Using ICT to Increase the Effectiveness of Community-Based, Non-Formal Education for Rural People in Sub-Saharan Africa

The CERP Project

Final Report

David Pye

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Abbreviations

NFER	*The National Foundation for Educational Research*	VSO	*Voluntary Service Overseas*
UNZA	*University of Zambia*	NGOs	*Non-governmental organisations*
DfID	*Department for International Development*	CERP	*Community based Education for Rural People*
COLLIT	*Commonwealth of Learning Literacy Project*		

1 Introduction

The National Foundation for Educational Research (NFER), UK, in partnership with the University of Zambia (UNZA) was sponsored by DfID to research the impact of using new forms of Information and Communications Technology in the development and delivery of educational materials for rural communities in Zambia. The research began in January 2001 and finished in October 2002.

The project had three distinct but inter-dependent aspects:

1. Capacity building at national, regional and local level;
2. Materials development;
3. Learner impact.

At the outset of the project, the decision was made to use the infrastructure provided by the DfID-funded Commonwealth of Learning Literacy Project (COLLIT). The COLLIT project provided ICT hardware to three regional government learning centres. These centres have staff dedicated to the development of education in rural areas. The CERP project built upon the developments made by COLLIT approaches and involved both the three regional centres and their associated satellites. The linkage of the two projects has proved beneficial and highlighted the importance of partnership approaches in maximising impact.

This report illustrates both processes and outcomes. In addition, it provides a series of observations and issues arising from the CERP project.

2 Key Objectives

To guide development, the research had three key objectives:

1. To develop two educational modules (covering basic education but taught through the context of health education and farming practices) which can be delivered by audio/radio, paper- and web-based means.
2. To evaluate these modules in terms of models of delivery for community based learning and a range of broad educational outcomes for participants.
3. To share and develop skills and knowledge in a collaboration between educators.

These objectives provided a focus for project activity. In working toward these objectives, four desired outcomes were formulated to measure the success of the approaches taken:

1. Development of models for providing education using ICT in rural areas.
2. Culturally acceptable paper, audio and web-based materials.
3. Completion of study of materials by a sample of learners from rural communities.
4. Evaluation report.

These objectives and approaches linked to five of the DfID categories. These are:

1. Education and Training;
2. Institutional Capacity Building;
3. Participation;
4. Globalisation;
5. Dissemination.

Adherence to these five categories is highlighted in the Outcomes section of this report.

3 Methodology

3.1 Introduction

This methodology is in two sections. The first describes development managed by Zambian team members (under the direction of Professor Richard Siaciwena). The second section highlights activity completed by the UK CERP partners, based at the NFER.

3.2 UNZA Activity

The UNZA team were involved in a variety of activities as part of the CERP Project. This included:

- Selecting CERP sites;
- Conducting the Needs Assessment;
- Selecting Module Developers;
- Training Module Developers;
- Supporting the production of Modular Material;
- Developing the use of new technologies in the CERP context;
- Day-to-day management of the CERP Project in-country.

3.2.1 Selection of CERP sites

In discussion with CERP UK Partners and members of the DfID funded COLLIT Project, it was decided that the CERP Project would use the three regional government centres that were receiving COLLIT funding. The COLLIT Project provided funding for the refurbishment of a designated teaching and learning area as well as some computer equipment. The fact that one aspect of the CERP Project was to ascertain the ways in which new technologies could be used to support learning of rural communities meant that CERP could benefit from the developments already made by COLLIT. The three centres that were selected (Kabwe, Katete and Monze) were visited by CERP Zambia team members on a regular basis, this ensuring that productive links developed between the centre and the regions in which CERP material was trialed.

3.2.2 The Needs Assessment

Building on key issues emerging from the Six Nations Study (see Appendix 1 for a full discussion of this study), Zambian team members stressed the need to provide rural learners with material that the learners felt that they needed. To ascertain the views of learners from rural communities, CERP Zambia team members conducted a Needs Assessment in two regional centres (Kabwe and Katete). See Appendix 3. The decision of the location of the Needs Assessment was decided by the Zambian CERP team members: their rationale for selection was not shared with the UK CERP team. This involved extensive qualitative data collection in the field and then an analysis of this material. In addition, data were collected on the two regional centres and a number of their satellites, to place the Needs Assessment in context. Members of the CERP Zambia team prepared this Needs Assessment Paper. This provided a valuable resource in the early stages of the project as it highlighted the topic

3 Methodology

areas about which rural learners wanted more information. It should be noted that the approach taken by the CERP project was unique in the Zambian context, in that it was the first time that the views of rural learners had been sought as to what it was that they wanted to learn.

3.2.3 Selection of Module Developers

UNZA colleagues had a key role in selecting module developers for involvement in the CERP Project. Selection was generally based on a number of criteria, including:

- Linkage with local communities in the three regional centres and their satellites;
- Understanding of the needs of rural communities;
- Subject specific knowledge;
- Experience of working in the field;
- Discussions with senior members of regional staff (the Centre Manager for example).

All module developers were field officers for Government Ministries and were already in post in the regional centres. CERP Zambia team members had to select which staff would be involved in the project. As well as appointing staff, UNZA colleagues also had to replace staff as and where necessary. Where this did take place, this was due to the CERP officer being ineffectual or not being able to combine CERP activity with other work commitments.

3.2.4 Training Module Developers

Zambia team members offered training to module developers throughout the period of the CERP Project. Training was generally held at UNZA, with developers travelling to Lusaka from the three regional centres. Training generally took the form of residential workshops held at the University, with input from CERP team members. Training focused on a number of areas including:

- Material writing;
- Content analysis;
- Use of new technologies.

In addition to face-to-face activity, support was provided to module developers via e-mail discussions.

3.2.5 The Production of Modular Material

Zambian colleagues supported the production of modular material. As well as offering practical advice during the workshops (as mentioned above) they discussed content and structure. Though the onus was on module developers to create the material (thus ensuring that the developers had ownership of the end product), advice was provided to support this

development. In addition, UNZA staff (not members of the CERP Zambia team) edited module material prior to distribution to the centres. Once materials had been finalised (the Health Education and Conservation Farming Modules), these were centrally reproduced for distribution in the field. In addition, Zambia team members visited the regional centres (both alone and with UK team members) to monitor activity taking place and to provide further guidance and support.

3.2.6 **Development of the Use of New Technologies**

A main element of the CERP Project was the extent to which new technologies could be used to support learning in rural communities. A major task of Zambian colleagues was to develop the use of new technologies with regard to CERP module development and delivery. During the course of CERP, a website was created and maintained by Zambian colleagues, training workshops were held and modular material was placed on CD-ROM format. (For a more detailed discussion of the use of New Technologies in the CERP context, see Section 5.3.1 of this report).

