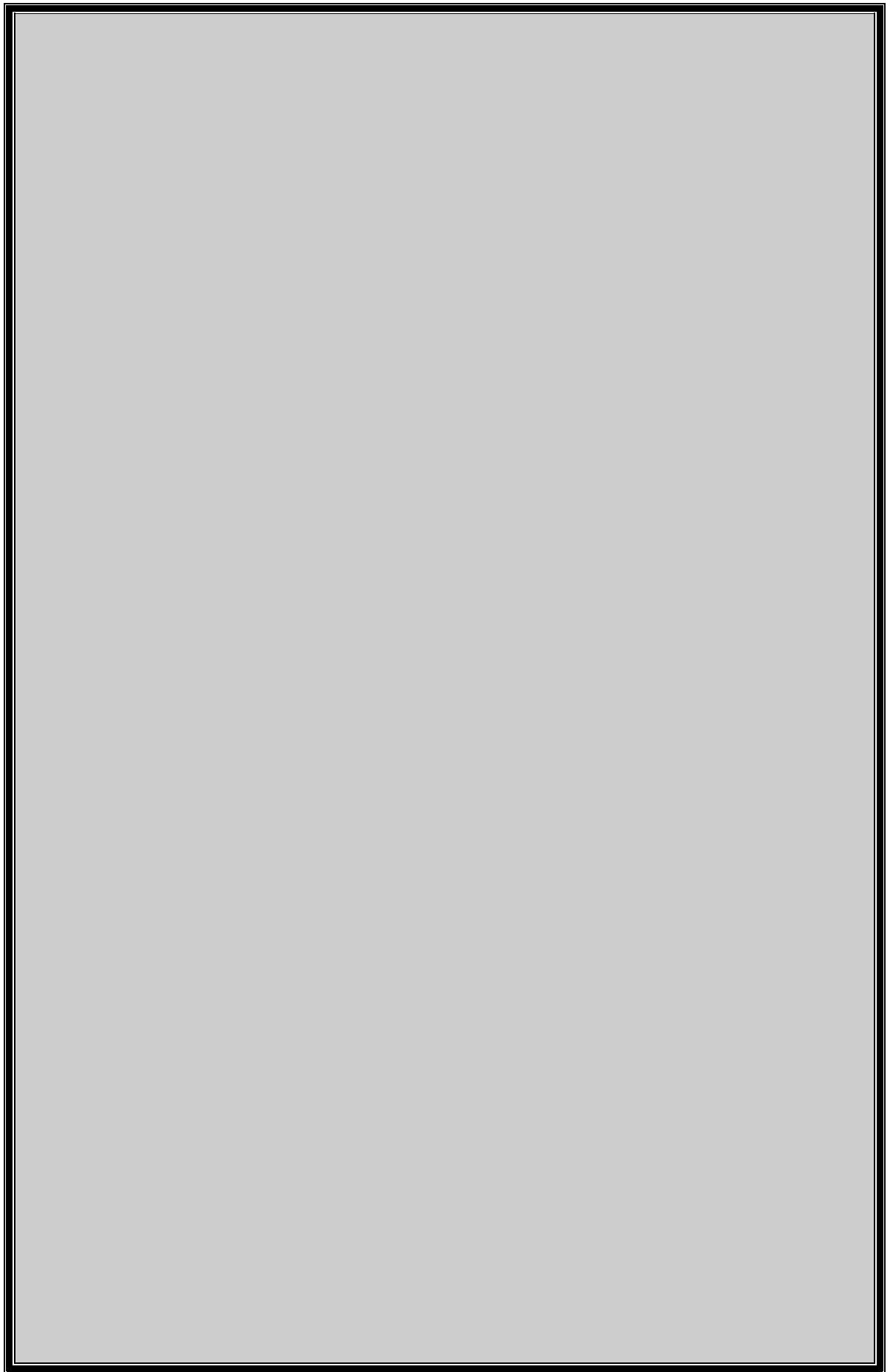# NATIONAL AGRICULTURAL RESEARCH ORGANIZATION (NARO)

END OF TERM EVALUATION OF THE ELECTRONIC DELIVERY OF AGRICULTURAL INFORMATION (EDAI) TO RURAL COMMUNITIES IN UGANDA PROJECT IN MPIGI, WAKISO AND LUWERO DISTRICTS

A CONSULTANCY REPORT

By

ASINGWIRE NARATHIUS
MAKERERE UNIVERSITY
SWSA DEPT.
P.O. BOX 7062
KAMPALA

JANUARY 2003

MAP OF UGANDA SHOWING THE PROJECT AREA

LIST OF ACRONYMS

ARIS	Agricultural Information Services
CABI	Centers for Applied Biosciences International
CBO	Community Based Organization
CD-ROM	Compact Disc-Read Only Memory
EDAI	Electronic Delivery of Agricultural Information (to Rural Communities in
GoU	Government of Uganda
ICTs	Information Communication Technologies
IDRC	International Development Research Centre
IDRC	International Development Research Centre
IGAs	Income Generating Activities
IK	Indigenous Knowledge
ITU	International Telecommunications Union
LMC	Local Management Committees
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
MCT	Multipurpose Community Telecentre
MoU	Memorandum of Understanding
NAADS	The National Agricultural Advisory Services
NARO	National Agricultural Research Organization
NCST	National Council for Science and Technology
ToT	Trainer of Trainer
UNESCO	United Nations Education Scientific Cultural Organization
UTL	Uganda Telecommunication Limited

TABLE OF CONTENTS

6.0 CONCLUSION AND LESSONS LEARNT

LIST OF TABLES

LIST OF FIGURES

Figures

EXECUTIVE SUMMARY

Introduction and Background

This end of term evaluation for "Electronic Delivery of Agricultural Information to Rural Communities in Uganda" was carried out between November 2002 and January 2003. The project was implemented by NARO in Mpigi, Wakiso and Luwero districts in collaboration with the Centres for Applied Biosciences International (CABI) and other national institutions from August 2000 to December 2002 with funding from the International Development Research Centre (IDRC). The overall objective of the project was to improve access to agricultural information by rural communities through the existing Multipurpose Community Telecentres (MCTs) at Nabweru, Buwama and Nakaseke as information resource centres.

The end of term evaluation aimed at assessing the impact of the project under such themes as improving accessibility to agricultural information through use of ICTs, building capacity of the local communities to manage and disseminate agricultural information, building agricultural information resources (ARIS) at the 3 telecentres of Nabweru, Nakaseke and Buwama, disseminating agricultural information and building sustainable information services at the telecentres. The evaluation was further mandated to examine sustainability issues of project activities.

Using quantitative and qualitative methodologies, the study was carried out in 36 villages/ LC 1s selected from 12 parishes in 4 sub counties reaching a total of 978 farming households and several key informants. The study collected both quantitative and qualitative data. Quantitative data were collected through personal interviewing using a structured questionnaire. On the other hand, qualitative data were collected through in-depth interviews and focus group discussions.

Main Findings

Implemented Project Activities

During the life span of the EDAI project, the intended project activities were implemented. These included carrying out a needs assessment to identify the actual needs of the potential rural information users, identifying and repackaging relevant information by team of experts, strengthening resource at ARIS and the 3 telecentres, disseminating of agricultural information and organizing ToT workshops in use and application of ICTs and information retrieval techniques.

Accessibility and Dissemination of Agricultural Information

Overall, a big proportion (79%) of the respondents affirmed generally that they had received agricultural information. The agricultural related information mostly needed by the farmers as expressed during the needs assessment was relatively accessed by big numbers. Most of the agricultural related information was delivered through radio, interpersonal, question and answer services (Q&A) and outreach activities. Farmers who personally accessed agricultural related information using modern ICTs such as Internet, e-mail and project website were remarkably few.

The study findings revealed that majority of the farmers (71.0%) were aware of the telecentres, although slightly less than a half of the respondents (49.2%) had ever used services offered at the telecentres. The utilization of telecentres was constrained by distance, information costs, technicalities, and generally telecentres with modern ICTs being a new concept.

Impact/Value of Information Disseminated to Agricultural Communities

Farmers in general reported to have acquired knowledge in the aspects of new crop varieties such as *colonal* coffee, vanilla and new banana varieties, which they had started growing, leading to increased production in the area. Over a fifth of the respondents (21.4%) attributed the changes in the type of crops grown to increased and improved agricultural knowledge that they were able to obtain/access from the extension workers and telecentre staff.

Over a third of the farming households (36.8%) reported high yield/output. This represented an increase from 6.8% at baseline that reported high annual yield/output. More households that had received agricultural information in the last two years registered an increase in their farm yield/output (41.1%) compared to those that did not receive information (35.8%).

By gender, reports and observations in the field revealed that women were gaining confidence in starting agricultural based IGAs and organising around such IGAs in groups. Growing of non-traditional crops and keeping of livestock had increased, e.g. vanilla growing, piggery and poultry among others.

It has to be pointed out that although farming communities appreciated the agricultural information received, they were, however, of the view that the telecentres/project should have had an element/component of providing material ingredients such as high yielding seeds/seedlings and other inputs that would have enabled the farmers to easily put the acquired knowledge into practice.

Building Capacity of Local Communities

The EDAI project trained various categories of persons in the project area. Telecentre staff and members of local management committee were trained in data base management, project planning and management, and how to prepare simple proposals for funding especially for items that had not been covered in the project budget. In particular, the members of the local management committee were trained how to develop business plans for development. Despite the above successes, telecentre staff still had difficulties in understanding and retrieving and repackaging information from the web. The expertise in repackaging is still limited. For instance, Telecentre staff lack translation skills from English into Luganda.

The project trained the extension staff particularly those with a training background in agriculture and on extension work. They participated in the sensitisation of farmers through meetings and out reach programmes all emphasising improved farming systems. However, effective extension work has been undermined by financial problems. The EDAI project design did not have a vote for transport of extension workers.

Sustainability of Project Activities

Sustainability of project activities will largely depend on the continued operation of the 3 MCTs. As project implementation drew to close, stakeholders including the National Acacia Advisory Committee and IDRC decided to hand over the management of telecentres to local council in case of Nabweru and Buwama, and the District Administration in case of Nakaseke. At the time of this evaluation Memorandum of Understanding (MoU) had been signed between UNCST and respective LC III of Nabweru and Buwama to operate the telecentres on behalf of UNCST. However, the capacity of the LMC and LCIII council in terms of the necessary skills/expertise to manage these centres is limited, besides there seems to be a loose working relationship between LMC and LCIII over who the rightful owner of the telecentres is.

Community participation as reflected by paying for the information by users is very critical in the sustenance of telecentre activities and by implication the activities started by the EDAI project. However, community participation was being undermined by the limited capacity of large sections of members to appreciate ICTs coupled with low incomes to enable them pay for services. Of those who paid for agricultural information, a half (51%) were spending between 1000 and 5000 shilling on agricultural related information, which is an encouraging figure, by rural area standards.

