people from the local communities who can express themselves in the local language using local terminology. Limited as their coverage might be, advertisers and sponsors should be encouraged to support local and community radio stations and treat this as part of their social responsibility program instead of just looking at return on investments.

Efficient as this tool may be funding and prevalence of other competing stations always pose a challenge for effectively reaching the masses; thoughts should go towards finding ways of overcoming these obstacles.
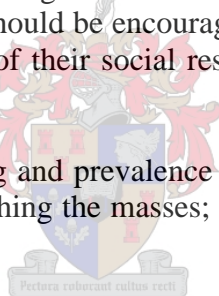
3.12 Contribution of telecommunications to dissemination of information

Parker et.al. (1989) realized the important role that telecommunications played in rural America. They specifically pointed areas where contribution could be made and this included but not limited to:

- Contribution to economic development through the use of both residential and business telephone lines
- Use of telecommunications can improve the quality and accessibility of education, health care and other social services

The following discussion will take a closer look at how telecommunications contribute specifically to economic development of the rural communities. Parker et.al. remind us that a number of studies have been conducted that show a strong positive relationship between per capita investment in telecommunications and economic development measured Gross National Product (GNP). This was however not a conclusive relationship because they were still left with the question of whether economic development led to investment in telecommunications or telecommunications brought about economic

development. Hardy (quoted by Parker et.al, 1989) found out that economic development leads to more investment in telecommunications, and in already thriving economies demand is pushed up as more funds become available to increase telephone services. He also supported the notion that investment in telecommunications does a positive impact on economic development as shown by the GDP.

Telecommunications investments also present indirect spin-offs as exemplified by the following:

- *Price information:* Where producers such as farmers and fishermen can access and compare prices offered by the various markets. This allows them an opportunity to opt for the highest prices, do away with the middleman and package their mix and volume in line with the market's demand.

- *Reduction of downtime:* They are able to order spare parts on time and have direct contact with technicians and service personnel can reduce time lost as a result of broken machinery.

- *Timely delivery of products to market:* Producers and shippers are able to coordinate delivery of products to market, thus avoiding spoilage, improving processing efficiency and obtaining competitive prices for their produce.

People residing in the far flung rural areas tend to understand and appreciate the advantage of using telecommunications especially when this benefit is compared to the time-consuming and expensive trips that they would normally undertake.

Parker et.al. (1989) give an account of how agriculture in rural America has benefited from the use of telecommunications. In the past farmers use to require information on weather forecasts and advice on when to plant and harvest and this information was readily available from radio broadcasts. The focus has since moved to the use of personal computers linked to telephone lines in order to access additional specialized information, including commodity price data and even weather forecasts for other countries so as to have an idea of the type of crops that should be grown and in what quantities. Using this form of data can help agriculture to move away from old norms of mass production eventually flooding the market with unwanted goods with the resultant drop in prices. There are farmers who have made use of this technology and reaped rewards for doing so. A farmer who learned through a computer bulletin board about a Middle Eastern man who was looking for lentils, clubbed together with his fellow farmers and produced enough quantity to sell to this man. Another example is that of an Alaskan satellite earth station installed at the fish packing plant. This arrangement enabled the business to fill orders from its head office faster and to change the type of fish caught in line with the fluctuating demand.

Telecommunication can indeed play a significant role in promoting economic development of the rural areas. In South Africa attention still needs to be given to those areas that are still lagging behind in their level of telephone connections. It is also

encouraging to note that government together with Telkom has set certain targets to meet this urgent need for connecting the rural poor. The rival service providers such as Vodacom, MTN and Cell C, will also ensure that those who renege on their promises and targets loose out by taking up this share of the market. The current spread of mobile service providers within the rural areas will also bring down set up costs using minimum infrastructure. That could serve as a better alternative in order to save on expensive infrastructure. Having more competitors in the field will also help bring down prices. The only problem that the rural areas is the poor infrastructure that exists within these areas, high level of unemployment that may make the use of this technology prohibitively expensive and the level of literacy. All these should inform the timing and the rate at which this type of technology can be introduced.

3.13 The importance of providing gender-sensitive information to the rural women

Although emphasis has been on dissemination of information of information to the rural farming community, it is worth mentioning at this stage that there exist subsets of groupings within the realm of these rural groups, one of these groups being the rural women. The following discussion will look at how the needs of this special group in terms of provision of information are met.

Rural women play a pivotal role in keeping the home fires burning and this result in positive spin-offs towards the development of the larger community. This assertion is also supported by the founder of the M.S. Swaminathan Research Foundation, Professor M.S. Swaminathan in his statement when emphasizing the fact that *when women derive benefit, the whole family derives benefit*. The Research Foundation always makes special effort to benefit rural women.

They are often faced with this daunting task while their partners are away eking out a living as migrant labourers. Wang (1999) emphasizes this notion by reminding us that rural women come from a history of patriarchal society with their subservient status where men often spend long periods absent from home. Kiondo (1999) also confirms this assertion by pointing out that that the patriarchal gender relations are responsible for stifling all efforts for developing the rural women. It has therefore been seen as important to address gender relations in rural development in order to benefit both gender groups.

One definite way of making sure that these women survive and make a difference on the lives of their families is through the provision of information that will enable them to make informed decisions and choices.

Ritchken (as cited in Wang, 1999), cites two reasons that mitigate for the provision of information to this group; firstly this move will be an attempt to address the inequalities affecting the most oppressed in society. Secondly, empowering rural women inevitably affords them an opportunity to offer improved educational, nutritional and health care standards to their children.

Wang (1999) believes that one way of addressing this problem is through encouraging Library and Information services to make deliberate efforts to provide gender-sensitive information in a development context. Those responsible for developing projects for the rural areas are yet to realize the importance of development projects with information content. Often responsible agents fail to recognize the library as an agency for social transformation.

According to McIntosh, Xaba and Associates the Integrated Rural Development White paper of Kwazulu-Natal is silent on the empowerment rural women and their need for information in areas such as capacity building in local government and traditional authority. The paper highlights the likelihood of women to be in a poor household as more prevalent for women as opposed to men. It further points out that female headed households suffer greater risk of poverty and even in men headed household where the head is absent. These findings show the need for rural development policy that will promote access to production opportunities for rural women as well as pay special attention to gender-sensitive poverty alleviating strategies.

In order for any information dissemination efforts to yield positive results, the onus is on those responsible for rendering this service to ascertain what the need of these women are as well as the level of education this information will guide the process of packaging relevant information in the appropriate format. Findings of the General Household Survey of July 2004 show that women's level of education was lower in men as compared to their male counterparts. The survey confirmed the following:
"Gender differences were pronounced. In 2004 among persons aged 20 years and above with no formal education, among men, 9.1% had no formal education, whereas among women, 12.7% had no formal education. However, among women aged 20years and above, the decline in the percentage with no formal education over the period 2002 to 2004 was more pronounced among men of the same age group."[12] These findings further support the need of paying special attention to the women group, given their high level of responsibility and the number of dependants that these women have to fend for.

Nigeria recognized the importance of accommodating special needs of women in the provision for information. A programme known as Better Life for Rural Women Programme (BLP) was established. Adimorah (1995) points out that the programme was started in 1987 and was the brainchild of her Excellency Dr. Mrs. Maryam Babangida, the wife to the former president of Nigeria. Phillips as quoted by Adimorah (1995) confirms that 90% of women live in the rural areas and from this percentage 40% of these women are farmers. The major activities of BLP include:

- The elimination of obstacles that prevent women contributing to development;
- The integration of women into primary health care programmes;
- The encouragement of women to develop or utilize indigenous technologies; and

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[12] Statistics South Africa. General Household Survey, July 2004. Statistical release P0318. Statistics South Africa, Pretoria, South Africa. p.ix.