3.2.7 **In-country Management**

The in-country CERP director (Richard Siaciwena) had overall responsibility for CERP activity in Zambia. This involved:

- Liaising with Zambian team members;
- Liaising with UK CERP team members;
- Providing progress reports to UK team members;
- Developing work schedules and timetables;
- Overseeing in-country development and activity at both a regional and central level;
- Overseeing in-country CERP spending and budgets;
- Overseeing equipment acquisitions;
- Having input to quarterly reports submitted to DfID by the UK team members.

3.3 **NFER Activity**

The main focus for the UK partners was to monitor and evaluate both the process and the outcomes (in terms of impact on all those involved) of the CERP Project. This section includes:

1. Overview of approaches taken;
2. Research tools used;
3. Individuals involved.

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3.3.1 Overview

The focus of the UK partner activity was to monitor and evaluate the activity that took place, with regard to both module development and associated teaching and learning. Monitoring and evaluation activity completed by UK team members included:

1. Participation in initial scoping meetings, where the nature and theoretical approaches of the CERP project were developed. These meetings involved a number of key actors and agencies active in developing and promoting the use of ICT for distance learning in Zambia. Participants included representatives from Government Ministries, NGOs, academics and practitioners in the field. A seminar was held at UNZA in June 2001, that provided the opportunity for interested parties to meet together to discuss both the best way for the CERP project to proceed and the possible synergy between their different approaches (see Appendix 1 for notes of this seminar). A literacy website for Zambia was developed out of this seminar. During the seminar, participants were asked to complete a brief questionnaire focusing on their perceptions of the usefulness of the seminar, what they had gained from the session, future plans for development and so on. The completed questionnaires were thematically analysed by the NFER team (see Appendix 2). These discussions provided a basis for subsequent team meetings that entailed participation from others involved in the development of distance learning materials. These included international consultants from Namibia, Canada and the UK. Following discussion, it was decided that the best way to proceed was to involve members of rural communities from the outset of project development in identifying specific local needs that they wished CERP material to address. The Needs Assessment (see Appendix 3) was conducted by UNZA colleagues and circulated within the wider CERP partnership. The assessment was extensive in its scope and provided the focus for module activity. Though not part of the original brief, the assessment has provided a valuable insight into the perceived needs of rural communities in Zambia.

2. A module developer training session was held at UNZA in the October of 2001. The participants included Government Field Officers who were already active in COLLIT material development and in the Zambian National Literacy Project. The sessions provided the opportunity for module developers to meet with each other and the UNZA/NFER project team. UNZA colleagues (Professor Richard Siaciwena, Professor Dickson Mwansa and Mr Vitalicy Chipwefa) provided the training. Using the inherent knowledge of the module developers, the UNZA team provided the structure for module development. NFER partners attended two days of the training sessions and observed activity taking place. The opportunity was also provided for UK partners to discuss issues with Zambian colleagues and to give advice as and where appropriate. The modules evolved out of discussion and suggestions from a variety of stakeholders including:

    - Local people (through the Needs Assessment);

- Government ministries, academics and other interested parties;
- Material developers;
- International consultants;
- UNZA and UK (NFER) CERP team members.

Though there were a number of stakeholders involved it was paramount that the needs of the target cohort were met and that those developing and delivering the material had ownership of it.

Further meetings with module developers took place at UNZA in December 2001 and June 2002. Materials were circulated to UK partners for comment. Comment and advice was provided to Zambian partners throughout the period of material development.

Following initial discussion it was agreed that UK partners would conduct a series of semi-structured interviews with module deliverers, developers, editors, UNZA academics and learners. These interviews took place at the University of Zambia (Lusaka) and the three regional centres (Kabwe, Katete and Monze) and a number of associated satellites.

3.3.2   **Research Tools Used**

A series of five themed semi-structured interviews were developed by UK team members. These enabled the team to collect data on a range of topics that would support the monitoring and evaluation activity. The interview schedules are outlined below:

3.3.2.1   **Semi-structured interview schedule: Module Developers**

Questions asked included:

• Occupational background.	*(Ascertain level of technical experience prior to involvement in the project.)*
• Involvement	How did you hear about the project?
	How did you become involved?
	What did you perceive were the aims of the project before you became involved?
	Have you had opportunities to become involved in projects like this before – if yes, details?
• Activity	What activity have you been involved in?
	What existing skills and knowledge have you brought to the activity?
	Has the activity enabled you to further develop the skills that you already have – if yes, details?
	Has the activity enabled you to gain any new skills – if yes, details?

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- The material

  What are your views on the material that has been developed?

  Do you think that the materials as they stand will meet the aims and objectives of the project?

  Do you think that the focus of materials is correct?

  Do you think that the material could be improved in any way – if yes, details?

  Do you think that the materials are appropriate for the target user groups – if yes or no, details?

  What, for you, were the key issues and challenges relating to the development of the material?

  Have you experience of material such as this from other countries – if yes, details?

  How transferable do you think that the materials that have been developed for this project are, in terms of their usage in other contexts – for example, other Sub-Saharan countries.

- Impact

  What impact has involvement in the project had on you to date?

  What impact do you think that involvement in the project will have on you in the longer term? *(Probe issues relating to participation in further education, enhanced life chances, job opportunity and improved productivity.)*

  What impact do you think the project will have on module deliverers? *(In terms of their ability to develop educational material, research skills, involvement in initiatives, technical skills, etc.)*

  What impact do you think that the project will have on the target user-groups?

- Monitoring and evaluation

  Have you been involved in any monitoring or evaluation activity – if yes, details?

- General

  What, for you, have been the successes associated with involvement in the project?

  What have been the key messages/lessons learnt from your involvement in the project?

  What advice would you give to others who might become involved in projects such as this?

  How sustainable do you think that the activity coming out of the project will be?

- Anything else that you would like to add that has not been covered?

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3.3.2.2   **Semi-structured interview schedule: Module Deliverers**
Questions asked included:

- Occupational background.   *(Ascertain level of technical experience prior to involvement in the project.)*

- Involvement   How did you hear about the project?
  How did you become involved?
  What do you think were the aims of the project before you became involved?
  Have you had opportunities to become involved in projects like this before – if yes, details?
  Have you received any training to prepare you for your role on the project – if yes, details and perceptions?
  Is there any further training that you would like to support your involvement on the project?

- Activity   What activity have you been involved in?
  What existing skills and knowledge have you brought to the activity?
  Has the activity enabled you to further develop the skills that you already have – if yes, details?
  Has the activity enabled you to gain any new skills – if yes, details?

- The material   What are your views on the material that has been developed?
  Do you think that the materials as they stand meet the aims and objectives of the project?
  Do you think that the focus of materials is the correct one?
  Do you think that the material could be improved in any way – if yes, details?
  Do you think that the materials are appropriate for the target user groups – if yes or no, details?

- Delivery issues   What, for you, are the key issues and challenges relating to the delivery of the materials?
  What teaching approaches do you use?
  Are you using any equipment, such as radio, video, ICT, etc? If yes, details (and how successful), if no, why not?
  How many sessions are you teaching/involved in?
  How many people have attended the sessions?
  Are the people who attend the same, or do they differ for each session?