Lack of adequate facilitation to the extension staff resulting into inadequate extension work to raise awareness of the EDAI project and telecentres fanned the perception that telecentres are for the community and therefore the services offered are supposed to be free. The local leaders were also reported to be using their political positions to demand for free services from the telecentre. Thus, the collection of revenue was undermined and payment for some of the services proved difficult, most especially the Internet. At the time of this evaluation, all the Internet services were not in place for this basic reason.

Conclusions

One of the important conclusions this evaluation makes is that EDAI succeeded in developing and repackaging local content material. The project therefore made progress in raising awareness levels on the need for agricultural information. It succeeded in developing local content and demonstrating that indigenous knowledge can be valuable in agricultural improvement. Apart from translating content developed into the local language-Luganda, the project ensured access to agricultural information by developing and maintaining a website (www.agricinfo.or.ug) containing information repackaged by the project. The access of information is, however, yet to be translated into meaningful increased agricultural production due to lack of provision of tangible farming ingredients.

Lessons Learnt

Challenges and Opportunities:
A project that implements activities through existing telecentres is faced with both challenges and opportunities, which provide critical lessons to learn from. It poses challenges in the sense that project implementation can fall victim of existing managerial squabbles at the telecentre, and hence constraining smooth implementation of project activities. Similarly, a project is often viewed by the telecentre staff and extension workers as a source of allowances or cash top-ups as they regard project work independent from their normal schedules.

The opportunities, however, that accrue from such a project if well implemented rotate around cost-effectiveness of the project and possibilities of sustainability. It is cost-effective in the sense that there is existing infrastructure; premises and personnel. Indeed, although the future of the telecentres is not entirely clear, it is hoped that Local Council III and the District with UNCST monitoring the operations, the activities started under the EDAI project will likely continue.

Integrated package
Providing agricultural related information to farming communities is very important, but does not seem to be enough if the beneficiaries of the information are constrained to put such information into practice. Farmers needed high yielding seeds/seedling and other farming inputs. Although budget consideration might not allow this to happen, it still remains critical to mobilise institutions that can provide the "missing link" in the project. Alternatively, the project should have a component of practical demonstration.

Establishing satellite

One of the reasons farmers do not use telecentres is due to the distance involved and the costs including time spent to access the information at one central point. To overcome this problem, a lesson can be learnt from Nakaseke, which established satellite centres, thus taking information services nearer to the people.

Replication

Delivery of electronic information through the telecentres could be replicated in other communities in Uganda with some alterations drawing lesson from the EDAI project. It is a very practical and easy way of accessing information to rural farming communities.

Monitoring and Evaluation

The monitoring and supervision by the centre is pivotal. It ought to be strong for administrative purposes, management and implementation of the project activities. It ensures effective accountability of the telecentre resources, work schedules, client statistics and service usage/delivery. The evaluation systems should be participatory, formative and easily implemented

Follow up, monitoring and evaluation

There was minimal follow up on the utility of information disseminated to agricultural communities mainly because extension work was under funded. Projects intending to benefit rural communities should consider extension work an integral part of their design in terms of not only building capacity through training, but practical facilitation.

Local Government Involvement

Although local governments at LC III were very much involved in the project, this involvement did not transcend up to the district level. The district headquarters were not involved at all, or if they did there was very little involvement especially for Mpigi and Wakiso. This posses a threat on the sustainability and the independence of the telecentres without the involvement of the district local involvement

1.0   INTRODUCTION

1.1   Introduction

This end of term evaluation of the "Electronic Delivery of Agricultural Information (EDAI) to Rural Communities in Uganda" project was commissioned by the National Agricultural Research Organisation (NARO) in November 2002. The study was carried out in the project area of Luwero, Mpigi and Wakiso Districts to make an assessment of the project's impact on the rural farming communities in terms of accessibility to agricultural information. This Section presents the background to this evaluation, the objectives of the EDAI project, objectives of this end term evaluation and the methodology that was applied to carry out this study.

1.2   Background to the Evaluation

The National Agricultural Research organization (NARO) received funding from the International Development Research Centre (IDRC) to implement the project "Electronic Delivery of Agricultural Information to Rural Communities in Uganda". NARO implemented the project in collaboration with the Centres for Applied Biosciences International (CABI) and other national institutions. The project started in August 2000 and officially ended in December 2002.

The overall objective of the project was to improve access to agricultural information by rural communities through use of traditional and modern Information Communication Technologies (ICTs) to increase agricultural production. On the basis of the needs assessment i.e., baseline study (NARO, 2001), the project acquired and developed local agricultural information for dissemination to rural communities, groups, NGOs/CBOs, extension service delivery agencies in Mpigi, Luwero and Wakiso districts.

A baseline study that analyzed the information needs of the farming communities was carried out and completed in February 2001. The study assessed:
- Agricultural information needs and priorities
- Communication needs, preferences and training needs
- Community resources, attitudes and knowledge
- Identified groups and institutions working in agriculture and those involved in repackaging

During the implementation of the project, a mid-term evaluation was conducted to review the project with the objectives to:
- To evaluate performance of the project in the first year
- Verify degree of use of project outputs
- Identify possible way forward in improving the project outputs and services
- Lessons learnt that can be used to improve the telecentres and service delivery

After two years of project implementation, the end of term evaluation/impact assessment was commissioned as one of final activities in the cycle of the project to analyse the extent to which the project objectives were realised.

1.3   Project Objectives

The overall objective of the project was to improve access to agricultural information by rural communities, groups, NGOs/CBOs, extension service delivery agencies in Mpigi, Luwero and Wakiso districts. The specific objectives of the project were:

- To identify information needs and assess ICT preference of the grassroots communities around the telecentres
- To identify, acquire and repackage agricultural information, result results and IK from Local and external sources in appropriate formats and languages
- To strengthen agricultural information systems and services available in ARIS and establish information in the telecentres
- To disseminate agricultural related information at the telecentres at cost sharing basis and to examine the electronic delivery options
- To build capacity of the local communities
- To establish a sustainable business model for agricultural information products and services
- To undertake continuos monitoring, mid term evaluation and impact assessment of the pilot project and to disseminate the results

Information plays a vital role in development, the challenge however is to demonstrate the impact of the Electronic Delivery of Agricultural Information to Rural Communities in Uganda project so that in future resources could be devoted to creating, managing and disseminating information. To this end, this evaluation was envisaged to contribute towards better future project planning and management of similar projects.

1.4   Objectives of the Evaluation /Terms of Reference

The evaluation sought to establish the impact and value of using ICTs in delivering agricultural information to the grassroots communities in the project area and the changes that the project brought to the communities, stakeholders and specific target groups. Specifically, the evaluation assessed the impact of the project under the following themes as contained in the terms of reference:

- Improving accessibility to agricultural information through use of ICTs
- Building capacity (skills) of the local communities to manage and disseminate agricultural information to the grassroots to the communities
- Building agricultural information resources (content) at ARIS and at the 3 telecentres
- Disseminating agricultural information to the communities for better farming
- Building sustainable information services at the telecentres
- Sustainability of the project activities and lessons learnt in managing and dissemination of information from the telecentres

1.5   Methodology

A methodology utilising both quantitative and qualitative techniques was applied in carrying out this study. The quantitative design helped generate statistical data from which inferences on the impact/value of the project on communities in the target area were made. Qualitative data enabled a deeper insight into issues under investigation and was a source of corroborating data to support findings based on quantitative data.

1.5.1   Study Area
The study was carried out in 36 villages/ LC 1s selected from 13 parishes in 4 sub counties and 3 districts of Luwero, Mpigi and Wakiso. Table 1 gives the details.

Table.1: The Study Area

District	Sub county	Parish	Village/LC1
Luwero	Nakaseke	Nakeseke	Kitanswa, Namirali & Nakaseke Ssasa
		Mifunya	Mifunya, Butayunga & Kikwata
		Kigege	Buggala, Kiboga & Kigege
	Kasagombe	Bulyake	Bulyake & Namsunju
		Bukuuku	Timuna & Kasagombe
		Ssakabusolo	Nabenga & Ssakabusolo
Mpigi	Buwama	Bongole	Bongole, Mitala Maria and Nyondo
		Mbizinya	Buwama A & B & Mbizinnya
		Ssango	Kayanja, Ssago & Buwanda
Wakiso	Nabweru	Kawanda	Nkokonjeru, Kirinyabingo & Kawanda Central
		Kaso Nabweru	Nabweru North, Nabweru South & Kazo Muganzi Lwaza
		Nansana	Nansana East, Nansana West & Nansana 718
		Wamala	Wamala, Katoke A & Katoke B

1.5.2 Study Population and Sample

The evaluation adopted the household as its basic sampling unit from which one adult member was interviewed. A total of 978 farming households were covered by this study. These households were selected using a systematic sampling design. In total, the evaluation team interviewed a total of 978 community members; 604 (61.8%) and 374 (38.2%) female and male respondents respectively. Details of the socio-demographic characteristics of the respondents are shown in Section 2.0.

1.5.3 Data Collection

The study collected both quantitative and qualitative data. Quantitative data were collected through personal interviewing using a structured questionnaire that was developed in collaboration with NARO and CABI staff. See Appendix 1 for sample questionnaire. The study instrument was pre-tested in Nabweru Sub-county and modified where necessary after which fieldwork commenced. Fieldwork lasted from the last week of November 2002 to the second week of December 2002. A total of 7 Research Assistants with experience in needs assessment studies were oriented to the study including the use of the study instruments and sent to the field under the guidance of the Consultant and 2 Field supervisors.

Qualitative data were collected through in-depth interviews and focus group discussions. In-depth interviews were held with local leaders, telecentre staff, extension staff, and members of the local management committees, Subcounty officials and opinion leaders, groups and representatives of NGOs/CBOs. On the other hand, focus group discussions were held with selected groups of farmers in respective communities. Additional data of secondary nature was collected through review of documents at the telecentres and from NARO.

1.5.4 Data Management

All questionnaires administered to household members were verified, edited and coded. Data were thereafter entered in the computer using EPI-INFO software. Data was then converted into the Statistical Package for the Social Sciences (SPSS) software for further analysis.

Qualitative data were analysed along the themes, which were derived from the study objectives. Pertinent verbatim quotations were isolated to be utilised in the text to augment the analysis of qualitative data.

1.6   Organization of the Report

The rest of this report is organized under 4 major sections containing the findings of this end of term evaluation and 1 section on conclusion and lessons learnt. Section 2.0 presents an overview of the activities that were implemented during the life span of the project. The section also presents the socio-economic profile of the household respondents covered by this evaluation.   Section 3.0 examines the accessibility and dissemination of agricultural information by EDAI to farming communities in the project area. Section 4.0 focuses on the extent the project contributed to building capacity of local communities, while section 5.0 examines sustainability issues of the activities started and implemented under the EDAI project using telecentres as conduits for disseminating the information. The final section (i.e., 6.0) draws the conclusions and lessons learnt from implementing the EDAI project in rural farming communities.