- The encouragement of self-help rural development organizations, cooperatives or groups.[13]

The programmes fulfills these activities by sensitizing women belong to the three tiers of government, namely; federal, state and local. The first lady coordinates the programme at federal level, wives of the governors take care of the state level while the wives of the local government chairmen are responsible for coordination at the local level. This initiative has had positive impact on the various aspects of the socio-economic lives of the rural communities, especially on the following areas; health care, education, agricultural practice and marketing, small-scale industries, social welfare, commerce and trade and an increased awareness on how to improve the standard of living.

All the efforts that were channeled to the programme resulted in the following: training of traditional birth attendants, awareness and use of oral rehydration therapy, immunization services, setting up of adult education centres which led to the promotion of adult literacy, establishment of centres which offer training in business studies and home economics. There was also a boost to the local economy through the establishment of a local coconut oil processing plant and small-scale industries such as fish smoking and soap making. The number of registered women's cooperatives soared from 3150 in 1990 to 5479 in 1991. There was an improvement in the local business through the introduction of Better Life Shops and Sunday markets. Rural women are also provided with information through workshops and seminars that take place throughout all the tiers of government level. While the programme has achieved remarkable results, the major shortcoming of all the good work done is lack of documentation of all these efforts. This is a serious omission because even those who stood to learn and benefit form this initiative will never be in a position to learn from any source except by word of mouth from those who were part of the programme, what then happens once these participants are no longer there to share their knowledge and experience.

The above exposition demonstrates the important contribution that women make towards the development and well-being of their communities. Therefore all efforts channeled towards making information available to the rural communities will be making a serious omission if special attention is not paid to this important and previously marginalized group. Although a number of government departments and other institutions claim to pay special attention to the needs of women, these are often perceived needs instead of felt needs. Although organizations are often ready to admit that special attention need to be paid to the provision of gender-sensitive information, there seems to be more lip service than actually providing this type of information.

There are also no mechanism in place to do research on the type of information needed by this group as well as the impact of and gaps on the information that is currently

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[13] Adimorah, E.N.O. 1995. An overview of the state of information provision to rural communities in Anglophone West Africa. Seminar on information provision to rural communities in Africa. Proceedings of the seminar held in Gaborone, Botswana, 22-25 June 1994. Project Report No. 3. Uppasala University Library, Sweden. p25

provided to this group. Winning this battle seems to be a bit far fetched for as long as provision of information to the entire rural community is still at its infancy. There needs to be a change of attitude in as far as catering for the previously marginalized group is concerned. One often hears justification such as; *these people form part of the larger farming community, therefore their needs will invariably be covered*, for as long as there is no deliberate plan in place to advance the needs of this special group, all these statements will turn into the usual rhetoric while the group remains where it is in terms of economic development. The fact that there are those who have noticed the need to raise and address this issue, there is hope that this problem will receive the much deserved attention in the future.

3.14   The use of information and community centres in the dissemination of information

Wang (1999) suggests the use of the community safety centres where police, correctional services, health and welfare share a common facility. A facility of this nature will promote an integrated pro-active system that can be used as a vehicle for the dissemination of information for both literate and non-literate members of the rural communities.

3.14.1 The role of Multi Purpose Community Centres (MPCCs)

In South Africa government saw the need for the development of a similar concept in the form of Multi-Purpose Community Centres (MPCCs). Government undertook to make development communication, information and services readily available to the rural communities in line with its Batho Pele Principles through the MPCCs. There are eight Batho Pele principles that were developed to serve as acceptable policy and legislative framework aimed at guiding service delivery in the public service. The eight principles are; Consultation, Setting service standards, Increasing access, Ensuring courtesy, Providing information, Openness and transparency, Redress and value for money. The two that prompted the development of MPCCs are Increasing access and providing information. The document on Batho Pele Principles outlines the two principles as follows:

Increasing access - One of the prime aims of Batho Pele is to provide a framework for making decisions about delivering public services to the many South Africans who do not have access to them. Batho Pele also aims to rectify the inequalities in the distribution of existing services. Examples of initiatives by government to improve access to services include such platforms as the Gateway, Multi-Purpose Community Centres and Call Centres.

Providing information – As a requirement, available information about services should be at the point of delivery, but for users who are far from the point of delivery, other arrangements will be needed.

Multi-purpose community centres serve as one stop shop intended to bring government products and services to the people all under one roof. These centres are meant to bring nearer services offered by local, provincial, national and other service providers to those living in the far flung areas of the country. The idea behind establishing these centres was to shorten the distance people travel in order to access government services. The centres also aim at giving those living in the rural areas access to technology through Information Technology Centres (ITC) or Tele-centres. Members of the community also have access to online information through Public Information Terminal (PIT).

When these centres were established the aim was to at least have 60 by the year 2005. The government has done well in this regard as the total number stands at 65, what remains to be seen though is whether the government has only managed to reach the set numbers or even the business what these centres set out to achieve. Government aims at setting at least one centre per district or metropolitan municipality. The vision of the centres as spelt out in the MPCC document available from the website states that, is *to provide every South African Citizen with access to information and services within 5 minutes of their place of residence within 10 years*. If this goal can be achieved, these centres would serve as an effective vehicle for the dissemination of information to those in the rural areas.

The MPCC document further outlines services that the centres are meant to provide and these include the following:

- Provision of government services such as pension payouts, health education, issuing of identity documents and passports, library services, access to computers
- Use of modern IT facilities such as Internet and email will promote the level of literacy and access to technology within the communities
- Provision of information to the local community
- Create a platform for two-way communication between government and the people
- Keep communities abreast about government activities
- Cut down distance that people have to travel to access government services
- Serve as a place where community events take place

During their years of existence some observations have been made as highlighted in the MPCC document. The existence of the centres has proved that communities do need information and are thus making use of these services offered by the centres. All three tiers of government namely; local, provincial and national have joined forces to make this initiative work. Traditional leaders have been important partners in the establishment of these centres. Involvement of the communities in the setting up of these centres has ensured that they remain proud partners and in turn protect these centres against vandalism and criminals.

The centres have also experienced challenges in their day to day operation and some of these include; problems of inconsistent delivery of services by some of the departments. Departments still fail to identify and provide full range of services at the centres, this result in members of communities still traveling long distances for services not available

at the centres. The problem of poor communication has also been identified as there is no feedback in as far as the effectiveness and feasibility of the centres are concerned. Offices are also not adequately provided with staff and office equipment due to poor funding. Sustenance of technology within the rural setting has proved to be quite a challenge due to high rollout and maintenance costs. Create mechanism will have to be developed in order to overcome this challenge.

Benjamin (2000) asserts that research projects conducted by the LINK Centre on 25 different sites in South Africa showed that a number telecentres established by the Universal Service Agency were performing poorly because of a number of reasons including; technical, managerial and financial reasons. One problem that stands out is the lack of connection between telecentre services and the local needs. Focus is often on equipment usage rather than information and development services. The research points out that this problem is not unique to South Africa, it does prevail in countries that have introduced this technology.

It is important to note that all these challenges should be viewed as part of a learning curve and efforts should be channeled towards finding a way of getting around them. It is quite evident that there still needs to be a close working relationship among various government departments and the two-way communication between departments and communities should be strengthened in order to make service delivery more focused and accessible.