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- Impact
  What impact has involvement in the project had on you to date?

  What impact do you think that involvement in the project will have on you in the longer term? *(Probe issues relating to further participation in education, enhanced life chances, better job opportunities, etc.)*

  What impact do you think the project will have on other module deliverers?

  What impact do you think that the project will have on the target user-groups?

- Monitoring and evaluation
  Is there a framework for monitoring and evaluation?

  Have you been involved in any monitoring or evaluation activity – if yes, details?

- General
  What, for you, have been the successes associated with involvement in the project?

  What have been the key messages/lessons learnt from your involvement in the project?

  What advice would you give to others who might become involved in projects such as this?

  How sustainable do you think that the activity coming out of the project will be?

  Are you paid for your involvement in the scheme – if yes, details?

- Anything else that you would like to add that has not been covered?

3.3.2.3 **Semi-structured interview schedule: Learners**
Questions asked included:

- Background
  Where do you live and how far away is that?

  What do you do everyday/what is your occupation?

- Participation
  How did you hear about the module sessions?

  Have you come on your own or with friends/family?

  How long did it take you to get here?

  Why did you decide to attend the session(s)?

  Have you been to other sessions or is this the first one?

  If applicable, will you be coming again?

- The materials
  What do you think of the materials that you have used during this session?

  Are they relevant to your everyday work?

  Do you think that they could be improved in anyway – yes/no, give details?

Would you like similar materials on other topics – if yes, give details?

- The sessions   What do you do in the session(s)?

  Have you been able to use any equipment (video, radio, ICT equipment, etc)?

- Impact   Have the sessions helped you to develop the skills that you already have?

  Have the sessions helped you to acquire new skills?

  Is there anything that could have improved the sessions for you?

  Would you recommend other people (family/friends) to attend the sessions – if possible, give reasons?

  Do you have any materials to take home with you – if yes, how will you use these, or if no, would you like some materials?

- Anything else you would like to add that has not been covered?

3.3.2.4   **Semi-structured interview schedule: Module Editors**

Questions asked included:

- Occupational Background.
- Involvement in CERP activity.
- The material   What are your views on the material?

  Does it meet set aims and objectives?

  Is the focus the correct one?

  Do materials such as this already exist?

  What are your views on the structure of the materials?

  Are the materials appropriate for the user groups?

  What are the key issues and challenges relating to material development such as this?

  Is the material produced different from that previously produced – if yes, in what ways?

  How could the material be developed in the future?

  Where would it be most appropriate to use media different to paper-based approaches?

- Impact   What impact has project involvement had on you to date?

  What impact will involvement have on material developers and on learners?

3 Methodology

- Monitoring and evaluation   What would you suggest were the most effective ways of conducting monitoring and evaluation activity?
- Sustainability   How sustainable is activity?
- Anything else that you would like to add that has not been covered?

3.3.2.5   Semi-structured interview: Core Team Academics (UNZA)

Questions asked included:

- Key reasons for involvement in the CERP project.
- Experience of other projects.
- Specific features of the CERP project – in terms of approach and delivery.
- Perspectives on the materials produced to date and the processes involved.
- Impact on key groups involved in CERP activity – academics, module developers and learners.
- Monitoring and evaluation approaches.
- Advice to others.
- Sustainability.
- Future developments.
- Any other issues not raised in the discussion.

The NFER code of conduct was adhered to throughout the interview process. Participants were guaranteed anonymity and permission was gained from them as to whether discussions could be noted. UK team members interviewed material developers and Central Academics on an individual basis. Interviews lasted for approximately forty minutes and notes were produced in electronic format and archived in the electronic database. Interviews with deliverers and learners were conducted on a group basis with material being produced and stored in a similar way. This approach has provided a wealth of data to illustrate project developments.

3.4   Participants

UK team members involved all stakeholders in the qualitative data collection phase of the research. These were:

1. Learners from the three regional centres and associated satellites;
2. Regional centre staff – module developers and deliverers;
3. UNZA staff – module editors;
4. UNZA staff – core team members.

3 Methodology

In addition to formal data-gathering sessions, informal meetings were held with:

1. Ministers and senior Civil Servants (Permanent Secretaries) in the relevant Zambian Government Departments;
2. DfID Field Staff, Zambia;
3. Senior staff at the Lusaka office of the British Council;
4. Aid Agencies, including Voluntary Service Overseas (VSO) and in-country NGOs;
5. In-country academics.

4 Personal Outcomes

This chapter highlights outcomes achieved by the project. These cover both process and individual achievements. Sections relate to specific groups and activities.

4.1 Module Developers

The discussion with module developers was based on seven themes:

1. Education/Occupational Background;
2. Involvement;
3. Activity;
4. The material;
5. Impact;
6. Monitoring and Evaluation;
7. General Issues.

4.1.1 Education/Occupational Background

All module developers had experienced Primary and Secondary education within Zambia. Following secondary education, all had experienced further education in terms of one or two year certificate or diploma courses. The certificate and diploma courses covered a wide range of topics including:

- Land management;
- Farming and agriculture;
- Community development;
- Accountancy;
- Teaching/Education (predominantly focusing on adult learning through literacy programmes).

As a result of UNZA selecting module developers with education in different subjects the CERP project has been able to draw on the breadth of experience of the material developers. As well as having a range of qualifications, module developers have had practical experience as all of them have worked in rural areas with learners, either in teaching and learning activity, in an advisory role or through the development of material. The module developers are respected members of their local communities and hold a range of key positions in their localities, and are key to building capacity in the future. All are employees of government ministries such as Health, Agriculture and Community Development, and they combine CERP activity with their other roles and responsibilities, supported by their colleagues within the ministries.

Though they have a wealth of experience and academic qualifications, many felt that they had not achieved as much as they had wanted in terms of academic success. They described themselves as being from the *'grassroots'* and were in awe of both those who had participated in higher education and those who were providing support and advice to them at UNZA.

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Without exception, they all felt privileged to be involved in the CERP Project as they perceived that they were engaging in learning activity that had previously been unobtainable to them. Despite this uncertainty as to their own academic backgrounds, many developers expressed a desire to reconnect with education in terms of further study. It was hoped that the CERP activity would enable them to progress in this. Linked to this was a desire for their CERP related activity to be recognised in the form of accreditation by UNZA. UK team members did discuss this with senior officials from UNZA, but no agreement was reached and CERP activity has not, as yet, been formally accredited.

A key issue for discussion was the extent to which module developers could bring their own experiences to bear on material development. Evidently, developers brought technical knowledge to CERP material development, for example, providing grounded knowledge of the locality, mores and culture. In terms of ICT, engagement with computing equipment was limited but some use was being made of new technologies (for example, digital cameras and audio-cassette equipment), though this was generally through the COLLIT project rather than through their Ministry work.