2.0   EDAI PROJECT ACTIVITIES AND PROFILE OF THE SAMPLED RESPONDENTS

2.1   Introduction

In order to appreciate the findings of this impact assessment, this Section presents the EDAI project activities upon which the evaluation is based and, the basic socio-demographic characteristics of the 978 respondents who were covered by the study.

2.2   Project Activities

2.2.1   Information Needs Assessment
The needs assessment study was commissioned in October 2000 by NARO, to identify the actual needs of the potential rural information users. The study was successfully carried out, and made the assessment of the following:
- Agricultural information needs and priorities
- Communication needs, preferences and training needs
- Community resources, attitudes and knowledge
- Identified groups and institutions working in agriculture and those involved in repackaging

2.2.2   Local Content Development and Repackaging
Following the results of needs assessment study, information was identified and repackaged by team of experts from Agricultural Research Information Service (ARIS), Research Extension and Liaison Unit (RELU) of NARO and the Agriculture Communication Centre of the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) and CABI. The specific activities included:
- Developing an inventory of information, research results, indigenous knowledge from various established sources
- Acquiring and adapting materials related to video, films, slides, posters, leaflets and internet searches
- Training extension staff, telecentre staff, farmer associations and subject matter specialists in information repackaging
- Conducting practical information repackaging workshops and developing local content by diverse groups in a participatory manner and translating the information into the local language
- Developing databases and directories including CD-ROMs on sources of agricultural information in relation to farmers' needs
- Developing and maintaining a website (www.agricinfo.or.ug) containing information repackaged by the project

2.2.3   Strengthening Resource at ARIS and the 3 Telecentres
Key activities under this component included:
- Strengthening/improving information management amongst the CBOs through establishment of records, their relevance, usability, data base management and storage of information
- Facilitating CBOs to get access to required information as indicated in the needs assessment, generate demand for such information through sensitisation and awareness on the information available and means of access of such information, dissemination using the appropriate type of information
- Enhancing networking and dialogue amongst CBOs and creation of a system of exchange of information and practices

- Effective documentation of the profiles of the CBO in terms of the progress, challenges through monthly reports

2.2.4 Rural Library Pilot Project

It is a pilot project targeting all the community members with liaison from the local government and other stakeholders. In terms of information needs, the project established the information needs of the communities as education, health and employment.

2.2.5 Dissemination of Agricultural Information

Under this objective, agricultural information was disseminated through:
- Radio programmes
- Video/Television
- Print material (leaflets, posters, training manuals)
- Website (www.agricinfo.or.ug) containing information repackaged
- Market information surveillance
- Question and answer services through e-mail, discussion lists. This helped to identify users needs, identify & collect information, carrying out on-line and off-line searches on major relevant databases, analysing and validating information, dissemination, promotion of utilisation of the services and evaluation of the service

2.2.6 Capacity Building

ToT workshops in use and application of ICTs, information retrieval techniques, business management was conducted for the local communities to build capacity and provide additional skills to ARIS staff in information repackaging and retrieval. The training covered the following areas:
- Information retrieval workshops for techniques, use/application of ICTs
- Information repackaging workshops
- Website design and Internet management

2.2.7 Establishment of Business Models

A business model was established through training of trainers in development of the business plan for information services and products at the telecentres. This aimed at making the telecentre sustainable. Business plans were developed for ARIS and the three Telecentres for cost of products and services. It established a sustainable business plan for agricultural information services and built capacity of the telecentre management and staff through business planning and management.

2.3 Profile of the Sampled Respondents

The basic characteristics of the respondents that were deemed to help in appreciating the impact of the project included location, sex, age, education and occupation. Table 2 summarises the data of the respondent's characteristics.

Table 2: Selected Sample Socio-Demographic Characteristics

Characteristic	Frequency (N=978)	
	%	n
District		
Luwero	37.1	363
Mpigi	25.5	249
Wakiso	37.4	366
Sub County		
Buwama	26.9	263
Nabweru	36.0	352
Nakaseke	27.5	269
Kasangombe	9.6	94
Sex		
Female	61.8	604
Male	38.2	374
Age (Years)		
< 15	1.8	18
15 – 24	13.1	128
25 – 34	21.1	206
35 – 44	27.0	264
45 – 54	19.2	188
55 +	17.8	174
Educational Level		
Never attended formal school	1.2	10
P 1-3	7.8	64
P 4-5	13.3	109
P 6-7	30.4	249
S 1-4	31.6	259
S 5-6	7.8	64
Post Secondary	7.8	64 (N= 819)
Occupation		
Peasant Farmer	74.6	729
Large Scale Farmer	4.6	45
Trader	7.0	68
Salaried worker	5.5	54
Student	4.0	39
Others	4.3	42 (N= 977)

In this end of term evaluation as shown in the above Table, more female respondents (61.8%) were captured in the sample compared to male respondents (38.2%). By implication, the sample largely comprised of community members who directly participated in agricultural activities. For, in rural areas agricultural tasks tend to be a predominant domain of females.

Coupled with the above is that majority of the respondents reached by this evaluation were farmers (i.e., close to 80.0%). The study therefore captured the target population of the beneficiaries i.e., households involved in farming. Respondents who indicated their major respective occupations as non-farming were mainly in Nabweru, Wakiso district, which is a peri-urban area. However, although such respondents were not very much involved in farming, the households they represented were largely farming households.

With regard to education of respondents, it has to be pointed out that the level of education of potential beneficiaries can among others, influence the success of using modern ICTs as

source of information. The level of education and particularly the ability to read bears on information reception and understanding. In this study, a negligible proportion (1.2%) indicated that they had not attained any level of education. Given this finding it can be assumed that majority of the target population could at least read information delivered in the local language i.e., Luganda.

It should also be noted that majority of the respondents could be categorised as able-bodied as they fell in age range of 15 – 44 years old. Such a population if accessed agricultural related information would be in position to translate the information received into agricultural production for the betterment of their lives.

## 3.0   ACCESSIBILITY AND DISSEMINATION OF AGRICULTURAL INFORMATION

3.1   Introduction

One of the objectives of the "Electronic Delivery of Agricultural Information to Rural Communities in Uganda" (EDAI) project was to increase accessibility to agricultural information to grassroot communities in Buwama, Nakaseke and Nabweru and surrounding areas. The information, which was developed and packaged was supposed to be disseminated through appropriate and preferred means as identified in needs assessment. It is in this respect that this impact study as contained in the ToR aimed at analysing the extent to which the project contributed to improve accessibility to agricultural information through the use of ICTs. This Section therefore presents the findings on the impact of the project vis-à-vis accessibility to agricultural information and its dissemination.

3.2   Accessibility to Agricultural Information

To assess the impact of the project in relation to improved agricultural information, farmers in the project area were asked whether they had received any agricultural related information in the last 1-2 years (up to the time of the evaluation). Overall, a big proportion (79%) of the respondents affirmed generally that they had received agricultural information. Figure 1 is a graphical representation of the findings on accessibility to agricultural information in the entire project area.

Figure.1: Whether Received Agricultural-related Information 2000-2002
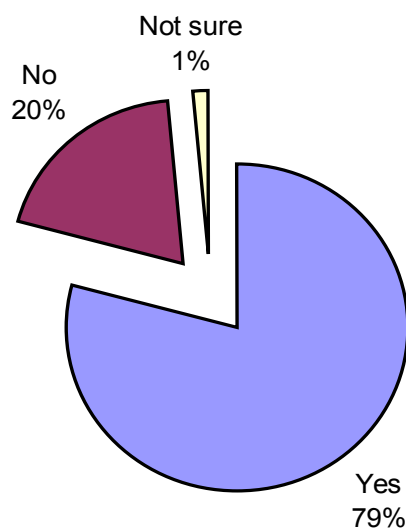
Of critical importance in this study was to investigate whether farmers got information, which they needed most. It should be noted that at the commencement of the project, farmers in the project area were asked during the baseline (NARO, 2001) the kind of agricultural information that they needed most to carry out agricultural activities. It was the purpose of this impact study to unravel the extent to which the project contributed towards accessing the farmers the needed information. Farmers were asked the kind of agricultural related information they had received in view of what they had expressed at baseline. Farmers' responses were classified in three tiers either as 'yes unprompted' when there was a

spontaneous answer, 'yes prompted' when the answer option was read out to the respondent; and 'no' where the respondent insisted that he/she never received that kind of information even when the answer option was read out. The results are presented in Table 3.

Table 3: Agricultural Information Needed at Baseline and that Received at Evaluation

Agricultural Information Needed and Received	Frequency %					
	Yes Unprompted		Yes Prompted		No	
	2000*	**2002****	*2000**	**2002****	*2000*	**2002**
High yielding or improved seed and crop varieties	*64.4*	53.3	*32.5*	24.0	*3.1*	20.7
Improved livestock breeds	*28.8*	30.2	*58.6*	24.4	*12.5*	45.4
Improved farming husbandry skills	*28.2*	16.3	*59.8*	36.9	*12.0*	46.7
Fish farming	*9.9*	3.5	*25.8*	8.4	*64.3*	88.1
Farming systems	*39.4*	22.3	*52.9*	38.6	*7.7*	39.0
Processing of agricultural products	*21.7*	11.1	*55.5*	19.7	*22.8*	69.3
Food processing	*21.3*	6.4	*55.5*	23.3	*23.2*	70.2
Post-harvest handling and storage	*19.8*	20.3	*67.4*	34.9	*12.8*	44.8
Marketing/Prices	*33.2*	19.8	*58.5*	31.4	*8.3*	48.8
Fertilisers/manure	*45.5*	53.3	*49.8*	31.4	*4.8*	15.3
Inputs	*34.4*	17.5	*55.3*	40.8	*10.3*	41.7
Agricultural implements/machinery	*19.4*	3.9	*55.5*	17.0	*23.1*	79.2
Early warning/weather/climate/pests	*28.5*	8.0	*63.0*	29.3	*8.5*	62.6
Water harvesting and irrigation	*12.9*	8.4	*60.0*	29.7	*27.1*	61.8
Credit Sources	*32.7*	9.0	*47.3*	27.5	*20.0*	63.4
Agricultural research institutions	*17.6*	4.1	*63.4*	18.3	*19.0*	77.5
Training institutions	*17.6*	3.4	*62.5*	16.1	*19.9*	80.5
Agri-business/project/enterprise development and management	*16.9*	8.1	*62.7*	24.7	*20.5*	67.2
Plant diseases, Pests and their control	*53.9*	41.7	*42.9*	38.4	*3.2*	19.9
Animal Health (treatment)	*31.6*	27.1	*56.5*	30.0	*11.9*	42.9
Animal Housing	*25.9*	25.1	*58.1*	26.5	*16.0*	48.3
Animal feeds	*28.2*	24.0	*56.8*	36.4	*15.0*	39.6
Zero-grazing	*25.9*	25.3	*53.2*	32.3	*20.9*	42.4
Soil types and uses	*28.2*	12.2	*62.0*	31.7	*9.8*	56.1
Soil management and conservation	*30.4*	14.8	*59.3*	47.0	*10.3*	38.2
Agro-forestry	*9.7*	5.8	*51.6*	25.0	*38.7*	69.2
Plantation forestry management	*7.3*	4.5	*35.3*	18.9	*57.4*	76.6

* Farmers that needed the particular information before EDAI project started
** Farmers that received the information needed at evaluation time i.e., end of project

The findings of this impact study presented in Table 3 show progress by the project in accessing the needed information to farmers in the 3 districts. This progress should be appreciated and understood in the context of the short time that the project was implemented (2 years). At this progress, if the activities implemented during the project time were to be sustained by local communities and national institutions, many more farmers are likely to access agricultural related information to enhance their production.