3.14.2 Public Private Partnership for the establishment of the i-community

Limpopo Province has a similar project aimed at benefiting the rural communities. This is in the mode of i-community and it is the second of its kind in the whole wide world, a similar model exists in Kuppam in India. The i-community project is found in the Mogalakwena municipality. The idea of developing this project was initiated during the World Sustainable Development Conference held in South Africa.

The project is a three year partnership between Hewlett Packard, Provincial government and Mogalakwena municipality in Mokopane. The primary aim of the project is to turn the community into a self-sustaining economic community with the help of technology. It is the intention of the project to assist members of this community to make use of technology in order to improve the level of literacy, create jobs, raise the level of income, and improve access to government, education and health services. In a statement made by i-community's business and economic coordinator Mr Asma Hassim, the aim of the project is to make sure that at the end of the project term, at least one member of each household should be able to use a computer to access information that will improve their livelihoods.

Computers for the i-community project are found at the libraries, schools, community centres, municipal offices, clinics and traditional authority halls. A year after its inception, the project managed to train more than one thousand people ranging from municipal councilors and staff, traditional leaders, health officials, students and members

of the public. These promising results were achieved through daily lessons offered to adults and youth on computer literacy, call centre training, computer repairs, business and science and technology. The important role that a project of this nature can play in speeding up government service delivery cannot be overlooked.

The above cases are clear examples of vehicles that can be used in the dissemination of information to the rural communities. However special attention should be paid to challenges raised earlier on in order to make the centres effective in the dissemination of information.

Diana Rosenberg, also quoted by Wang, acknowledges that rural communities have information needs that have not been attended to, and these have a common character revolving around issues of health and income generation though the extent of the needs tend to vary from one community to the other with socio-economic conditions of the various communities bringing in this variation. Relevant information should strive to fill the gap between what people already know and what they need to know in order to address a particular problem.

Given the important role that community information centres play, it thus makes these centres the preferred choice in as far as a medium for information dissemination is concerned. These centres also serve as a two-way communication channel where feedback on the relevance and the needs of these communities can be communicated. The centres are accessible and can be used by a broader audience thus reaching a wider range of those living in the rural areas.

3.14.3 The Rural information Centre initiative by the United States Department of Agriculture (USDA)
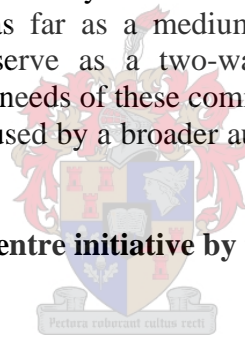
John (1995) shares with us the experience of how USDA introduced the concept of Rural Information Centres. There was a growing concern about the information gap that existed between rural and urban areas. This concern was raised by local officials and community leaders and was related to the farm crisis that of the mid-1980s. The main concern was that if this problem was not addressed it would deny the rural areas information resources that would have otherwise helped them to stimulate the depressed economies. This led to the Congress requesting the USDA to assist on this matter in 1987. USDA then came up with the concept of Rural Information Centre (RIC) as a nationwide information provider for both rural officials and communities. This approach showed that USDA had a paradigm shift where rural development policy will not only focus on the economic well being of the farmer but would further include economic, social and technical needs of the entire rural community.

Purpose for the establishment of Rural Information Centres

A legitimate concern raised by members of the National Advisory Council on Rural Development, during the farm crisis, was that it is important for rural America to have same access to information and information related technologies and resources as their

urban counterparts. The Council observed with concern that information technologies were not reaching rural areas as quickly as the urban areas. This was the same concern raised by rural officials and citizens to members of the Congress. After giving due consideration to these concerns, the Congress proposed that USDA establish a National Rural Assistance Information Clearinghouse at the National Agricultural Library (NAL). The main purpose of the clearing house would be to provide officials and leaders of small rural communities with quick and direct access to information on funding programs. This arrangement would also directly link local officials with the relevant federal program or funding source instead of wasting time trying to locate this type of information.

There was quite a lot of interest shown in the concept of a clearing house. The clearing house would be established at the National Agricultural Library and would be allocated an 800 telephone number. The clearing house would assist rural community officials to access up-to-date information on Federal programs by just dialing an 800 number this would be followed up by a referral to the appropriate agency for follow up on the enquiry.

As interest in addressing this problem grew, the clearing house concept developed even further as USDA agencies and officials like USDA Extension Services (ES) and NAL took part in the planning process. This led the birth of a concept of a fully-fledged information centre instead of the original idea of an inventory clearinghouse of funding program information. During the development phase of the Rural Information Centres the common focus by Congress, USDA and rural citizens was on ensuring that rural leaders were in a position to access information at will and the need to provide facilities that will help them access this information. All these efforts culminated in the establishment of the Rural Information Centre. The establishment of these centres during 1987 was the result of joint effort by NAL and ES that afforded the RIC the opportunity of bringing together technical subject-matter expertise from ES nationwide Cooperative Extension Services and state subject specialists together with information resources of a national library that has a collection of more than 2million volumes that concentrates on agricultural and rural information resources. The NAL brought along experience and information expertise while Cooperative Extension Service's educational network assisted with program expertise and network to reach rural communities, provide contacts as well as the entire information dissemination exercise.

How the Rural Information Centre operate

The RIC is manned by librarians and technical information specialists who hold one or more advanced degrees in the following fields; social, biological, information or health sciences. This array of rich background presented by staff enables them to research and customize the requested information in line with the client's needs. The staff provides; answers to questions raised, statistical data, information on health or business related software, identify economic development videos and software, referral information on organizations and subject experts where necessary and specialized computer searches from bibliographic and non-bibliographic databases with full text where available. The information provided by NAL also covers statistical tables, pertinent articles and maps

depicting various aspects prevalent within the rural demographics and copies of related legislation. The responsibility of the RIC staff is to network extensively with experts, agencies and different information sources within the federal government in order to identify and locate unpublished information from reports, statistical data and technical information provided by federal experts.

The volume of requests and type of information provided

Ever since its inception, an observation was made on how often the services of these centres were used. In the seven years of its existence the volume of requests for publication increased by 288 percent. Research conducted showed that the main users of RIC were health professionals, state and local health offices, organizations etc. followed by Individuals and community organizations. County extension officers, Local and tribal officials were way below on the list of those who frequently use the services of RIC.

The RICs provide a rich mixture of the different subject categories and these include:

- Community Development
- Small Business Development
- Tourism Development
- Agribusiness
- Health
- Education
- Environment
- Government
- Housing
- Labour
- Social Issues
- Transportation
- Funding Requests

Examples of the type of information required from the certain categories focus on the following:

- *Agribusiness:* Information on value-adding and processing agricultural and natural resource commodities is provided to businesses, industries and entrepreneurs. Farmers are provided with information on farm management, sources of income diversification, and how to establish a cooperative or farmer's market.

- *Environment:* Rural officials require information on various environmental issues; these normally impact directly on the environmental and economic well being of the community. Information mostly needed includes but not limited to; legislation, environmental regulations and compliance, natural resource management, wildlife management, water quality issues, recycling programs and disposal of solid and hazardous waste.

- *Government:* Due to the constrained budgets that that rural officials are forced to operate within, they are often forced to come up with ingenious methods to stretch the limited resources in order to provide basic community services such as, police and fire protection, public utilities, community programs and facilities.

The above depict areas that are usually covered when providing information under various categories.

This information was also provided electronically on Agriculture Library Forum, the NAL bulletin board. The RIC has cooperation with other government agencies and organizations in loading additional rural information on the bulletin board. USDA's office under the office of the secretary for Agricultural Research also sponsored a World Wide Web (WWW) server in order to enhance information provision efforts by the RIC.