4.1.2   Involvement

Module developers became aware of CERP activity in a number of ways:

- Via the Needs Assessment;
- Through being informed of it by their line managers/supervising officers;
- Hearing of it from work colleagues who were involved in COLLIT activity;
- Through involvement in the delivery of COLLIT materials.

The ways in which people became involved in the project were varied. A majority were encouraged to take part by senior colleagues as it was hoped that CERP activity would be of benefit to them as professionals in the field and to the local region. Related to this was the fact that there appears to be a shortage of skilled personnel within ministries who have the ability to write materials for use with learners. The CERP Project was therefore seen as a useful way in which to develop capacity at a ministry level. Other developers became involved as a direct result of their involvement in COLLIT (working as the Operations Manager of a COLLIT centre for example). The benefit of this approach to involvement is that the Developer Team was varied and composed of capable personnel. What further complemented the group was that a number had experience of working on funded programmes and were used to working to agreed aims and objectives to achieve common goals. They also had expertise in working with a wide variety of male and female learners. Those who had experience of this type of work were able to support other less experienced module developers. All perceived CERP activity as being different from what they had done before, in that they were able to develop, as well as deliver, materials. This gave participants a sense of ownership and pride in the developmental process.

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In terms of their prior understanding of the aims and objectives of CERP, it was clear that there was some initial misunderstanding. There was a perception that the scope was greater or smaller than it actually was, that it was for different learners and so on. What was important was that there was (at the time of the interviews) no longer any uncertainty relating to the aims and objectives of the programme. All of those interviewed noted that CERP was about developing new materials for the end-users, using a range of media to both develop and deliver this. A key issue for them was that topics selected were based on an initial Needs Assessment (see Appendix 3). This was something that they felt was crucial, as it enabled learners to highlight what the important issues were to them. This was felt to be different from centrally developed materials that were perceived to take little account of specific learner needs.

4.1.3   **Activity**

All module developers been involved in the creation of the CERP materials and initially this had focused on discussions relating to the selection of topics highlighted in the Needs Assessment. Decisions were then made and individual developers were able to use their specialist knowledge to feed into material development. A key activity was the actual writing of material and prior knowledge played an important role in this. The benefits were that the materials developed were contemporary and relevant to learners. In addition, module developers became aware of the importance of their own knowledge and this empowered them, giving them greater self-confidence and awareness of their own ability.

The use of group and teamwork in developing activity was something that the group welcomed. They saw it as having a variety of benefits, not least that they were working with professionals in both their own and other fields of expertise. The fact that, as individuals, they were able to use their skills was important to them, but it was evident that they were also building on these skills within the material development context.

In addition to developing their skills, those interviewed described how they were learning new skills. These included the ability to work with other people and to listen to other ideas and issues – for many, the fact that they were working with people outside of their own knowledge-area was something that they found both challenging and stimulating. A number of those interviewed noted that they were now able to see *'the big picture'* in terms of both CERP and other work-related activity. The way in which people related to each other in terms of providing advice or critiquing work was challenging as it was not something that they were used to doing. Other skills that were developed included the use of new technologies (video-recording equipment for example) in developing materials. A majority noted that a key skill they had gained was the ability to simplify existing material and knowledge to make it accessible for learners. They were all aware that the needs of the learners were paramount and that the material they were developing had to be relevant. As they came to perceive this, there was a realisation that this learner focus had not been

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achieved before and that much of the material they had delivered in the past had been too technical. An outcome of this was that group members were reflecting on their activity outside of the context of CERP material development.

The CERP Project will therefore have an impact on learners (even those who do not experience the materials) as it has encouraged developers and deliverers to reflect on their own practice.

4.1.4 The Materials

Respondents felt that the materials they had worked on were good. This perception was based on a number of facts:

1. Materials development was supported by members of the UNZA team. The advice given by UNZA academics ensured that there was structured development within the materials and it met the aims and objectives of the project.
2. The focus for material was correct, as the issues included came from the Needs Assessment (see Appendix 3).
3. The materials were different from earlier material as they were less technical and were felt to be readily accessible to learners.
4. The use of a variety of approaches in developing materials was good.
5. Materials were developed in conjunction with colleagues who had a range of experience. The fact that advice was given on content by representatives from Government Ministries (Community Development & Social Work and Health) was welcomed by the group.

This said, it was felt that material such as this could always be improved and that they would not really know how successful the modules were until further testing had taken place in the field over a long period of time.

With regard to group exposure to teaching and learning materials from other countries, the response was varied. All had seen material from other countries (Malawi for example) as part of the development training provided at UNZA, and others had seen pamphlets and books as part of their everyday work. Generally it was felt that this material was of interest but that it was not always applicable to the Zambian context. It was hoped that the CERP material would be different, in that it would be able to be used throughout the country.

Though the development was seen as very positive it was noted that there were a number of issues and challenges that had to be faced in the production of the material. A challenge for a number of developers was how to begin the writing process. In addition to writing material for the first time, the fact that it had to be deconstructed to ensure user-group accessibility was an issue that members had to come to terms with. Working with colleagues

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was also a challenge, with regard to both giving and receiving feedback that could, at times, be critical. The further challenge was felt to be that of time. Material developers described how the material writing was begun too early in their training and that the time given to develop modules had not been adequate.

4.1.5 Impact

All module developers felt that CERP activity would have an impact. This impact was seen both personally (as in impact on themselves) and also on CERP stakeholders.

In terms of the impact on individual module developers it was felt that in the short-term involvement had led to an increase in knowledge and skills. A key benefit highlighted was the ability that developers felt they now had to process and use their prior knowledge. A number described how involvement made them more logical in their approach to work and the way in which they were able to clarify their approaches to activity. In the longer-term it was hoped that involvement would lead to enhanced career opportunities and progression that might not have been possible prior to CERP. Though personal development was an issue, future impact on the local community that they served was also important. Module developers hoped that they would be able to use their writing skills to produce literacy materials for their local area and also provide study support as and where necessary. More specifically, a number of respondents noted that they would like to begin to write books. The subject matter for writing was mainly on issues important to their own family, though it was stressed that there would be an educational aspect to these.

In terms of their position within individual communities, it was felt that CERP involvement was seen as very positive because of the benefit that it could bring to the locality in the future. This said, one developer noted that he had experienced some negativity from work colleagues who viewed involvement as a way of enabling him to gain promotion. Another noted that he felt that government ministries saw activity such as this as a threat to their own processes of materials development.

An unexpected benefit for those involved was the additional money that they received for attending training sessions at UNZA. This money was having a major impact on their domestic situation, enabling developers to provide more easily for their extended families, purchase clothing for their children and spouses and to pay school fees.

With regard to the impact on learners, it was noted that this was challenging to answer as use in the field was still at a relatively early age. It was considered that the materials would benefit the learners by making them more aware of the local issues and enabling them to problem-solve to a greater extent than was currently taking place. In addition, it was hoped that the materials would add to the skill-base of local populations.