According to this evaluation, the agricultural related information mostly needed by the farmers as expressed during the needs assessment, and which relatively big numbers accessed was information on:

- High yielding or improved seed and crop varieties
- Fertilizers/manure
- Plant diseases, pests and their control
- Improved livestock breeds
- Animal health

Thus, a closer look at the type of information mostly accessed shows that it was mainly connected to improving yields either through planting high yielding seeds, controlling pests and diseases or improving soil fertility. Thus communities were more likely preoccupied with increased productivity which also may have influenced information type received.

3.3   Means of Information Dissemination and Delivery

The study investigated the means used for delivery of the agricultural information needed by the agricultural communities in the study area. Overall, the findings of this evaluation revealed that means of information dissemination through which farmers received information were interpersonal. See Table 4 below.

Table 4: Means of Information Delivery

Means of Delivery	(%)	Frequency N=978
Question and answer service	53.1	519
Agricultural resource centre	18.1	177
Information searches	12.4	121
E-mail service	0.6	6
Internet service	0.9	9
Telephone	1.5	15
Fax	0.2	2
Radio	69.2	677
TV	9.0	88
Audio Tapes	0.1	1
Photocopying	1.3	13
Notice Board	1.9	19
Project Website	0.2	2
Video	7.9	77
In Person	67.4	659
Satellite sites	0.7	7
Outreach activities	41.0	401

Multiple responses were allowed

Findings as presented in Table 4 indicate that most of the agricultural related information was delivered through radio, interpersonal, question and answer service (Q&A) and outreach activities in that order of importance. Q&A service was reported the most appropriate method of disseminating information due to clarity and convenience/ease since farmers were given time to ask questions on any issue of importance.

On the other hand, it is clear in the above Table that farmers who personally accessed agricultural related information using modern ICTs such as Internet, e-mail and project

website were remarkably few. This points to major challenges of delivering information through modern electronic means to rural communities where such facilities are still unknown by many or considered foreign and lack of basic skills and knowledge among potential users to utilize such facilities.

Nonetheless, a quick impression of the above pattern of dissemination of information shows that information was delivered to communities through the cheapest means on the part of the recipient. The proliferation of the use of FM radio communication in the country as a means of information delivery was an opportunity the EDAI project seized which partly contributed to the high score of radio as a medium of communication for agricultural related information. Other means of information delivery which, scored highly required minimum effort especially in terms of travel/movement by the recipient to the source of information. The same pattern of cost influenced behaviour was also reflected in respondents' answer to the question on the means of information delivery that they had benefited most. Table 5 presents the findings.

Table 5: Means of Information Dissemination from which Respondents benefited most

Means of Delivery	Order of Importance/Ranking				
	1st %	2nd %	3rd %	4th %	5th %
Question and answer service	53.7	18.0	12.1	11.9	4.2
Agricultural resource centre	16.7	18.4	11.5	21.8	31.6
Information searches	13.0	18.2	19.5	27.3	22.1
E-mail service	25.0	25.0	50.0	0.0	0.0
Internet service	12.5	12.5	12.5	62.5	0.0
Telephone	15.4	15.4	61.5	7.7	0.0
Fax	0.0	33.3	66.7	0.0	0.0
Radio	24.3	31.9	32.5	7.6	3.6
TV	11.3	22.5	27.5	23.8	15.0
Audio Tapes	0.0	100	0.0	0.0	0.0
Photocopying	0.0	20.0	20.0	30.0	30.0
Notice Board	0.0	10.0	10.0	60.0	20.0
Project Website	0.0	0.0	33.3	33.3	33.3
Video	1.6	23.8	36.5	23.8	14.3
Interpersonal	36.7	39.2	17.6	4.3	2.2
Satellite sites	26.7	26.7	13.3	20.0	13.3
Outreach activities	24.9	27.8	21.5	22.3	3.4

Dissemination of agricultural information through question and answer method was ranked highest in terms benefiting the farmers.

Analysis of data confirmed that farmers throughout the project area used cost-effective methods like using fellow farmers to acquire agricultural information. Information, which was, delivered orally/audio had high coverage rate, which could be, explained by the fact that most of that information whether on radio or audiocassettes, was transmitted in the local and commonly used/widely spoken Luganda language. Posters/notice boards were also reported appropriate by most of the telecentre staff due to their easy delivery and display though limited by the language used in their production. However, some farmers reported lack of radios and difficulty in timing specific programmes yet this was one most appropriate methods of agricultural information dissemination.

3.3   Accessibility to Information Resources at Telecentres

3.3.1   Awareness and utilisation of telecentres by farmers
According to the design of the project, EDAI was meant to develop content while the 3 telecentres disseminated the information. The Telecentres offer a multiple services, which include the following:

- Telecommunication services-telephone, fax, e-mail
- Business services- photocopying, printing, access to computers
- Library services-access to reading material
- Access to visual and audio visual services
- Book lending services
- Book box
- Computer training
- Developing services

Given the multiple services provided by the telecentres, the EDAI project aimed at accessing agricultural information to rural farmers via some of the above facilities at the telecentres. Thus, in its two-year implementation period, the EDAI project disseminated agricultural information under the following themes through the telecentres:

- Agriculture in General
- Education Extension and Information
- Administration and Regulation
- Economics, Development and Rural Sociology
- Plant Science and Production
- Plant Protection
- Post-harvest Technology
- Forestry
- Animal Science, Production and Protection
- Fisheries and Aquaculture
- Agricultural Machinery
- Natural Resources and Environment
- Processing of Agricultural products
- Human Nutrition
- Biotechnology
- Methodology

With regard to awareness and actual utilisation of the telecentres by farmers, the study findings revealed that majority of the farmers (71.0%) were aware of the telecentres, although slightly than a half of the respondents (49.2%) had ever used services offered at the telecentres. On what respondents knew about the telecentres, over a half of the respondents (51.7%) noted that they were a source of information on agriculture, while 28.2% reported computer training. On the other hand, very few respondents cited functions rendered at telecentres such as e-mail services (0.7%) and Internet services (0.9%).

On the actual services obtained at the telecentres, most respondents indicated attending workshops or seminars (55.4%). See Table 6 for more details.

Table 6: Reported services obtained at the telecentres by farmers

Service*	Respondents	
	%	n
Workshop/seminars	55.4	185
Information	45.2	151
Communication (telephone, e-mail, Internet)	33.5	112
Photocopying	24.0	80
Training	20.1	67
Leisure	11.4	38
Library facilities	5.4	18

*   *Multiple answers allowed*

Apart from workshops/seminars through which study participants obtained information at the telecentres, a relatively high number indicated that they obtained information at the telecentres especially information on posters displayed at notice boards. Regarding communication, farmers visited the telecentres to make telephone calls, but not necessarily for agricultural information, but often-personal calls. In light of this, it was the intent of this evaluation to examine the kind of information received at the telecentre as well as satellite centres in Nakaseke. Of the respondents who had got information from the telecentre, most had obtained information on plant diseases, manure and high yielding or improved seeds. See Table 7.

Table 7: Kind of Information Received at the Telecentre/Satellites

Information Received	Yes Unprompted %	Yes Prompted %	None %
High yielding or improved seed and crop varieties	55.9	27.6	16.5
Plant diseases, pests/other control	59.6	30.5	9.9
Fertilisers/manure	59.5	30.5	10.5
Animal Health (treatment)	32.6	32.1	35.3
Farming systems	26.4	37.5	36.1
Improved livestock	25.6	30.9	43.5
Soil management and conservation	19.5	48.8	31.7
Marketing/Prices	19.4	30.1	50.5
Soil types and uses	13.8	28.0	58.2
Inputs	17.9	38.1	44.0
Sources of Credit	12.8	31.4	55.8
Animal Housing	23.4	31.0	45.5
Early warning/weather/climate	10.7	30.8	58.4
Zero-grazing	26.8	28.7	44.5
Post-harvest handling and storage, pest control/technology	18.7	36.0	45.3
Agricultural implements	4.4	23.4	72.2
Processing of agricultural products	9.7	22.2	68.1
Food Processing	7.0	23.4	69.6
Agri-business	9.2	26.0	64.7
Water harvesting and irrigation	8.7	30.7	60.6
Agro-forestry	5.9	25.1	69.0
Plantation forest management	4.7	19.5	75.8
Fish farming	2.7	13.0	84.3
Agricultural research institutions	4.0	16.9	79.2
Others	0.9	8.0	91.1

On the basis of the needs assessment, it can be noticed that most of the farmers who had utilised the telecentres had received the needed information on plant diseases, pests and control, fertilisers/manure and high yielding or improved seed and crop varieties.

Apart from the main telecentres, in Luwero Nakaseke telecentre has 13 satellites, which provide mainly library services, and some computer lessons. The satellite initiative is a form of extension work since they are located right in the villages where the majority of the users are located. Because of their location, their utility was reportedly higher than the main telecentre as users did not have to walk long distances to the satellites.

In all, some farmers indicated that they were applying modern agricultural practices and technologies as a result of the information received. What is, however, clear is that most farmers in the project area were yet to use services provided at the telecentre due to certain constraints.

3.3.2 Constraints in using telecentres as sources of agricultural information

Since the EDAI project used telecentres to disseminate agricultural related information, this aimed at examining the constraints farmers faced in accessing the services at the telecentres.

These constraints ranged from distance, technicality of the information, breaking down of the facility, and generally telecentres being a new concept.