The rationale behind introducing the RIC concept was in recognition of the fact that rural officials and citizens need relevant, accurate and timely information in order to identify strategies that will help them diversify their economies, making informed decisions , provide direction in the allocation of resources and using their ingenuity for determining their future. (Myers as quoted by John, 1995)

Evaluation of effectiveness of the Rural Information Centre

The RIC seems like a good and well thought out initiative. The rich wealth of experience and information provided by experts, extension services, state agents, various institutions and information searches, retrieval and storage expertise provided by the librarians make this a worthy and valuable venture in as far as the provision of relevant information is concerned.
The support from all the relevant institutions was enormous and made sure that the project took off as planned. The wide field covered in the provision of information goes to show that agriculture does not exist in isolation; rural development should be supported in its entirety with all the other sectors supporting agriculture in order to make an impact.

What seems to be missing though in the entire plot is the fact that all those who were involved in identifying the relevant information in order to address the plight of these communities, never seemed to directly involve these communities and their local leaders in identifying what their actual needs were. One note with interest that the need for the provision of accurate and timely information was first raised by the very local officials and community leaders, and these people should have been instrumental in identifying information needs of their communities. One is also tempted to relate the response in the usage of information, where local and traditional leaders ranked low in terms of those who made use of information RIC, to lack of consultation. They should have been ranked among the frequent users as they were the ones who first saw the need for providing this information. The concept seems to lay emphasis in the usage of technology e.g. use of electronic bulletins, World Wide Web, in the provision of information. It would be

interesting to know whether training is provided on the use of technology. IT infrastructure is also one area that needs to be looked after in order to make the system useful and to ensure timely delivery of information.

Emphasis is also on print material, this raises the question of the level of literacy of the beneficiary communities. No mention is made of including local and indigenous information in the well established databases. This situation seems to prefer and prescribe foreign systems over local ones without even considering adapting foreign ones to suit the local conditions. Although there seem to be some shortcomings in the present system in as far as incorporating the needs of the local community is concerned, it is also reassuring to note that the local community presents their information requests to the RIC thus guiding the process on the most needed information and frequently asked questions, this relationship eventually guides the process of providing relevant information.

3.14.4 Departmental Information Centres – North West Province

The department of Agriculture, Conservation and Environment realized the need of providing accurate and timely information to the rural farming communities of the North West. Over and above the information dissemination exercise that was carried out by the extension service that serve as the department's frontline staff, the department realized the need to offer support to the services that are currently rendered by the extension unit. To this effect the Information Services (IS) sub-directorate under the directorate of Policy Planning Information and Legal Services (PPILS) Directorate was established. The IS sub directorate was charged with the responsibility of developing and maintaining the departmental database on crop and livestock production, farmer profile, agro-climatic conditions etc., as well as establish information centres for the purpose of disseminating sector information. The main information centre is housed at head office rendering support to the district information centres operating from the departmental Agricultural District Centres (ADC). The centre provide information on crop and livestock production, horticultural production, sector policy and legislation, conference reports, research reports, animal health, market and marketing information, environmental information and general information on finance and management issue etc. This information is provided in the form or audio-visual material, compact discs, slides, books, periodicals, special reports, booklets, brochures and posters.

These efforts have gone a long in providing the much needed technical information for extension officers; this has also helped to keep them abreast on development within the sector. Information provided by these centres is often used during farmers' information days. Video cassettes and brochures produced in the local language often become the preferred choice given the low level of literacy of most of the farming communities. Work still needs to be done in order to make the centres fully accessible. The intention was to develop the centres up to a point where services will be rendered directly to the rural farmers. This has not been realized even to this day. Most of the information in the centres is in the form of books, reports and periodicals, rendering it inaccessible for those farmers with low level of literacy. Information is mostly presented in English with just a handful of information presented in the local language. The department has never made

any concerted effort to research on what the actual needs of the rural farmers are and where information gaps exist. This will call for a closer working relationship between extension officers, information officers and capacity building directorate in order to plan, identify information gaps and prevent duplication that put a strain on the limited resources. Hard work still needs to go into this area.

3.15 The use of indigenous knowledge and information systems in the dissemination of information

The rural communities have over the years used their local knowledge and indigenous information systems that have been passed on from generation to generation and has taken local resources into account and adapted to conditions within the indigenous area. These systems and knowledge are often ignored and preference is in most cases given to foreign information systems that are not always suitable for the local conditions.

3.15.1 Indigenous knowledge that can be shared amongst rural farmers

Rural farmers possesses wealth of information that can be shared with other members of the community and neighbouring villages or even adapted to suit other villages operating under similar conditions. This important information is also passed on from generation to generation and is the kind of information that has been gathered through years of toiling in the fields and keeping a constant observation changes taking lace within the environment.

Chambers (1983) also reminds us that farming practices carried out by small farmers were once regarded as primitive but are now recognized as sophisticated and appropriate. These include sparing tillage and shifting cultivation and examples of these include mixed cropping where two or more crops are grown simultaneously on the same piece of land, a practice most common in west and east Africa. This practice was often looked down as backward before realizing its benefit. Advice offered by agricultural research stations mainly focused on pure stands of crops and small farmers who continued with mixed cropping were branded negatively as primitive, conservative, ignorant, lazy and unprogressive. It was not surprising as most of the researchers who made these claims were foreigners with a background and training in agriculture of temperate climates and operated on large farms using mechanized row-planting, weeding and harvesting. Emphasis was on using poor stands as that were favoured from the agronomic background and were likely to give high returns. The main aim was to grow cash crops in order to increase produce for export purposes. Researchers were also on the other hand encouraged to focus on one crop at a time and there were also crop specific teams to maintain this practice.

Contrary belief, mixed cropping has proved to have a number of advantages and these include:

- Different rooting systems exploit different levels in the soil profile for
- moisture
- One crop may provide a favourable micro-climate for another

- Nitrogen-fixing plant fertilize non-nitrogen fixing plants
- Crops which are scattered among others are less vulnerable to pest attacks than single stands
- Labour requirements are less, especially in reducing weeds
- More moisture is retained in the soil
- Returns are higher per unit of land
- Successive sowing of crop mixtures supplies a mixed diet over an extended harvesting period
- Risk is less
- Where labour is a constraint, the returns of labour are increased at the time of the year when labour is limiting[14]

It is important to note that not all of these elements may apply in every case or all at the same time. Care should be taken that agro-climatic conditions of the area in question are taken into account when deciding on the best cropping method that will ensure sustainable cropping practices. It is indeed clear that it took decades for organized agricultural research to realize that what initially appeared primitive and unprogressive was indeed complex sophisticated. Small farmers are also professionals and have important lessons to share with the very foreigners.

Soils and land types are also one domain where local knowledge is strongly based. Soil types are often distinguished by colour and texture. Some farmers in Nigeria use soil colour to identify degrees of soil fertility. Malaysian soils are grouped into three tastes, namely; sweet, neutral and sour corresponding to the pH levels of the soils. Bangladesh uses indigenous soil classification based on the depth of flooding and associated differences in cultivation practices. Cornwell University is reported to have found farmers in New York who use eighteen operational categories for land types including aspects like; drainage, rockiness, slope and duration of frost. The classification was found very useful and was even adopted by the United States Department of Agriculture (USDA). (Chambers, 1983)

While conducting his study on pests insects Reed (as quoted by Chambers, 1983), discovered that farmers sowed according to different phases of the moon as they believed that there were lunar phases in rainfall. The meteorological office in Nairobi was skeptical at first and Reed analyzed five and a half years of rainfall data which supported his belief. The scientific explanation to this finding or observation is that the lunar phase influences the amount of dust entering the earth's atmosphere which precipitates rainfall. Local knowledge also goes on to cover areas such as seasons, water sources, animal behaviour, insects and other invertebrates, livestock , livestock husbandry and micro-environments.