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4.1.6 **Monitoring and Evaluation**

A number of developers had been involved in monitoring and evaluation (primarily for COLLIT and other initiatives/projects) and it was evident that such activity was seen as an integral part of such development. Much of the experience that developers had of monitoring and evaluation was based on the testing of materials (both paper-based and in other media such as radio) or of learners, to ascertain the extent of their understanding. Respondents had been involved in the piloting of materials or the monitoring of student progress and these were key skills that they felt would be useful to them in the future. Whilst this teacher-centred approach to monitoring and evaluation was important, there was less experience about activity that enabled learners to comment on either the content or the teaching and learning that they were receiving.   Developers provided a number of suggestions as to how the CERP material could be both monitored and evaluated in the future. These included the use of:

1. Assessment to gauge learner understanding of activity;
2. Questionnaires;
3. Interviews with learners (that would include information relating to the use of ICT).

From discussion, it was evident that developers recognised the importance of monitoring and evaluating activity. It was felt that this type of approach would also encourage them, (as both developers and deliverers) to become more reflective on their practice.

4.1.7 **General Issues**

The opportunity was given for material developers to discuss the wider impact of their involvement in CERP activity.

4.1.7.1 **Successes**

It was evident that developers were proud of their achievements associated with the material. Key successes included:

- The acquisition of skills enabling them to write learning materials.
- The production of materials that were contemporary and accessible to the learners.
- The ability to meet set deadlines and agreed aims and objectives.
- The key role of women within the material development process.
- Working as a group with people that had different experiences and backgrounds.

From the discussions it was evident that all material developers valued the experiences that involvement in CERP had given them.

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4.1.7.2 **Lessons learnt and advice to others**

Respondents were asked to highlight any lessons learnt from CERP involvement. In addition, they were asked to suggest advice that they would give to others becoming involved in similar projects.

Key lessons learnt were based on both process and outcome of activity. In terms of the process it was felt that basing activity on a Needs Assessment was very important as was working with others to develop material. The requirement to develop materials within the context of a structured modular approach was something that they felt was very important to achieve. More specifically, a number of developers felt that they now had greater knowledge concerning the management of projects. CERP activity had also encouraged them to be more reflective in their work and had enabled them to see the wider perspective. For example, a number noted that they were now aware how their own work linked to wider developments taking place, and that they could begin to see the synergy between developments they had previously not connected. With regard to outcome, the key message was that during production, the needs of the learners were paramount and that the materials must be of use to them. More generally, there was a realisation that there was a need for more materials that could be used in the field; especially material in paper-based format.

In terms of advice to others, this included:

- The need to be patient and understand that the development of materials can be a lengthy process.
- The willingness both to give and accept criticism of personal work.
- The need to be diverse in thinking and be aware of different cultural nuances.
- The need to reflect on practice – both within and outside of the development context.
- The importance of always considering the target audience throughout material development.

4.1.7.3 **Sustainability**

Generally it was felt that CERP was sustainable as the modules would exist and would be able to *'stand the test of time'* in the future, though a number felt that it was still somewhat too early to be definite about this. It was felt that sustainability was more likely if the original team of developers were able to continue working with each other and if further training was provided so that they could continue to develop their skills. The fact that learners would also be able to pass on material to others in their communities was felt to be important in terms of encouraging sustainable development. One concern was that there were not enough module deliverers (teachers) in the rural areas to ensure roll-out and sustainability of development and there was perceived to be a need for the Zambian Government to invest in teachers in rural areas so that the demand for knowledge could be met.

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On an individual level, developers wanted to continue to create materials and they felt that this would ensure that activity would be sustained. In addition, a number hoped that they would continue to learn how to use ICT equipment and increasingly involve this in writing and producing materials. With regard to prior ICT experience, a majority of developers had been exposed to new technologies but the level of usage was currently low. Many saw the development of their ICT skills as very important in ensuring that CERP activity would be sustainable. This linked directly to their discussion focusing on the need for more training.

4.1.8 Additional Comments

Participants were asked if there was anything else that they wished to add. Issues mentioned included:

1. The impact that CERP material would have on developing entrepreneurial skills as the modules would encourage learners to continue to develop and this could lead to higher productivity for example.
2. Discussion focusing on the ways in which income-generating activities could come from CERP development in terms of:
   - The hiring out of ICT equipment;
   - Asking learners to pay for attending certain classes.

4.2 Material Editors

The UK team had an opportunity to meet with the two editors of CERP module material. Both were senior members of staff at UNZA – one was acting head of a university department and the other was a lecturer in language and literature. They were asked to become involved by the Zambian Project Director (Richard Saciewena) as they had the specific editorial skills needed for working with material produced by developers. As with other members of the CERP team at UNZA, they had a wealth of experience on which to draw, as they had been involved in the development of primary distance-learning education material and on other related projects. They were both language experts.

Both felt that the group of developers was a good one and that they had a range of experiences that fed into the writing of the modules. One editor noted that it was relatively common for teachers and lecturers to be involved in the development of distance learning materials, but what was unique about the CERP project was that the group was composed of people from a range of ministries.

Generally it felt that the material was good and that the topics selected were those that were of interest, and would be useful, to learners. It was noted that the material produced was initially technical in nature and that a greater focus was needed on making this accessible to learners. Both felt that the group was very able to respond to suggestions and that they had acted on advice given to them. They both presumed that the fact that developers had been

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so open to suggestions would mean that the material would be more accessible by learners. One editor added that the time given for material development was perhaps too short and that the materials were initially illustrative of this. He also suggested that developers should have been provided with more advice on how to write, rather than embarking on writing materials at such an early stage. The impact of this was that some of the initial material was too similar in nature to traditional texts that already existed, as opposed to new activity. Another noted that the material that she had seen was good, especially as it had been developed out of the experiences and knowledge of people on the ground. This said, she felt that there could be an issue relating to the delivery of some of the content. The reason for this was that it included some subject content that could be difficult to discuss, especially in terms of the health module (for example, HIV/AIDS was felt to be a difficult issue to raise in rural areas).

Both felt that the materials were now of a good standard and that it would be useful for the developers to continue writing in the future. The fact that group members had a range of backgrounds, such as from Health and Agriculture (rather than only Education) was a strength that both felt should be built upon. It was suggested that further training should be provided to ensure that the group continued to develop materials.

The impact of both the developmental process and of the materials was felt to be a profound one. One editor noted that the developers would be more able to communicate with people in their local areas. With regard to the learners, it was felt that the material would have a very positive impact especially on those local people involved in subsistence farming. More specifically, in terms of the impact of the Health Module (see Appendix 4), it was felt that it might encourage people to understand the issues relating to certain traditional beliefs that might conflict with health advice. In terms of impact on themselves, both had enjoyed the experience of editing the materials, and they felt that they had learnt something from their involvement in CERP.