Distance

Among the constraints faced study respondents in accessing information from telecentres was the distance factor. In Nakaseke on key informant summarised the distance factor as:

> *Only those community members living near Nakaseke telecentre have benefited i.e., learnt how to use the ICTs to get agricultural information* **(Female member of Zinnunula Farmers' Group (a CBO) in Nakaseke Sub County).**

The quotation emphasises the importance of distance in accessing information. From the quantitative data, as shown in Figure 2, a relatively high number of users (28.6%) reported to be travelling more than five kilometres to the nearest telecentre.

Figure 2: Distance to Nearest Telecentre

	<1km	1-2km	3-4km	5+km
Distance	20	24.7	26.7	28.6
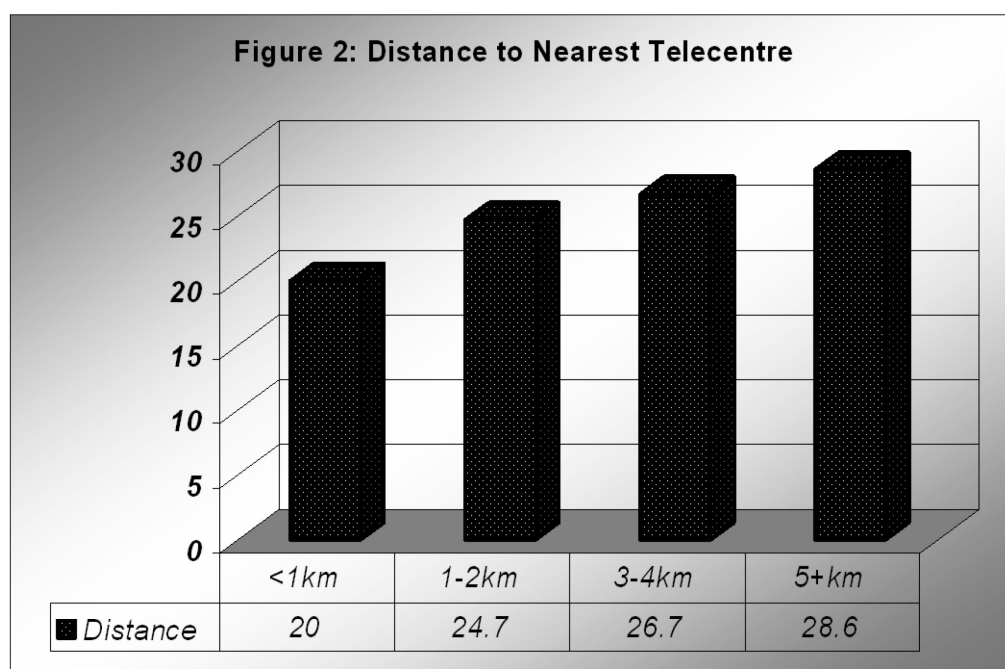
By locality, as Table 8 shows most community members in Buwama covered long distances of five and above kilometres to the nearest telecentre. Comparatively, community members in Nakaseke have a lesser problem of distance, which can be attributed to the successful implementation of the satellite telecentre initiative.

Table 8: Distance to Nearest Telecentre by Locality

Distance to Nearest Telecentre	Locality		
	Buwama %	Nabweru %	Nakaseke %
<1km	25.8	13.3	20.6
1-2km	31.7	22.3	21.9
3-4km	2.4	35.1	30.4
5+km	30.1	29.3	27.1

The Nakaseke telecentre managed to open up to the community by setting up 13 satellite telecentres each of, which is equipped with a library, thus reducing the distance covered to information sources. If we bear in mind that bicycles are a key mode of transport in rural Uganda and that the majority of women (who constitute 80% of agricultural labour force in Uganda) do not know how to ride let alone own a bicycle, distance becomes a critical issue for projects/policies designed to increase accessibility of rural communities to agricultural information.

The greater the distance the more the time spent on searching for agricultural information, which means a lot of productive time is lost especially for women. Thus distance becomes a relevant excuse for many not visiting the telecentres to look for agricultural information and is partly interpreted as lack of time. Lack of time and cost were also hindering factors reported by study respondents for not using telecentres.

Information costs
Costs of information involves money spent on transport including hiring a bicycle, a motor cycle, photocopying, contributing money for cassettes for recording information, buying radio batteries and paying for video shows. A comparison of estimated daily expenditure for study respondents for 2000/2001 baseline survey and this evaluation, revealed a 5% increase in the number of respondents with a daily expenditure of between 500 and 1000 shillings from 24.9% in 2000/2001 to 30.1% at the time of the evaluation. Whether this is an indicator of increase in savings (and a cut on expenditure) or a reduction in disposable income with corresponding loss of purchasing power, it highlights one of the difficulties that lie ahead of project sustainability for the project activities (most do) which require recurrent budget financing. Under the above financial conditions, tangible benefits from the project will act as an inducement for sustainable demand for information.

Technicalities
When it comes to accessing of information on computers-internet or using e-mail services, issues of technical nature arise and pose big challenges. While some of such information is too technical, the other may be in simple and plain English but not easy enough for most rural communities. Moreover, such communities are not yet free with modern ICTs like computers and the internet or e-mail to effectively utilise them to access valuable agricultural related information.

Telecentre: a new concept
Telecentres and the whole concept of ICTs are a new technology, which need a new culture that values information. To support growth of such a culture concerted efforts have to be devoted to extension work and further building capacities of users to apply modern ICTs.

Language of Communication
The project endeavoured to translate all the content material developed from English into Luganda, which is the local language of the inhabitants in the project area. Despite all this effort there are certain concepts that cannot be easily translated into vernacular. However, the language factor did not pose big challenge, for as shown in Figure 3 majority of the farmers affirmed that Luganda was the language of information delivery, which they very comfortable with.

Figure 3: Language of Communication
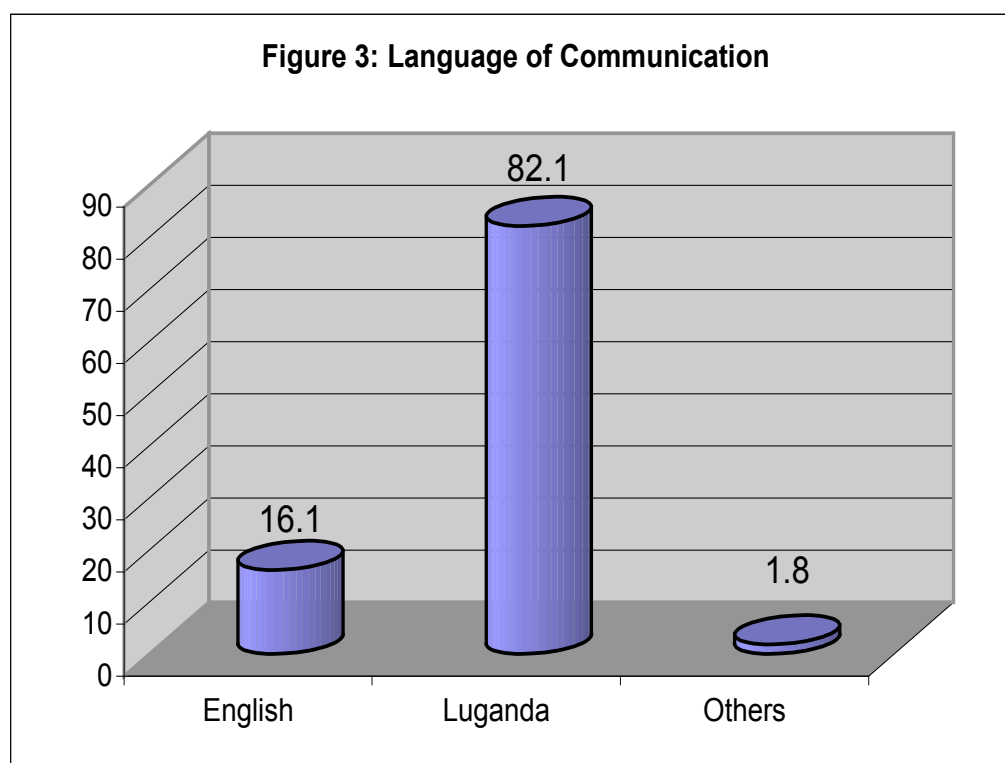
Earlier in this report it was indicated that the language used to disseminate agricultural information might have influenced the high coverage rate of audio/oral based information. Uganda uses English both as an official and national language, a language that is less understood by the majority of rural communities in the country. In central Uganda where EDAI was implemented, Luganda is the widely spoken and most understood language. Thus, almost all the study respondents (98.3%) noted that they understood the language used to disseminate the agricultural information they received.

3.4   Impact /Value of Information Disseminated to Agricultural Communities

The goal of developing local content and disseminating the packaged information was to increase agricultural production in the project area. It is pertinent in a project of this nature that beneficiaries of the project activities are in position to translate the received information into better agricultural practices, which in turn would contribute towards increased productivity. This study therefore attempted to analyse the impact of the disseminated information on the farming communities that comprised the project area. The impact was analyzed on the basis of changes in the type of crops grown and animals kept, the farming methods, annual farm yield/output, application of modern agricultural practices and the type of problems farmers faced during project implementation vis-à-vis those reported at baseline.

3.4.1   Changes in the type of crop grown and animals kept
Farmers in general reported to have acquired knowledge in the aspects of new crop varieties such as colonal coffee, vanilla and new banana varieties, which they had started growing, leading to increased production in the area. In places such as Nakaseke, farmers had started growing cocoa, adopting zero grazing, and other methods of improved farming – making compost manure locally, using improved seed varieties, proper spacing for the crops and practising mulching of the plots/soil management. Specifically, farmers were asked whether there were changes in type of crops or animals kept in the household in the last two years

prior to this evaluation. The findings revealed that in over a half of the households changes had occurred in the type of crops grown and animals kept. See Figure 4.

Fig 4: Changes in the type of crops grown or animals kept
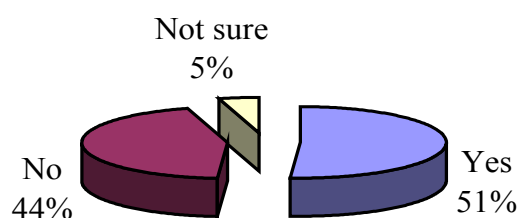
Over a fifth of the respondents (21.4%) attributed the changes in the type of crops grown to increased and improved agricultural knowledge that they were able to obtain/access from the extension workers and telecentre staff, presumably those who had been exposed to training by the EDAI project.

3.4.2   Changes in annual farm yield
Asked whether there were changes in household annual farm yield or output, over a third of the farming households (36.8%) reported high yield/output. This represented an increase from 6.8% at baseline that reported high annual yield/output. See Table 9 for comparative picture.