According to Karlsson (1995) the indigenous information systems refers to traditional and local information that originate in the region. They are still regarded as an important

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[14] Chambers, R. 1983. Rural Development: Putting the last first. John Wiley & Sons Inc. New York, USA. Pp 86-87.

part of the African culture and have over the years been used as a means of generating and disseminating knowledge among the African communities. Adimorah (1995) also clarifies that these systems present themselves in different forms such as; oral nature – through traditional leaders, local drinking places, markets and trading centres. Information is also passed through other means like the artefacts and objects, dance and music, and traditional customs such as greetings, attire and facial markings.

3.15.2 Indigenous knowledge systems used for the dissemination of information

There are also common gathering places frequented by men and women. Women are often found at water collection and washing points, whereas men would normally gather for communal decision making. There are also informal points for men such as beer drinking places. Other informal points used by both men and women include bus stops and social events, these are points used for storytelling and exchange of information.

In their study conducted among the rural farming community of the Western Cape, Viljoen et.al. (2002) also attest to the fact rural communities have their own information channels that are used in the dissemination of information and these include; important personal channels such as fellow farmers and agricultural extension officers and the radio and printed media as the major mass media channels.

Karlsson (1995) further points out that the chief together with his council of the elders, provide a cohesive communal government. Meetings convened by this body often deal with disputes and addresses political and official matters. The tribal authority council go as far as handling land restitution claims and ensure a two-way flow of information between authorities and the community bringing together literate and illiterate members of the community. The worrying factor is that participation of women in these meetings is still insignificant. This is a problem that needs to be addressed in order to achieve a truly representative body that will take the needs of all members of the community into consideration.

It is important to note that when designing information packages or communication strategies for the developing communities those responsible for coming up with these packages and strategies should have a thorough understanding of user's needs and capabilities. Coetzee et.al. (2001) point out to the three important characteristics that indigenous communication channels should posses:

- They should have been developed locally
- Should be under local control
- Use low levels of technology and include folk media, indigenous organizations, unorganized or informal channels and observation

Information that is carried out from outside sources such as development agency is often spread through indigenous channels which serve as multipliers in the dissemination chain, once the innovation or new information has proven to be superior than the local

one. It is therefore important to understand the indigenous communication channels in order to improve the chances of true participation by both local people and outsiders.

As Hornik (quoted by Coetzee et.al, 2001) cautions about the failure to adopt new development technologies, farmers do not deliberately ignore agronomist-recommended packages out of their own choice. There are reasons preventing them from doing away with their indigenous method, the improved technology might come at a cost e.g. increased cost of labour. He also points out that useful information does not flow because conventional information distribution channels are too weak. Hornik asserts that there are seven prescriptions that will ensure that development information reaches the intended beneficiaries, and these are:

- Financial and managerial feasibility
- Responsiveness
- Message development
- Integration with other institutions
- Support in the process of change
- Patience and
- Political attractiveness

Rosenberg (as cited in Wang (1999) further points out that the general consensus in as far as the provision of information to the rural communities revolves around the following:

- The rural communities often have to contend with three knowledge systems namely; indigenous, exotic (external knowledge) and synergized knowledge that exist as a result of the development process. There is an urgent need to bring all three together if they are to play an effective role.
- In order for the mode of transferring information and the media to be effective they should at least mirror the indigenous modes or media such as market centres, group discussions, village meetings, information gatekeepers like community elders, use of theaters, songs and story telling. These have proven to be more effective as opposed to print media, especially when one considers the level of literacy within the rural communities.
- Communication support offered to rural communities by the external sources is often criticized as fragmentary. The responsibility of providing this information is mostly spread among several government ministries, parastatals and non-governmental organizations (NGOs). The information is provided as part of a larger package of inputs and services with attention on a specific subject matter.
- The identified gaps and failures in the transfer of information thwart all rural development efforts.

The already identified gaps can be filled by making use of the services of a community library or an information centre, all this should form part of a holistic integrated rural development programme. The information centre or community library in this case should not just be a passive resource but should be in a position to refer users to other relevant services. The following section will give more clarity on the important role that

can be fulfilled by the rural library and also lessons that can be learnt to avoid repeating the same mistakes experienced by existing libraries.

3.16   Libraries as important vehicles for information dissemination

Libraries have an enormous contribution to make in as far as the dissemination of information to the rural communities is concerned. One cannot picture successful dissemination of information with the exclusion of libraries. This is all because librarianship according to Joyce (quoted by Ngulube, 2000) is concerned with literacy, intellectual freedom, and equity of information access. The white paper on Arts, Culture and Heritage also acknowledges that libraries will play a decisive role in providing access to information for reconstruction, development and enhancing the quality of life.

Although those involved in this field agree that libraries have an important role to play, this has not been the case in certain areas and a brief look at what the stumbling block was will help give insight to all those who want to use this vehicle in their information dissemination efforts. Librarians have struggled to make enough impact in as far as meeting information needs of the various communities is concerned. According to Issak (as quoted by Ngulube, 2000), the library movement in Africa is generally weak, he attributes this weakness to the fact that librarians often neglect the needs of the rural communities in their information disseminations drive even though majority of the population is found in these areas. In order for libraries to make any significant impact, it is imperative that special attention is given to the rural communities and that libraries should device means and ways of reaching out to these communities.

Neglect of rural areas is often blamed on the Euro centricity library paradigm adopted by most libraries. Emphasis is always on bibliographic and reference services linked to publications at the expense of indigenous knowledge and communication models. Libraries in developing countries should develop ingenious ways of information management that can be adapted to suit local conditions. They should also desist from narrowly focusing on print material and rather adopt a wider approach in order to accommodate information needs of the rural communities. Focus should rather shift from information management to knowledge management. (Ngulube, 2000)

The primary reason for existence of libraries in the rural areas should be based on community needs and interests as opposed to preconceived stereotype information provision models. This challenge calls for a fresh and different angle as raised by the United Nations Educational Scientific and Cultural Organization (UNESCO) in its Public Library Manifesto of 1994 when it declared that; 'library books should no longer be the main concern of the public library, as the total collection should include material on all subjects, to satisfy all tastes at differing educational and cultural standards' (UNESCO, 1994). As Nelson (1992) emphasizes that if a library perceives its role as a mere collection of books it will have to develop yet another strategy of making sure that information retrieval takes place, whereas if its primary role is to facilitate the movement of information into the minds of its readers, careful consideration will be given to how this information is stored in order to make it fully accessible to its readers.

When addressing the needs of the rural communities, appropriate media should be carefully considered for various set ups, it should also be borne in mind that books are often costly and inappropriate for the majority of those living in the rural communities. Neil Nicholls (quoted by Ngulube) aptly sums up the difference between libraries in the western world and those in the developing countries; "in the rural areas the word library can mean a box of books, a reading room for newspapers, a display of information or posters,…and should not necessarily refer to a traditionally arranged, staffed and stocked 'western library" Neil Nicholls (Quoted in Niegaard 1994, 106 and Niegaard quoted by Ngulube, 2000)

Another fallacy of the western library model is to associate literacy with information needs and provision. This assumption does not hold because literate, semi-literate and illiterate equally require information in order to participate in decision making, develop the economy and enhance their quality of life.

The challenge that faces librarians is to strike a balance between literacy and information literacy. An information literate person is said to be the one who recognizes the need for information and the fact that accurate and complete information forms the basis for an intelligent decision. (California Media and Library Educators as quoted by Ngulube, 2000) Where there are human beings there will always be a need for the provision of information and this will at all times inform the course of action to be taken as well as justify decisions made.