In connection with monitoring and evaluation, one editor noted that that this should take place once the materials had been used in the field. He outlined how there was a need to ascertain, from the distribution point (the regional centres and their satellites), to the end user, the extent to which materials were meeting the needs of the learners. With regard to sustainability, it was felt that there was a need to think of this in terms of the durability of the material produced with regard to how long it could physically survive. He noted that there was a need to ensure that durable materials were used in producing the texts, and that there were suitable areas to store the material once in the field. He concluded by stressing the need for suitable training to be given prior to the writing of materials. The second editor felt that material would be sustainable as it focused on topics, such as Conservation Farming and Health, that were *'lifelong issues'* and that this was important as these topics would always have relevance to learners.

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4.3 **Zambian Partners: UNZA Academics**

Interviews were held with three members of the CERP team at UNZA. The interviews were deliberately less structured, to give interviewees the opportunity to talk more generally about perceptions of the CERP project. This said, generic issues were covered in each of the three interviews. Two of those interviewed were young academics in the early stages of their careers. The third was an established academic with international experience in the field of distance education. All three were involved in the Needs Assessment and advised module developers on the writing of materials.

4.3.1 **Reasons for Involvement in CERP Activity**

Reasons for involvement were linked to capacity building in both a personal and professional context. For the established academic, his involvement was based on the desire to build capacity both within the rural context and in terms of developing the potential of junior colleagues at UNZA. For the younger academics, there was a desire to engage in international academic debate and they felt that involvement in CERP gave them the opportunity to do this. It was noted that it was very difficult to gain research grants from within Zambia and that CERP involvement would perhaps encourage junior academics to bid for international research grants. One of those interviewed noted that involvement in CERP had made him aware of other external grants and that it had also made the department in which he was based eligible to apply for grants. The example was given of grant applications that would be submitted by UNZA to the Bill and Melinda Gates (Microsoft) Foundation for around $1million. CERP had also provided the opportunity for academics to extend personal research skills in the field, especially through involvement in the Needs Assessment (see Appendix 3).

In terms of the professional context, the academics all had an interest in extending education to rural communities and the fact that this activity built upon COLLIT development was important to them.

A key issue relating to involvement was the fact that CERP took a different approach to earlier projects in that it used a Needs Assessment to gain the views of the end-users. All the central academics welcomed this, noting that it was illustrative of the different position that the CERP project was taking. The project was seen as being owned by people in the localities in partnership with UNZA and the NFER. It was not seen as something being imposed on deliverers and learners; they were active participants rather than passive recipients. This approach, it was hoped, would build on the latent experience within rural communities and, in the long-term, build capacity with regard to extending the economic base of local areas for future activity and development.

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4.3.2 Involvement

As noted, all the academics interviewed were involved in the Needs Assessment. Though this approach was felt to be the correct one, it was noted that the process was time consuming and that the interview cohort (of approximately 150 rural learners) could have been larger. The senior academic added that it was unusual for somebody in his position to go into the field to collect data but he felt that this was important. This served to illustrate to learners that UNZA was not a *'remote ivory tower'* and that it was both concerned about, and could engage with, people in the rural areas. In addition to the Needs Assessment, the senior academic provided the distance learning expertise to developers as part of the module creation process. The younger academics had had some involvement in the development of materials but this was set to increase as they had ICT expertise that would be of key importance once materials had been finalised. There was concern that the delay in the production of finalised materials had impacted on their ability to meet all project aims and objectives.

4.3.3 The CERP Approach

It was felt that CERP was different from other projects for three key reasons:

1. CERP focused on topics that were important to the end-users (this evidenced by the Needs Assessment).
2. CERP built on and developed synergy with an earlier DfID project (COLLIT).
3. CERP materials were different as they were written in an *'edu-tainment'* style that had not been tried before, including experimentation with video and CD-ROM formats.

4.3.4 Impact

Impact was seen in both a personal context and in relation to other groups involved. In terms of personal impact, the two junior academics noted that involvement had given them the opportunity to acquire new research skills and to explore the possibilities associated with material development. With regard to other groups (primarily the module developers) it was felt that they had been exposed to the process of writing materials, which was an experience that would be good for them in terms of their own future development. The fact that the module developers were drawn from a number of government ministries was also perceived as a key feature, as this was something that had not generally occurred prior to CERP. Consequently, this had an impact on both module developers and, more generally, on the process of material development.

4.3.5 The Materials

The materials were generally felt to be good (though two of the three interviewees had not had sight of revised documents). Though the material was described as good, the fact that module developers had no prior knowledge of how to write was felt to be an issue, and that perhaps not enough time had been made available to provide the training that this group required.

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4.3.6 Issues and Challenges

Interviewees highlighted a number of issues and challenges associated with the CERP project. These included:

- The fact that it would be difficult to meet the high expectations that learners had, especially with regard to the use of new technologies.
- The uncertainty as to the extent of the applicability of various forms of technology such as video, audio, CD-ROM, floppy disc and the Internet.
- The realisation that there was not enough time available in terms of module development and that it was challenging to adhere to the agreed timetable. This was especially the case for development of the ICT element of module activity. It was felt that further training was needed to address this issue.
- Involvement in CERP had illustrated the many ways in which development could take place in the future. The issue for the academics was what would be the best direction to take.

4.3.7 Monitoring and Evaluation

The fact that the CERP material was different meant that different methods of monitoring and evaluation needed to be developed. Generally it was felt that a *'before and after'* approach was needed to ascertain the impact that CERP modules had had on learners. This said, there was a perception that there needed to be discussion with module deliverers to decide the best ways in which to evaluate activity. An interesting issue that was raised was that the modules had a *'functional'* element and that an area that needed to be focused on was: how much would learners use the skills that they had acquired? As far as possible, NFER researchers acted upon these issues during the qualitative data-collection phase.

4.3.8 Advice to Others

Respondents had a number of suggestions as to the advice they would give to others considering involvement in funded projects similar to CERP. These included:

- Academics should become involved in projects such as this.
- Involvement of partners should be for the correct reasons. Staff who were only interested in their own financial gain should not be included.
- There is a need to channel activity and also to understand clearly the way in which the knowledge coming from the activity could be further developed.
- There is a need to have clear roles and responsibilities for all those involved.
- There is a need to involve people who have the time to devote to the project. It is no good trying to involve partners who are already very busy.
- There is a need to ensure that clear timetables and timelines are in place so the process of development is clearly outlined and timetabled.

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- There is a need to ensure that linkages are found between literacy (if that is the focus) and development. The premise here is that literacy on its own is of little value, it is the linkage made between literacy, learning activity and the wider context that is important.