Table 9: Reported farm yield at baseline and evaluation

Yield	Baseline (2000-01) %	Evaluation (2002) %
High yield/output	6.8	36.8
Average yield/output	41.7	20.3
Low yield/output	51.5	42.9
Total	100.0	100.0

Further analysis of the changes in farm yields (Table 10), revealed that those households that had received agricultural information in the last two years registered an increase in their farm yield/output (41.1%) compared to those that did not receive information (35.8%).

Table 10: Impact of Information on Farm Yields/Output

Changes in annual farm yield/output	Received information in last 2 years		
	Yes %	No %	Not sure %
High yields/output	41.1	8.8	22.2
Average yields/output	23.1	12.7	44.4
Low yields/output	35.8	78.4	33.3

When analysis of increased annual farm output was spread across the study/project area, the peri-urban sub-county of Nabweru ranked highly compared to the other two (Table 10). Farmers in Nabweru have a comparative advantage over the rest of their colleagues because of their proximity to sources of farm in puts, if access to information is held constant. The EDAI project was designed to increase farmers' access to agricultural information whether on improved seeds or zero grazing or raising soil fertility. The project design did not involve provision of tangible benefits like improved seed varieties, heifers for zero grazing or fertilisers. This was left to farmers to 'sort it out'. It therefore follows that availability to the promoted/recommended (through information provided e.g., by telecentres) farm improvement implements affects the extent to which farmers can utilise the information acquired to increase their farm output. See Table 11.

Table 11: Farm Yields/Output by Locality

Changes in annual farm yield/output	Locality		
	Buwama %	Nabweru %	Nakaseke %
High yields/output	24.7	42.8	32.5
Average yields/output	26.4	24.8	33.8
Low yields/output	27.0	26.3	46.7

Agricultural information generated by the project had enabled some farmers to get acquainted with modern methods of farming, which was being translated into increased farm output. The evaluation team met several persons who gave praiseworthy remarks such as:

> *My cow fell sick and I used the telecentre telephone to inform the Veterinary Officer who immediately came and gave it treatment- indeed the telecentre has assisted us. (Male Respondent-Secretary to a CBO, Nakaseke)*

Increase in farm yield or output as a result of accessing agricultural information was echoed in various key informants who were met in this evaluation as one noted:

> *Outreach activities have helped farmers to improve on their methods of farming and if they keep on practicing the knowledge acquired, the production will keep on increasing (Treasurer, Sosolye Farmers Group)*

Apart from the project's impact on the general community, the study attempted to analyse the project's benefits specifically on the youths and women in the project area.

Youth

In most of the project area, the youths noted that they had acquired agricultural knowledge in the growing of crops like tomatoes, maize and watermelon. A few were involved in projects such as fish farming and livestock rearing. Their interest in learning how to use computers has

seen increased number of users in telecentres like Nakaseke. The youth had also acquired additional knowledge through educational films and library books, which contributed to improved performance in schools especially in Nakaseke area.

Women
Reports and observations in the field revealed that women were gaining confidence in starting agricultural based IGAs and organising around such IGAs in groups e.g. Kwegambwa & TEDCO Makanjo in Nabweru. Growing of non-traditional crops and keeping of livestock had increased, e.g. vanilla growing, piggery and poultry among others. Women have entered a new area of commercial vegetable growing including such vegetables as, *Nakati* and eggplants. They use home made manure and get high yields from a small plot. According to a women group in Mbizinya, Buwama, commercial growing of vegetables is a new area for women who previously believed that such vegetables were only sold in urban centres not in the rural areas. Thus group members had learnt how to grow vegetables, which have helped to raise their level of income. In one case in Buwama, women were earning 25000/= from a single garden of vegetables.

There is an indirect benefit to the family and the community just like most other activities women undertake. There is likelihood of improved quality of life- especially a decrease in malnutrition and increased food security as more women get to grow nutritious crops including vegetables as one respondent put it:

> *There is increased use of vegetables for source among members* (**Teli Afuna Tafungiza Women Group- Buwama**)

Since women are entrusted with the task of preparing meals for the family and have to look for food in most cases single-handed, growing of nutritious food boosts the nutritional level of the family and the community in general.

Finally, it has to be pointed out that although farming communities appreciated the agricultural information received, they were, however, of the view that the telecentres/project should have had an element/component of providing material ingredients such as high yielding seeds/seedlings and other inputs that would have enabled the farmers to easily put the acquired knowledge into practice.

4.0   BUILDING CAPACITY OF LOCAL COMMUNITIES

4.1   Introduction

This objective of the project involved equipping telecentre staff, local officials, model farmers, extension staff and CBOs as well as NGOs with information retrieval and repackaging skills. To enable this, ToT workshops in use and application of ICTs, information retrieval techniques, business management was conducted for the local communities for the above categories throughout the project area; this is the focus of this Section.

4.2   Training Workshops

In building capacity of the local communities, the EDAI project trained various categories of persons in the project area. A consultation of the technical reports of the project submitted to IDRC and the consultations held during this evaluation affirmed that the training had been conducted. Table 12 below shows the categories of persons trained and the skills imparted.

Table 12: Workshop Participants the Case of Nabweru Telecentre

Telecentre	Category trained	No trained	Training facilitators	Duration of training	Skills acquired
Nabweru	CBOs	30	Telecentre staff	1 day	Retrieval and processing of information
	NGOs	1	,,	1 day	Retrieval and processing of information
	Farmers	59	,,	1 day	Improved farming techniques
	Local Management Committees	7	,,	3 days	Developing business plans
	Researchers	5	,,	5 days	Retrieval and processing of information
	Extension staff	1	FAO staff ARIS Business management staff		Content development Budgeting Planning
	Telecentre staff	3	,,	9 days	Content development Budgeting Planning Web design

As the above findings indicate, the duration of workshops was rather short for effective learning. For instance, in most cases participants were trained for one day, which would not be adequate to cover all areas of training that would enable the trainees to execute effectively their roles and responsibilities.

4.2.1   Telecentre Staff and Local Management Committees
Telecentre staff and members of local management committee were trained in data base management to basically generate reports about the users using a form that captured such issues as sex of the user, service used, distance from the telecentre, how the user came to

know about the telecentre, level of education etc. The staff and members of management committee were trained also in project planning and management, and how to prepare simple proposals for funding especially for items that had not been covered in the project budget. In particular, the members of the local management committee were trained how to develop business plans for development. Other areas of training included financial management and mobilisation techniques.

The training received was reported to have helped the telecentre staff to execute their roles and responsibilities that included the following:

- Designing of the telecentre programmes
- Co-ordination of the telecentre activities including the funding by the donors through and integrated approach with particular emphasis to the Sub County. This includes co-ordination of projects e.g. in Nabweru there is EDAI, CMC, IK, CD-ROM project and Tele-medicine
- Information officers sensitise the communities and help in the dissemination of information through Video shows
- Monitoring and evaluation of the telecentre activities
- Collect and banking of the money collected from the Telecentre
- Link the LMC and UNCST
- Keep records and design the data base
- Repairing and maintaining of the equipment
- Writing and submitting reports to the project leader of ARIS at Kawanda

With the skills acquired, telecentre staff is able to retrieve and repackage information for farmers and other clients, in Buwama telecentre, staff have demonstrated their knowledge of business models by making business plans and booking keeping. The telecentre in Nakaseke has successfully encouraged users to make contributions to run ICT activities. Users, who are rural farmers, contribute money to hire a generator, buy fuel for it in order to watch TV, video and listen to audio tapes. In other telecentres, users pay for photocopying, phone calls made or e-mails sent.

Despite the above successes, telecentre staff still had difficulties in understanding and retrieving and repackaging information from the web. The expertise in repackaging is still limited. Repackaging of retrieved information involves translation to either Luganda-the local language for majority of the target population- or into English for the benefit of other users including those who are cyber based. Telecentre staff lack such translation skills.

4.2.2 Extension Staff
The project trained the extension staff particularly those with a training background in agriculture and on extension work. Extension staff interviewed by the evaluation team reported that they did their extension work in a generalised approach due to limited resources. They participated in the sensitisation of farmers through meetings and out reach programmes all emphasising improved farming systems. Farmers were trained in modern methods of farming such as soil conservation management practices, spacing, regular maintenance, demonstrations, and compost making and organising field days with the help of repackaged information in videotapes and radios. The extension staff also participated in the repackaging and dissemination of agricultural related information to the farmers.

The extension staff was asked to rate their performance, with specific reasons, training/sensitisation of the farmers as the key role of the extension staff was rated average due to inadequate facilitation both financial and transport. As regards to repackaging roles, it was rated good since most of the relevant information had been repackaged and disseminated

to the farmers, while overall the extension work was rated good due to the professional skills possessed by the extension agents and the increasing number of extension programmes.

However, effective extension work has been undermined by financial problems. The EDAI project design did not have a vote for transport of extension workers. Inefficient and ineffective extension negatively impacts on the sustainability of the EDAI project since it is the extension workers who "take the project to the people" as put by one extension worker met in this evaluation:

> *Very few people know what is at the telecentre and yet we were not facilitated to carry out reach activities* **(Extension worker, Nabweru)**

In another a case, a respondent cited the necessity of effective Monitoring and Evaluation on the changes in farming practices following dissemination of information on agricultural practices. The inability of extension staff to reach out to most agricultural communities especially in Buwama and Nabweru is a case in point. It was also reported that the TV/video were difficult to carry since there was no transport, yet it was the most preferred due to visual impression it creates to the local communities. In a bid to solve this problem on their own, Nakaseke communities have tried to support the extension work by hiring a generator and buying fuel to enable learning by video and TV and listen to audio cassettes with agricultural related information.

4.3 Project Impact on CBOs

The project intended to disseminate information to local institutions involved in agricultural production such as the CBOs. Among the benefits reported include that CBO members were getting more exposed to agricultural information which stimulated them into starting agricultural IGA projects. The telecentres have facilitated the work of CBOs by enabling dissemination of findings of CBOs and NGOs research activities. NGOs and CBOs hire tapes from telecentres for the out reach programmes. NGOs/CBOs utilise the services offered by telecentres particularly internet and e-mail which among other results has helped CBOs to get contacts.

However, the relationship between the CBOs and the telecentres through which the EDAI project was implemented appeared not to have been strengthened over the 2 years the project operated. Most CBOs covered by this study noted that they only interacted with the telecentre staff and by proxy the project during the time they were being registered. It also appeared that most CBOs anticipated tangible benefits from the telecentres/project after the training and information dissemination such as high yielding seeds and other agricultural inputs which were not provided, and hence sentiments by some CBOs that the training ac1quired was inappropriate:

> *The services of telecentres are less appropriate…people want to have practical demonstrations and material inputs such as seeds/seedlings and farming implements, but not merely information* **(Zinunula Farmers CBO, members)**

What the above findings point to is the need to have had a component of providing some of the inputs to project beneficiaries so that they could be facilitated to translate the acquired knowledge into practice. It could also have been more beneficial to have demonstration farms, where farmers could easily appreciate the value of information that was being disseminated, which could have gone a long way in promoting sustainability of the activities started by the project.