Ngulube 2000, shares with us an interesting experience of a library based in the remote area of the Mudzi District in the north eastern Zimbabwe. The library was undertaken as a joint project between Mudzi Rural District Council and the government of New Zealand. The mandate of the project included amongst other; to establish relationship between library services and rural community, and to determine the extent to which libraries reflects and is responsive to the needs of the rural communities. This makes an interesting lesson for South Africa given similar conditions that exist in both countries, namely; large disadvantaged rural communities, difficulty in providing information to those with low levels of education, poor access to information and limited resources.

Public libraries should serve as a gateway to knowledge and strive to realize the fundamental rights of human beings. Once this ideal is realized, the library will create an environment of lifelong learning, independent decision-making and cultural development.

CHAPTER 4

RESEARCH FINDINGS

4.1   Introduction

Information dissemination to the rural poor stands to benefit these communities in more ways than one; when one considers the fact that majority of the population in the North West province are resident in the rural areas where most dwellers depend on agriculture for their livelihoods, then one appreciates the importance of supporting and sustaining this sector as the mainstay of the rural economy.

Throughout the literature reviewed there are important lessons to be learnt from different countries grappling with the challenge of disseminating information to their rural farming communities. What stands out is the fact that one can draw a common thread throughout approaches used for the dissemination of information practiced in different agricultural rural communities. Although different modes of information dissemination may have been used, the underlying basic principles were still the same. One common element that featured prominently through experiences learnt from different countries was the importance of understanding *who* your target audience was and making an effort of identifying what their actual needs were in order to provide relevant information.

4.2   The importance of conducting a needs assessment

The omission on *conducting a needs assessment* was quite glaring in the case of the Kenyan fishpond smallholders who were more than willing to integrate their existing farming activities with the new smallholder fishpond farming activity. The new venture was poorly introduced in that a number of issues were not taken into account, such as their level of literacy in order to provide relevant training, and there was also no intensive training offered as they had no previous scientific and technical knowledge on fish culture. All the efforts went to waste as they experienced high mortality rates resulting from poorly maintained ponds and inappropriate feeding practice. All this waste could have been avoided through needs assessment and provision of relevant skills. This is often a common practice among developing countries where concern is often around introducing *poverty alleviating* projects to the rural poor without ensuring that the necessary skills are developed and the needs of the beneficiary community are at the same time addressed.

The importance of *conducting a needs assessment* features throughout a number of media used for the dissemination of information. The print media places a lot of emphasis on understanding the level of development of the target audience as well as understanding what their needs are in order to provide the right answers. In the case of the limited scale land owners of Lincoln County, Oklahoma, those responsible for providing information to this group came to realize the determinant forces that influenced the most appropriate method of presenting information and these included; demographic characteristics such

as age, level of income, formal education and farm size. These are factors that would directly relate to what the needs of these farmers are likely to be.

Once the question of needs assessment is addressed jointly with the target group, appropriate information and even training will be offered.

In as far as the radio is concerned; special attention should be given to topics chosen for broadcast, and the timeslot for airing these topics and discussions. The process will invariably be informed by the needs of the target community.

4.3 The importance of repackaging information for the purpose of sharing and dissemination to the target audience

In an effort to offer response to the information needs of the rural farmers a number of institutions and government organizations have come to realize the importance of repackaging or interpreting information in order to bring it in line with the needs of the target audience. This is often made in consultation with the target audience in order to address the information gap that is often prevalent among the rural farming communities. The literature reviewed also bears testimony to this approach as the different form of media is moulded, edited, reformatted, translated; all in the name of making sure that the beneficiary communities understand the message.

The print media is one area that is often faced with this challenge given the predominantly low level of literacy of these farming communities. Extension officers and researchers are often faced with the challenge of presenting technical and scientific information in a language that can easily be understood by the rural farming communities. This is not an easy task as already outlined in the reviewed literature. Emphasis should however be on understanding the level of development of the target audience and identifying what their needs are. Research has also come a long way in bridging the gap between extension and research by ensuring that extension service understand their scientific jargon and in turn pass the correct information to the farmers. That is why the International Institute of Rural Reconstruction (IIRR) experience in Nairobi, Kenya presents such a brilliant solution where farmers, extension agents, scientists, researchers and NGOs all come together to develop extension training manuals. The workshop normally lasts over a period of two weeks where at the end of this exercise a fully fledged training manual is developed. All this is made possible by the support team consisting of facilitators, editors, artists and desktop publishers. Farmers, extension staff, researchers and scientists all have an equal say on topics covered and prioritization thereof with farmers sharing knowledge and practical experience. The final product is presented in a format and language that is easily be understood by the farmer without compromising on the quality and validity of the content.

The case of electronic catalogues though mainly aimed for the professionals and officials serving the rural farming communities is also one such initiative that strives to bridge the information gap that exists between the urban and rural centres. The information is copied onto CD-ROMS and exchanged by different users. This would not have been

possible because of the prohibitively high prices that institutions have to pay for subscriptions. Exchanging this kind of information saves research institutions time and resources that would have been wasted by conducting research that was carried out in the past. An argument could be advanced on the relevance and validity of this somewhat *outdated* information. It should be borne in mind that not all information is time bound, research results that were published six months can still benefit those who are learning about it for the first time, normal research results do not reach intended beneficiaries all at the same time.

Efforts by National Agricultural Information Management Services (NAIMS) in Nigeria brought together all the literature produced by the National agricultural institutions and agencies. This was not an easy task more so that they had to go out and identify sources that would provide them with relevant information. It was also important to check on the originality and reliability of the source before passing it on to other users. The project was undertaken with the aim of to removing information from foreign agricultural information services that often failed to cover material published in Nigeria. Instead of listing the number of books and journals as was the practice with foreign agricultural services, NAIMS included abstracts and articles from books and journals making this form of presentation more informative and providing better coverage of local material.

The Information Village Research Project (IVRP) in India used IT to disseminate information to the rural communities; this information was not presented in its raw format. Generic knowledge was drawn from outside sources, thereafter it was transformed by compiling it selectively, editing and integrating it with the local knowledge. The final content and presentation was informed and influenced by what was regarded as locally relevant.

Cameroon uses an information bulletin for sharing experience with other farmers. Researchers, extension agents and technicians are responsible for passing on technical and scientific information to the rural farming communities. This is achieved by rewriting journal articles, simplifying technical and scientific jargon using a terminology that can be understood by the target group, the publication also relies on the use of illustration and pictures to convey the message. The publication serves as the voice of the rural farmer and producers make it their business to balance content while at the same time cuing from questions and suggestions raised by the farmers. The initial exercise of producing regional editions was unsustainable because of the printing costs involved, this would have been an ideal method of disseminating relevant information barring the costs.

4.4 The crosscutting role of libraries on a number of projects

It was also interesting to note that libraries do not only have to play their role confined to their own building waiting for users to visit them. Libraries played a supportive to other projects that were involved in providing appropriate information to the rural communities. The National Agricultural Information Management System (NAIMS) project in Nigeria, established libraries played a crucial role in the compilation of the indexed library of key agricultural, environment and other related science periodicals.

This effort resulted in an electronic catalogue that was able to bring together a collection covering work of over 9 years compacted on 381 CD-ROMS. Through this exercise information was more portable and could be easily shared by researchers and rural farming communities.