4.3.9 Sustainability

There were a number of ways in which respondents felt that sustainability could be encouraged. These included:

- Ensuring that the project design encouraged new methods of working.
- Involving, as far as possible, a range of stakeholders in the activities. For example, involving businesses and ministries in activity, even if they have not been involved from the outset.
- Ensuring that local capacity is developed (for example by the use of local module developers), as this will encourage sustainability in the local context.
- Ensuring that equipment that has been purchased from project funding remains in the host location. There have times when sponsors have removed project equipment after the funding period has come to an end.
- Ensuring that linkage is made between government ministries. The stronger the linkage, the greater the opportunities for sustainability.

4.4 Module Deliverers

Interviews were conducted with four module deliverers (one male and three females). The deliverers (who were also local literacy tutors) had not, at the time of the interviews, delivered CERP material but were involved in COLLIT material delivery. The discussion was not focused directly on CERP but it raised important issues that the CERP project team considered. These included the possible impact that the material could have in terms of increased motivation and attendance (and the associated effect that this would have on both the deliverers and the regional centre/satellites). In addition, there was also a need and desire amongst deliverers to continue with training, to develop the relevant skills they feel that they require to effectively deliver CERP materials. There is also a need, as far as possible, to ensure that raised learner expectations can be met in sustainable ways. All these were issues that were raised through discussion with module deliverers.

4.4.1 Occupational background

All module deliverers were trainers based at the regional centres. It was evident that the group had a wide range of experiences that they were able to bring to their module delivery. All had attended college and gained qualifications in Community Development, which included the teaching of literacy. Their qualifications were supported by practical knowledge in the field, with many working with rural learners for a number of years.

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4.4.2   Current Roles and Responsibilities

All interviewees work for the Ministry of Community Development and had responsibility for material delivery both at the regional centre and at the associated satellites. These satellites were located in surrounding rural areas. Deliverers provide classes throughout the week, as part of their duties that lie outside of the COLLIT and CERP projects.

4.4.3   Previous Experience of New Technologies

None of the group had been exposed to ICT equipment prior to the CERP and COLLIT projects. Through COLLIT funding, they were able to attend a week-long workshop that provided them with the technical skills and ability to use a number of computer programmes, such as PowerPoint, Excel and Word. Following this training, they were expected to be able to use ICT to give support to learners and to teach them how to use computer equipment provided by project funding. CERP training (which they had all experienced) has been complementary to this development.

4.4.4   The Impact of New Technologies on Pedagogic Approaches

Module deliverers felt that the use of ICT had had a major impact on their teaching styles and approaches. This impact was both on themselves as professionals and also in terms of their engagement with learners. ICT use has encouraged them to review their teaching approaches as computer material has supported (and to a certain extent replaced) them within the class. On a more personal level, respondents noted that they were receiving encouragement from their friends and family to continue to develop their ICT competencies. A key reason for this was that friends and family wanted to be able to use the skills that the deliverers were developing.

Module deliverers perceived that the impact of the use of new technologies on learners was fundamental. Impacts highlighted included:

- An increase in motivation amongst learners.
- An increase in the number of learners attending sessions (this was particularly amongst male learners).
- The fact that more people from the local community were admitting that they were illiterate when they came to the classes, and importantly were actively working towards addressing this issue, using ICT (in part) as a vehicle for this.

One respondent noted with regard to the increase in motivation and attendance at sessions that *'every person's dream is to learn to use the computer. If you can't use it you are going backwards'*. The desire to engage with new technologies was clearly evident, but it was the nature of that engagement that was the issue. Whilst deliverers were positive about the increase in motivation amongst learners, there was uncertainty as to what this actually meant in reality. Engagement was positive, but engagement without meaning (for example, being

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able to open specific computer programmes but not knowing what to do with them) was the key. The fact that deliverers felt that they required more training was evidence of this uncertainty of the meaning of engagement with these technologies. If the deliverers were uncertain themselves, this would clearly impact on learners. This said, in the longer-term it was hoped that learners would increase their ICT knowledge, as it was becoming more common for employers to want workers who were computer literate.

The developments were evidently positive, but the rise in motivation and the associated impact on class sizes brought a range of pressures that material deliverers had not previously experienced. The key pressure was the increase in the number of learners who were attending the sessions.

4.4.5 Issues and Challenges

As already highlighted, the use of ICT has created a number of issues and challenges, but generally these are not seen in negative terms. Clearly there is now more demand made by learners on module deliverers but this is being offset by the fact that their levels of motivation have increased and they are achieving better results. In addition, it was felt that learners were now more interested in the process of learning and that it had encouraged more local people to admit that they do need to improve their skills (particularly literacy skills). This said, the issue about the meaning of engagement was something that was of concern to deliverers.

4.4.6 The Materials

The use of different media in terms of module material was discussed. Two of the four had no specific views on this but the other two were certain that the use of technologies would be good in terms of literature being made available in disc/CD-ROM form, for example. The benefits of using new technologies in module delivery were felt to be that:

- The difference in the format of the material would serve to motivate the learners.
- Literature on disc/CD-ROM could be accessed by learners without the need for a deliverer to be present.

4.4.7 Future Developments

Future development was discussed in terms of both approaches to teaching and in the equipment and material that module deliverers might like to access. Generally it was felt that there was a need for deliverers, as a group, to gain more knowledge with regard to the use of ICT. The reason for this was that the group was aware of the possibilities accruing from the use of computers and other technologies. It was felt that there was a need for them to ensure that they had the training to enable them to access ICT, as this would then enable them to download information and teaching materials from the Internet.

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4.4.8 Sustainability

The deliverers noted that there was a demand for more computer equipment from learners. As well as the increase in demand, the issues of the costs involved were discussed. An increase in motivation and learner numbers leads to a need for more computer equipment and an increase in costs involved, in terms of both buying new equipment and ensuring that existing equipment is maintained. In one of the regional centres (Kabwe), additional sessions were being provided in an effort to make the development of ICT sustainable. These additional sessions were provided at a nominal cost to participants. The price for attending similar sessions run commercially was Kwacha (Kw) 45,000 (£9) but the centre was offering courses at a lower rate (circa Kw25,000 (£5) for a two-week course). To put these amounts into perspective it is worth noting that the cost of basic foodstuffs for a family of four for two weeks is circa Kw40,000 (£8). It was hoped that by developing income generating activity, continued development at the centre would be possible and that increased learner demand could be met.

4.5 Learners

This section highlights the perceptions of learners regarding CERP materials and sessions. Meetings with learners took place at two stages in the project. The first round took place in Spring 2002 and the second in late Summer 2002. Interviews were held at the three regional centres and a selection of satellites. The benefit of this approach is that UK researchers were able to assess both the need and impact of CERP material in a non-threatening environment for the learners. Areas covered in discussion with learners included:

- Personal background;
- Reasons for participation;
- Perceptions of the materials;
- Perceptions of the content and teaching;
- Perceived impact of CERP materials on skills, etc.;
- Any additional issues that learners wished to raised.