5.0   SUSTANABILITY OF PROJECT ACTIVITIES

5.1   Introduction

This Section makes an assessment of the continuation of the activities implemented with project funding after the life span of the project i.e., 2 years. Critical issues to consider include management of telecentres, for the continued operation of the telecentres is the pillar of sustainability for the project activities. Other indicators of sustainability focussed on in this section community participation and perceived usefulness of the telecentres by the farmers. Results of a SWOT analysis are presented to enable further insight into sustainability of the EDAI project.

5.2   Management of Telecentres

5.2.1   General factors on 3 telecentres
As project implementation drew to close, stakeholders including the National Acacia Advisory Committee and IDRC decided to hand over the management of telecentres to local council in case of Nabweru and Buwama, and the District Administration in case of Nakaseke. It was observed that despite the fact that IDRC, NARO, UNCST and CEEWA still maintain an interest in the development objectives of the telecentres, the local council III (LCIII) and District Administration. At the time of this evaluation Memorandum of Understanding (MoU) had been signed between UNCST and respective LC III of Nabweru and Buwama to operate the telecentres on behalf of UNCST. The implication is that the telecentres will be in the hands of UNCST but leased out and operated by LCIII that shall recruit and pay staff to run the telecentres, and ensure the maintenance of the equipment. Thus, UNCST will neither fund nor influence the operations of the telecentre but would be represented on the LMC to ensure that the operation and maintenance of the telecentre is in the interests of the various stakeholders.

At the time of this evaluation, there was an interim arrangement for the LMC to manage and operate the telecentres on behalf of UNCST until the instruments for leasing are in place. This was the case for Buwama and Nabweru where the leasing of the telecentres to the LCIII was not yet complete. The leasing process has been completed for Nakaseke Telecentre and the LMC and the Sub-counties of Nakaseke and Kasangombe who were partner implementers of the project run the operations of the Telecentre. The LMC are responsible for the day today running of the Telecentre, collection of revenue, purchases, storage, supply of materials, maintenance of equipment, liaison with the LCIII administration and UNCST.

However, the capacity of the LMC and LCIII council in terms of the necessary skills/expertise to manage these centres is limited, besides there seems to be a loose working relationship between LMC and LCIII over who the rightful owner of the telecentres is; the LMC (policy makers) or the LCIII (resource owners)? Is it those who make policies for the telecentres or those who control the resources to be allocated to sustain the operations of the telecentres? Such a situation if not settled threatens the sustainability of the project.

Some of the local councillors who received training on use of ICTs were not re-elected and those who were not trained were elected. In some cases, the new council members regard success of this project as that of their political opponents and the perception towards its operation is treated with a divided thought. Old members of LMC and LCIII executives will need refresher training while new ones will need to be re-oriented to the project and trained to build their capacity commensurate with the task before them. Appointment of LMC members is politically influenced such that election of new LCIII executives affects the LMCs-

including new appointments. This political connection in the management of telecentres is partly manifested in loss of trained human resource.

5.2.2 Specific issues on telecentres

Buwama

Buwama, which is about 64 km on Kampala-Masaka highway, is located in Mpigi district. The telecentre currently is surrounded by a management and leadership gap. Almost all the activities and services offered at the centre; computer training, printing, photocopying, video shows and secretarial services were not being provided due to the management problems that befell the telecentre for a long time. Unless there is close monitoring by UNCST, problems that befell Buwama in the past are more likely to continue, and hence affecting sustainability of the activities started under the EDAI project even when the MoU is effective starting March 2002.

Nabweru

Nabweru telecentre is located in Wakiso district, although it can be categorized as a peri-urban area of Kampala city. The telecentre offers a wide range of activities; telephone, photocopying, computer training skills, will writing, e-mails and Internet services. Nabweru Multipurpose community Pilot telecentre started in 1997 under the Acacia initiative of IDRC to empower rural communities through the use of ICTs. At the time NARO started implementing the EDAI project, Nabweru MCT was already an important access point providing multiple information services in the communities. NARO officially entered partnership with Nabweru MCT in 2000 when the EDAI project was introduced to the communities. Given the fact that this telecentre has continued providing services even when funding has been sporadic is a positive indicator that services can be sustained by the incoming new management.

Nakaseke

Nakaseke MCT aimed at introducing new information and communication technologies and library services in the rural areas in and around Nakaseke and Kasangombe sub counties in Luwero district. The project has been implemented to demonstrate the viability of the current conviction that providing information and communication to rural communities catalyses their development process and results in improvement of the quality of life of the people. The project was funded by UNESCO with International Telecommunication Union (ITU), IDRC, British government, GOU and other local partners; Public Libraries Board, UTL, Nakaseke local councils and the community. Nakaseke of all the 3 telecentres has more prospects to sustain the activities even when it is taken over by the district.

5.3 Community Participation

Community participation is very critical in the sustenance of telecentre activities and by implication the activities started by the EDAI project. Community participation in this evaluation was largely conceived in terms of cost sharing for information by users. Users or community members ideally support management and maintenance of services at the telecentres through payment of user fees for services such as photocopying, fax. However, community participation was being undermined by the limited capacity of large sections of members to appreciate ICTs coupled with low incomes to enable them pay for services.

Lack of adequate facilitation to the extension staff resulting into inadequate extension work to raise awareness of the EDAI project and telecentres fanned the perception that telecentres are for the community and therefore the services offered are supposed to be free. The local leaders were also reported to be using their political positions to demand for free services from the telecentre. Thus, the collection of revenue was undermined and payment for some of

the services proved difficult, most especially the Internet. At the time of this evaluation, all the Internet services were not in place for this basic reason.

To appreciate the situation further, the evaluation sought to investigate how many respondents were paying for the agricultural information they received. The study findings as Figure 5 shows majority respondents had never paid for agricultural related information.

Figure 5: Payment for Agricultural related information
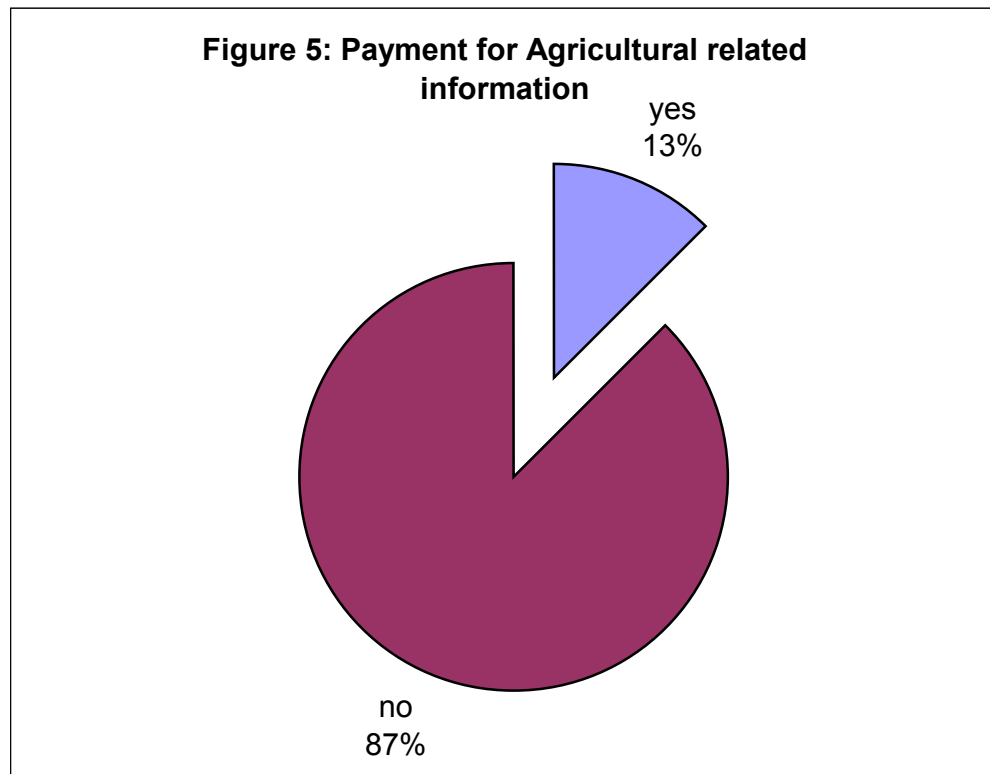
The majority of respondents not paying for agricultural information may imply their financial incapacity to afford it. However most other information were delivered through means that would not require direct payment e.g., radio.

Despite the above situation, data of this evaluation revealed the capacity of community members in the rural areas to pay for agricultural related information delivered e.g. through photocopying. Of those who paid for agricultural information as Figure 6 shows, a half (51%) were spending between 1000 and 5000 shilling on agricultural related information, which is an encouraging figure, by rural area standards.

Figure 6: Amount of Money Spent on Agricultural Information
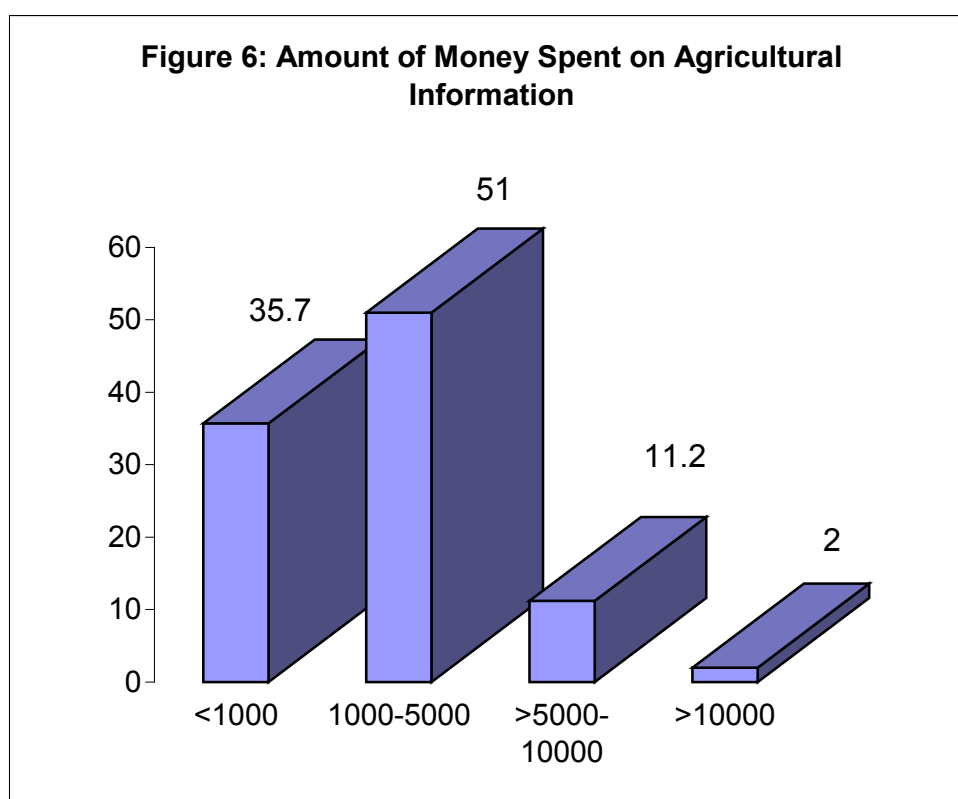
It has to be noted that most of the respondents (67.2%) of those who had never paid for any agricultural related information noted that they were willing to pay. It appears therefore that the project/telecentre failed to exploit this willingness to pay for agricultural related information, which would have been an indicator of project success by raising community appreciation of the vitality of information in efforts to improve agricultural production.