The Rural Information Centre (RIC) in Lincoln City, Oklahoma used the services of librarians, subject specialists and researchers in the searching and compilation of relevant information while in the process of setting up the database for the centres. This work managed to bring together 2 million volumes of agriculture and rural information resources. Rural communities could at long last put information together from an array of sources. These centres are spread throughout the rural areas, manned by librarians and technical information specialists. These officers are in a position to identify and customize the required information in line with the client's needs.

The case of Mudzi village in rural Zimbabwe where a library was established through partnership between Mudzi Rural District Council and New Zealand government also makes an interesting lesson. The challenge laid before the library was to forge links with the rural community and to critically look at how library reflect and respond to the needs of the rural community. Another partnership or supportive role was in the case of the i-community project in Limpopo led by government, local municipality and Hewlett Packard. Computers that provided information compiled through the efforts of this project were also placed in local libraries.

Libraries are even urged move from their Eurocentric approach and instead work closer with their communities in order to understand their needs and present information in a manner that can be clearly understood by the rural dwellers. An important reminder raised in Ngulube's study is that the use of libraries should not only be associated with high level of literacy. It is worth noting that even the illiterate and semi-literate still need information to make those critical choices, therefore the onus lies with the libraries on presenting this information that will make sense of information provided.

4.5 The role and contribution of ICT in the information dissemination process

Though ICT has been lauded as the answer to information dissemination problems in the rural areas, it has really not proved its worth in the rural areas. Unlike the urban centres the rural areas still lag behind on electricity connection and the recurrent power interruption for those that are already connected, level of development of the telecommunications system, requisite skills in the use of ICT, size of bandwidth for email internet connection, poor infrastructure, low levels of income and level of literacy.

Even though this seems like an insurmountable task, lessons from other countries have shown that there is still a way around these odds. Lessons from Information Village Research Project (IVRP) in India sponsored by a Research Foundation Institute managed to connect 10 villages by means of a mixture of wired and wireless network, PCs telephone, VHF duplex radio devices, and e-mail connectivity. This kind of connection could operate on both voice and data transfer. The project succeeded through the close

cooperation between staff and villagers. Generic knowledge presented through this initiative was drawn from outside agencies recompiled selectively, editing and integrating local knowledge in order to provide information that will be in line with the needs of the local communities. An important lesson here is how efforts from villagers and specialists together with assistance in the form of sponsorship from independent institutions can yield positive results.

The i-community project in the Mogalakwena Village of Limpopo Province is almost in the same mode. The project was borne out of a partnership between Hewlett Packard, the Provincial government and Mogalakwena Municipality in Mokopane. The project aimed at developing the community into a self-sustaining economic community through the use of IT. The intention of the project was to provide information that would address challenges such as unemployment, raise level of income, improve the literacy level, and improve access to government, educational and health services. The project provided computers that would provide this all important information placed at strategic points such as libraries, schools, community centres, municipal offices, clinics and traditional authority halls. An important initiative that was shown by the project not commonly practiced was the fact that local people were offered training in the use of computers. A total of 1000 people made up of adults and youth were trained on computer literacy, call centre training, computer repairs, business and science technology. Projects of this nature often offer basic training on how to operate the system to a very limited number and when the system gives in, beneficiary communities have to wait for operators/technicians from the urban centres to attend to this problem and in that case it can even take up to weeks or months before the problem receives the necessary attention. The project surely made room for such eventualities.

IT does present certain benefits, such as ensuring that information on market, marketing opportunities and opportunities for growing new crops is accessed by those who stand to benefit from it. As already indicated it does promote access to markets, information, public and business services. In the case of rural areas it is important to weigh the cost against the benefits, what do rural farmers stand to gain from this technology? It is understandable that they do enjoy benefits like low cost labour and low overheads when compared to their urban competitors but issues such as the imported goods flooding the local markets raise a very valid concern. What is the likelihood of rural people conducting business on the net as the literature has rightfully question. Will those invading the rural market not stand to benefit and even rob local business income that has sustained them over the years? Are the rural communities ready to take up this challenge and compete on an equal footing? IT can only benefit the rural community if it will improve the way they are doing business or managing their agricultural enterprises and not leaving them in a worse-off position.

4.6   Extension Services

Literature reviewed clearly showed that extension agents are not sole players in the dissemination of information exercise. They have operated as partners and succeeded by so doing. In research involvement of farmers, scientists, subject matter specialist and

researchers made a winning combination. This avoided the risk of communicating ambiguous results, missing out on the original message from research results and even using the language that farmers were not familiar with. The close working relationship between extension, farmers and researchers ensured that research results were communicated on time and farmers benefit immediately from these new findings. Farmers could in turn identify with the process and adopt the new technology as they were part of the process and participated in the needs identification and prioritization process, they also contributed their wealth of knowledge and experience gained over the years.

There was however concern on a number of issues that were preventing extension agents from operating successfully within the farming community, the first concern was around the nature and relevance of their training and the fact that they were not resident among the very communities that they were expected to serve created problems.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Rural farmers depend on the provision of relevant and timely information to make crucial decisions that determine the viability of their farming operations. The literature reviewed show that a bouquet of information dissemination tools exist, and a combination of these can yield positive results provided the felt needs, challenges, aspirations and the farmer's knowledge and expertise are given due consideration. It is important to remember that rural farmers are managers who are constantly facing challenges and choices. Providing timely, accurate and relevant information will help them make informed and best choices that will enable them to operate sustainable farming ventures in a competitive environment, making the best of limited resources.

The literature reviewed highlights interesting lessons to be learnt and pitfalls that should at all costs be avoided. It is important to learn from and avoid mistakes committed by institutions that formed part of the case studies cited in the literature. The question of needs analysis and needs assessment as well as involvement of the beneficiary communities was emphasized throughout the literature.

The importance of research featured very prominently. It is quite clear that for research to achieve desired results a number of issues need to be taken into account. It is first and foremost important to involve those who stand to benefit from research that will be conducted. Researchers and extension agents should foster close working relationship in order to ensure that information that flows between the two groups is consistent and well understood. Researchers should communicate their results in a language that will be clearly understood by those responsible for passing on research results. Farmers, including female farmers, and extension officers should form an important part of the team that is responsible for identifying and prioritizing research agenda in line with the needs of the rural communities. Research findings should be cascaded down to the farmers and any research needs from the farmer's side should be communicated to the relevant research institution. Research should strive to incorporate the local knowledge and practical experience as shared by the farmers.

It is important to adopt a holistic approach when dealing with the rural community. Those responsible for providing agricultural information might be tempted to take a narrow view of confining themselves to agricultural field only. However, it is important to appreciate the fact that agriculture thrives within a bigger scheme of things that eventually have a bearing on rural development. It will therefore be a futile exercise to attempt to deal with agricultural development in isolation. Other areas of rural development touch on the fields of health, education, economic development. Information dissemination efforts should rather look at this bigger picture, this might even call for cooperation between government departments to work together in order to save on limited resources while avoiding duplication.

Information can be packaged and adapted in such a way that can suite the needs of the intended beneficiaries. The developing farming communities can also enlist the help of their own children and grandchildren to read interpret the message that is being communicated as well as field questions to the relevant agencies.

Research should also be demand driven addressing the pressing needs of the rural farmers and ensuring that results are communicated in a format that will be understood by all especially the intended beneficiaries. It is important to remember that information is useful only if it is available and if the users have access to it in the appropriate form and language. There should be deliberate effort to engage women in effort to establish what their research needs in order to accommodate them in the bigger picture. It would also be worthwhile to establish research forums where topics for research, challenges facing farmers and extension officers are thoroughly thrashed out. All sectors of the farming community should be represented including small and large scale farmers, farmers' organizations such as cooperatives and unions, in order to share ideas and problems, while learning from one another in the process.