5.4   Perceived Usefulness of the Telecentres

Before users can be motivated to contribute for agricultural information and sustainability of the telecentres, it is pertinent to unravel their perceptions about the usefulness of the telecentres. In this evaluation, study respondents were asked to rate the usefulness of telecentres as means of information delivery, for this provides pointers to possible sustainability of the telecentres. Table 13 summarises the findings.

Table 13: Usefulness of Telecentres

Rating	Frequency N=978	
	%	**n**
Very high	19.4	66
High	44.6	152
Medium	26.7	91
Low	8.2	28
Very low	1.2	4

Generally, very few farmers perceived the usefulness of the telecentre as low or very low. It has to be noted that perceived usefulness does not connote utilisation of the telecentre. Utilisation of telecentres is undermined lack of awareness on their usefulness, in fact in some cases what the telecentres are. Some respondents thought they were for women since women groups were mainly encouraged to use the centres or invited for workshops. On the other

hand, women who were not organised in groups thought that the telecentres were for women groups only. At the extreme end of misinformation were respondents who thought that one goes to the telecentre by invitation only while some men respondents thought the telecentres were a trap to net tax payers, as remarked by one of them:

> *How do you take your self to the police to be arrested at the Sub County for not paying tax? It is better you take this telecentre from the trap- Sub County*
> **Male Farmer, Nabweru Sub County**

What can be noted here is that the location of the telecentre can have some bearing on its utilisation. For instance, Nabweru is located at place where the sub-counties headquarters are situated. One who had defaulted on paying graduated tax such as the youth would not go to Nabweru to access the services.

Table 14: SWOT Analysis for EDAI Project

Strengths	Weakness	Opportunities	Threats
- Local content was developed and repackaged in local language, which widened variety of information open and offered to farmers - ICT equipment was installed in the telecentres - Increased awareness, demand and growing community readiness to pay for agricultural Information. - Farmers can easily get answers to other problems related to agriculture	- Limited extension work - Lack of tangible benefits e.g. seeds - M & E was inadequate - Low sensitisation campaigns and poor management of telecentres - Lack of regular financing which delayed implementation of project activities - Theft of Telecentre equipment - Telecentre staff still lack the necessary skills to repackage information - Political changes in local council office holders affect the project as it loses personnel already trained - Need for beneficiaries to learn how to use some of the ICT components to retrieve information	- NAADS programme could be linked to Telecentre activities - There are many extension staff at the Sub County - Availability of several research institutions is a potential for networking - Strategic location of the project, easily accessible - The project has a large catchment area - Many people are willing to use the project services - Availability of many organised CBOs	- Retaining and payment for staff - Most farmers are illiterate - No more supply of the IEC materials - Management irregularities (mostly Buwama) - No transport facilities for the out reaches - Mismanagement of the Telecentre and project - Competition from other ICTs that offer cheaper rates for retrieving information. e.g., Internet cafes using wireless connectivity offer cheaper rates than the Nabweru Telecentre, which uses telephone connection. - Political interference and influence - Financial limitations of the project to pay staff

6.0   CONCLUSIONS AND LESSONS LEARNT

6.1   Introduction

This end of term evaluation was carried out after 2 years of project implementation. It is against this duration that the impact of this study especially beyond the provision of agricultural information ought to be appreciated. In this Section, the conclusions arising from the study findings are drawn and the lessons learnt that constitute the recommendations are presented.

6.2   Conclusion

One of the important conclusions this evaluation makes is that EDAI succeeded in developing and repackaging local content material. The project therefore made progress in raising awareness levels on the need for agricultural information. It succeeded in developing local content and demonstrating that IK can be valuable in agricultural improvement. Apart from translating content developed into the local language-Luganda, the project ensured access to agricultural information by developing and maintaining a website (www.agricinfo.or.ug) containing information repackaged by the project. The access of information is, however, yet to be translated into meaningful increased agricultural production due to lack of provision of tangible farming ingredients. Unless this particular aspect is focused on, the project benefits might largely remain in terms of high number of users, rather than increased food security or incomes through planting of high yielding seed varieties following agricultural information dissemination sessions.

A significant number of the project successes were methodological; for instance, number of local materials developed, number and type of information transmission media each telecentre has and the number of users accessing the telecentres. Such impact is secondary. Findings of this study indicate that community members measure success in qualitative terms, which means that success is achieved if farmers are provided with improved seed varieties after getting information; or whether the seeds planted are growing well and indeed lead to high yields, whether marketing strategies advocated for during Q&A are leading to increased sales; and if the sum total of all the above leads to increased incomes and general standard of living.

6.3   Lessons Learnt

A Project working through existing telecentres: challenges and opportunities
One of the lessons learn is that a project such as EDAI working through existing telecentres poses both challenges and opportunities in project implementation. It poses challenges in the sense that project implementation can fall victim of existing managerial squabbles at the telecentre, and hence constraining smooth implementation of project activities. A case of Buwama telecentre illustrates this point, for at the time of this evaluation services were not being provided, and staff seemed to have left.

The other challenge is that a project is often viewed by the telecentre staff and extension workers as a source of allowances or cash top-ups as they regard project work independent from their normal schedules. Thus, a tendency of unqualified and unexpected expectations either overtly or covertly is manifested by the telecentre staff and extension staff. When these expectations are not met, workers easily burn out.

The other challenge is that due to the fact that the project uses the personnel of the existing telecentres, they might not be always available for implementing project activities, which might necessitate a longer time of project implementation beyond the life span of a project

such as the 2 years. This might not have happened in this particular project, but it cannot be ruled out if a similar project were to be replicated.

The opportunities, however, that are reaped in such a project if well implemented rotate around cost-effectiveness of the project and possibilities of sustainability issues. It is cost-effective in the sense that there is existing infrastructure; premises and personnel. It is possible to have the activities of such a project sustained after its life span has expired. Indeed, although the future of the telecentres is not entirely clear, it is hoped that Local Council III and the District with UNCST monitoring the operations, the activities started under the EDAI project will likely continue.

Integrated package
Providing agricultural related information to farming communities is very important, but does not seem to be enough if the beneficiaries of the information are constrained to put such information into practice. Farmers needed high yielding seeds/seedling and other farming inputs. Although budget consideration might not allow this to happen, it still remains critical to mobilise institutions that can provide the "missing link" in the project. Alternatively, the project should have a component of practical demonstration.

Establishing satellite
One of the reasons farmers do not use telecentres is due to the distance involved and the costs including time spent to access the information at one central point. To overcome this problem, a lesson can be learnt from Nakaseke, which established satellite centres, thus taking information services nearer to the people.

Replication
Delivery of electronic information through the telecentres could be replicated in other communities in Uganda with some alterations drawing lesson from the EDAI project. It is a very practical and easy way of accessing information and the components utilises the services (technical information/knowledge) of the Telecentre to improve on the production and productivity of the rural communities and in the long can lead to reduction of poverty.

Monitoring and Evaluation
The monitoring and supervision by the centre is pivotal. It ought to be strong for administrative purposes, management and implementation of the project activities. It ensures effective accountability of the Telecentre resources, work schedules, client statistics and service usage/delivery. The evaluation systems should be participatory, formative and easily implemented

Literacy & language implications
Its evident that the socio-economic and literacy levels varied greatly and the specific strategies and approaches in the methods need to be carefully developed to relate to specific conditions in the community in order to ensure clear comprehension and utility of the information delivered

Audio-visual methods
The audio-visual methods were highly called for by the target users. The greatest challenge is lack of transport facilities from place to placed on a regular basis since they are heavy and delicate. The second challenge is that relating to the inability for the Telecentre operators in terms of the cost implications

Follow up, monitoring and evaluation
There was minimal follow up on the utility of information disseminated to agricultural communities mainly because extension work was under funded. Effective extension is

essential for effective application of information received by farmers. Projects intending to benefit rural communities should consider extension work an integral part of their design in terms of not only building capacity through training, but practical facilitation. On the other hand, the project in its initial stage should invest a lot in publicising its activities not only targeting civil and political leaders but also the very people it is meant to benefit. The project has to be taken to the people before they can come to it.

Local Government Involvement
Although local governments at LC III were very much involved in the project, this involvement did not transcend up to the district level. The district headquarters were not involved at all or if they did very little involvement especially for Buwama and Wakiso. This posses a threat on the sustainability and the independence of the telecentres without the involvement of the district local involvement

Different learning curves and the "Telecentre concept"
Majority of ICT training's involved participants of different levels in terms of experience, educational background, and exposure to computers and prior knowledge of information retrieval and computer applications. This created a difference in the levels of understanding by the participants. While some participants were able to grasp in the short period, others could not.

LIST OF DOCUMENTS

NARO (September 1999). "Electronic Delivery of Agricultural Information to Rural Communities in Uganda". Proposal Submitted to IDRC by NARO and CABI

NARO (February 2001). "Agricultural Information and Communication Needs Assessment: A Study of Luwero and Mpigi Districts". A Consultancy Report, Prepared by Asingwire Narathius

_____ (August 2000-February 2001). "Electronic Delivery of Agricultural Information to the Rural Communities in Uganda". First Quarter Technical Report

_____ (March – August (2001). "Electronic Delivery of Agricultural Information to the Rural Communities in Uganda". Second Quarter Technical Report

_____ (September 2001-June 2002). "Electronic Delivery of Agricultural Information to the Rural Communities in Uganda". Second Quarter Technical Report

_____ (June 2001). "Content and Material Development for Farmers". Workshop Report Prepared for NARO by Kayanja Ronald David and Osiria Nahurira

_____ (March 2002). "Electronic Delivery of Agricultural Information to the Rural Communities in Uganda". Mid-Term Evaluation Workshop Report

_____ (June 2002). "Electronic Delivery of Agricultural Information to the Rural Communities in Uganda". Practical Information Repackaging Workshop: Farmer Communication Material Development. Facilitated by Kyamanywa John and Adupa Joyce