Extension agents serve as the front line staff for their various institution, therefore these are people who need to be given all the resources and support if they are to make an impact in the livelihoods of the rural farming communities. A lot of discussion and suggestion has been raised on offering relevant training that would enable officers to effectively communicate with the farmers in a rural set up. Suggestions have been abound that gender issues should form part of extension officer's training. This is a valid concern but it should not only go as far as formal training. In order to put this training to good use and to the test, government department should also make a deliberate effort to include gender projects in their business plans. These should be time frames and targets set to these and proper monitoring and evaluation of these efforts should be implemented.

It is about time that responsible institutions start taking gender issues seriously and not only pay lip service in an effort to be seen as politically correct and making the right statements. Singling out the needs of women when drawing up research agenda should be top on the list of priorities for research institutions. Technology developed from research conducted should accommodate the needs and physical make up of women. Research forums should create an enabling environment for women to freely air their opinions and share in the wealth of knowledge gained trough years of tilling the soil. It would also be ideal to train women who would form part of the research and extension team, in order to make sure that issues affecting women receive the well deserved attention. It is indeed true that empowering women means empowering the nation as a whole given the influence and responsibility that women have on raising and nurturing the young ones. Investing in the development of this group will go a long way in saving the entire nation and raising tomorrow's adults and leaders.

Government should lend a supportive hand to women who are currently participating or planning to participate in groups such as cooperatives, farmers' organization etc. This will be one way of sustaining rural development. These formations can take place at different spheres of government, such as the regional or local or even ward level. Groups

should address broad rural development issues including agriculture, sanitation, health care, nutritional status, food security, this way government will also be sensitized to what the needs of these women groups are and structure their programmes accordingly.

Low levels of literacy have been advanced as an impediment in the dissemination of information to the rural farming community especially when print and ICT media were considered. These are not good enough reasons when considering the fact that with the print media a number of options can be put to good use; these include the use of indigenous information systems incorporating local culture to disseminate information. The print media can use illustrations and pictures to convey the desired message. This is where the question of repackaging, rewriting, editing and simplifying scientific language comes into play. The most important aspect of this role is not to loose the original message and content. It is also important, where possible, to encourage farmers to be part of the process so they can also share their skills and knowledge in dealing with this problem. The problem of literacy also raises a challenge in as far as the training of extension agents is concerned. Training in extension should not only focus on formal livestock management and crop production. Training such as adult education, communication and general information like how farmers manage their farms should also form part of their basic training. Telecentres and information kiosks should serve people in the language that they are comfortable with using audio interface and a lot of graphics. Some of the cellular network providers are already going taking this route.

Through the help of extension officers, unions and cooperatives, farmers should be encouraged to participate meaningfully in forums such as the farmer's support group. This platform should be used for sharing ideas, information on new technology, research results and experience from other provinces or countries.

Farmers are forever complaining about lack of market and marketing information. There are marketing service providers that give real time up to time information online through the internet or subscribing to receive this kind of information through a mobile/cellphone. Information of this nature is quite important and gives the farmer a competitive edge in the deregulated market place. Those who have the means and regular income stand to benefit from the use of such services, but for the average rural farmer this will be more of a dream unless an enabling environment is created. The idea of Marketing Extension Workers who can source relevant information, package it and pass it on to the rural farmers, can play a significant role in closing the information gap between the rich and the poor. Government through the National department of Agriculture is in the process of developing a marketing information system that will be linked to the provincial departments. This will serve as a good platform for enabling rural farmers to access market information and take advantage of what the market has to offer. It is however important to ensure that information contained in this system does not only focus on the big markets located in the urban centres, information from the smaller provincial markets should also form an important component of this project.

ICT efforts have failed in the past mainly because of lack of appropriate training for the beneficiaries and not conducting enough research on what the pressing needs of the

intended beneficiaries are and identifying information gaps that exist. Attention on MPCC's should move from the number that has been established to the impact or role that these are fulfilling. While their establishment was a step in the right direction, the implementation process that followed failed to bring to live what was contained in the proposal of these centres in as far as their aims and objectives are concerned. Some of the existing buildings are not manned by properly trained staff and centres do not even have relevant material and facilities in order to make a marked improvement on the lives of the rural communities. Work needs to be done in this area as is closer cooperation between government departments in order to make this noble idea bear fruit. Members of local communities should be trained in the management of the centres and also in the information collection and dissemination. The centre personnel should interact regularly with members of the local community in order to identify information needs and existing information gaps.

Radio also stands a chance of filling the gap that might not be covered by print and ICT media in areas were problems of low levels of literacy prevail. Those responsible for deciding on the topics and time slots should ensure that farmers, extension agents, researchers, scientists and local NGOs form an integral part of this process. It is also important to identify the information gaps of the target communities, prioritize topics to be discussed and use the indigenous knowledge systems such as locally rooted ideas, story lines, characters and local terminology, to convey the message.

Media like radio and newspapers have proved to be unsustainable ventures in the rural areas. Coffers often run dry just as the project starts to make impact within the rural community; this often results in compromising on the quality of the initial product or even discontinuing the services completely. This is one area where government and the private sector can join hands to make sure that good efforts do not go to waste. Business should not only look at making profit out of these ventures, they could take part in such initiatives as part of their social responsibility programme. Individual government could on the other hand cut down on the number of brochures and pamphlets that are always circulated and join hands to produce a publication that will be widely circulated covering all the necessary news about services offered by government, informative articles, research finding and projects. All this can be in a form of a newspaper of monthly publication. This will be easy to read and keep instead of all the leaflets that are often left lying around. Farmers can be invited to share their experience and even suggest topics to be covered using this publication.

Very often farmers are invited to attend agricultural shows and farmer's information days, this is as far as it goes. There is never a follow up workshop or meeting to discuss lessons learnt or new technology introduced at these shows. Government departments, research institutions and NGOs should make it an effort to encourage and enable farmers to use some of the lessons learnt from this exercise. This is the only way in which farmers can grow and develop.

Libraries have an important role to play, firstly there will have to be a change in the mindset and those responsible for managing these centres need to realize that they have to

start working with other organs of state and the NGOs in order to make a difference. Libraries are also challenged to revisit the manner in which they have been doing business. Libraries have to honestly start examining whether they have any relationship with surrounding communities, whether their services address the needs of the local communities and how these have been accommodated e.g. in terms of presentation and packaging of information. Libraries should go out of their way to club together with other libraries in order to share and save on expensive subscriptions. Librarians should share their skills to assist subject matter specialists, scientists and researchers with the identification of relevant information from a host of existing resources and advice on the most appropriate method of disseminating research results and information compiled by specialists. Libraries should use other relevant means of disseminating information other than print media e.g. story telling, use of local terminology, posters and illustrations; this approach would benefit rural farmers with low levels of literacy.

A concern has also been raised about poor documentation on the indigenous knowledge often known by farmers and passing this from generation to generation. While efforts are currently under way from various quarters especially the CSIR, to have this information documented, the rural communities should not be shortchanged in the process. There should be legal process in place to protect this information so that it remains the intellectual property of the rural communities and their coming generations.

The recent introduction of Community Development Workers should also be considered as one vehicle that can be used together with existing local municipalities and traditional authorities for the dissemination of information. These are forces that should pull together in order to make impact in rural development instead of duplicating available services while competing for the already overstretched resources.

It is important to remember that no single approach will provide an answer to the information dissemination challenges facing the rural farming community, a combination and integration of the different information media driven by the needs of a particular target group is the only way of winning this battle.

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