Researchers met learners as one group and discussions were held in the regional language with translation provided. Handwritten notes were made throughout interviews and these were produced electronically and archived accordingly. Learners were of mixed gender with a preponderance of women.

Below are the details of the three regions: Katete, Monze and Kabwe.

4.5.1 Katete

Katete is located in the Eastern Province near to the Mozambique border, circa 600km from Lusaka. The majority of the population is involved in subsistence farming activity, though there is some limited cotton production. The standard of living is generally very low and

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living conditions have been made more difficult due to the drought and subsequent famine in the area. The impact of this is that the province is the poorest in Zambia.

The take-up of education provision is minimal and levels of illiteracy are high.

Researchers visited the government regional education centre and a number of its associated satellites, including:

- Kafumbwe;
- Mbinga Village.

The regional centre in Katete (as in Kabwe and Monze) is directly funded by central government, and staff are paid as civil servants. The fact that CERP is using these regional centres as the focus for project activity illustrates the co-operation between CERP and central government.

There was also the opportunity for NFER researchers to visit the Lupande anti-AIDS Women's Club. This club is funded by UNESCO and is currently involved in making clothing for local school children. In the future, they will be using some of the CERP material to support their learning. For this particular group, learning to read and write was important to them as a means to an end, as opposed to being the end itself. There was a desire to expand their manufacture of clothing so that they could earn money. The need to arrange contracts and business arrangements to ensure that a profit could be made, meant that the ability to read and write was crucial. CERP material will support their literacy learning. The use of CERP material by this particular group highlights the impact that synergy between projects with discrete funding streams can have. This particular group will benefit from UNESCO start-up funds, infrastructure coming from the COLLIT project, and materials coming out of CERP activity.

4.5.1.1 Resources

The computer centre where CERP materials are used is run by a Provincial Community Development Officer, assisted by five or six staff. The centre itself has been refurbished with funding provided by the COLLIT Project. There is one classroom that can be used by learners. This classroom has a range of equipment including:

- Two computers;
- One printer;
- One video;
- One television;
- One hand-held video camera;
- One blackboard.

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The satellite centres have very limited resources. In one of the centres (Kafumbwe), there was no electricity and the teaching area was a bare hall with concrete floors and no seating. The resources included one dilapidated blackboard and the COLLIT pamphlet on diseases. In the other centre (located at a local school), the facilities were also limited, though the deliverer was using a battery driven audio-cassette player to support learning activity.

The increase in local demand for learning has meant that the limited resources available are becoming increasingly scarce. Whilst local fieldworkers welcome this increased interest in learning, it has brought with it a demand for resources that cannot be met within existing funding arrangements.

4.5.1.2 **Activity observed**

Activity was observed in three centres. All centres had adopted a similar didactic pedagogic approach that is standard practice in local education. Activity was deliverer-centred with learners generally taking a passive role in sessions. Where there was learner involvement, this was limited to:

- Deliverer-centred question and answer sessions;
- Reading small pieces of text from the board or from paper-based materials;
- Repeating phrases of text that had been recited by the tutor.

Though these were traditional forms of teaching and learning, it should be noted that the fact that this provision was being offered at all was the key point, and there was evidence that attenders were learning to read and write. The topic areas observed included:

- Health related issues (including safe motherhood and illness (such as diarrhoea));
- Basic literacy tuition (for example, a session on how to write a letter).

Despite the lack of resources at Katete, regional staff had made considerable efforts to develop their own learning material. One CERP module developer at the centre took it upon herself to develop additional materials. Using the skills that she had acquired during CERP module training at UNZA, she arranged a series of interviews with local healthcare professionals. These interviews were recorded and transcribed. The printed text was then divided into a number of sub-sections and, using ICT equipment, a photograph of the interviewee was inserted. Tapes were made of the interviews, and these provided deliverers with both audio and paper-based resources in the local language for use with learners. In addition, the centre was involved in the collation of local folk tales. These tales were being recorded and (as with the other interviews), transcribed and provided in paper format to learners.

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Use was made of a variety of teaching and learning media in the sessions observed. These included:

- Video and television;
- Computer keyboard and monitor;
- Paper-based text and pictures;
- Audio-cassette/radio;
- Blackboard.

From discussion with learners it was evident that they preferred deliverers to use ICT equipment (a tape recorder, for example) but supported with paper-based material. It was the combination of the two that was felt to be most beneficial for their learning.

Activity takes place both during the week and at weekends (on a Saturday). Sessions are generally held in the afternoon and last for around two hours.

4.5.1.3   The learners – Katete

Overall, there were significantly more women than men attending the sessions. The age of participants ranged from 17 to 59. All were involved in subsistence farming (which is predominantly organised by females) and lived near the regional centre or its satellites. A number of learners from the satellite centres made use of the equipment at the computer centre in Katete itself. This entailed a journey on foot of circa 10km each way. All were very positive about the learning experiences that they were receiving at the centres, although they wanted additional learning materials to work with.

Reasons given for participation included:

- The desire to be able to read (in both the local language and English). The reasons given for this were that once individuals could read then they would be able to make use of printed material that was available, especially in relation to health issues (prevention of diseases and so on).
- The desire to write (again in both the local language and English). The main reason given for this was that once individuals could write, they perceived that they would be able to find employment and a secure income. In addition, the ability to write was felt to be important as it enabled people to communicate with friends and family outside of the locality. A key aim of learners was to be able to write their name on documents.
- The wish to increase individual knowledge on a wide range of topics. These included:
  - Business and Marketing skills;
  - Information on prevention of disease (Malaria, for example);

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- Information on treatment required for certain illnesses;
- Issues relating to childbirth (Safe Motherhood Material).

All were positive about the learning experiences and said that they would recommend that their family and friends attend the sessions. Learners had found out about the classes either by word of mouth or by direct approaches made by the local fieldworkers.

In terms of future development, learners were clear about what they wanted. Generally there was a desire for more material, and for current levels of education provision, to continue. One learner commented that she wanted '*practical things to keep people healthy*', and this was a general theme from those questioned. For them, education was not simply about learning, it was seen to be the key to their continued survival.

At the CERP dissemination conference (September 2002), a small group of learners from Katete shared their CERP learning experiences with delegates. Learners were positive about the potential impact that CERP material would have on them, but did highlight a number of issues that should be considered in the future. Principally, this focused on the need for material developers to reflect the language of the learner rather than that of the module developer and/or translator. For a comprehensive account of the CERP Dissemination Conference, see Appendix 6.

4.5.1.4 Katete – conclusions

There has been considerable development at Katete and this is mainly due to the leadership of the CERP field officer. She has developed materials in the field, and therefore responded directly to the needs of the local user-groups. This has been achieved with very limited resources. As well as being used at the regional centre, these have also been disseminated to the satellite centres. Despite these advances, there is a need for further development of material (this being the CERP material and other locally developed resources) if the increase in demand from learners is to be met.

There is also a need for greater resources to ensure that material developed can be delivered using a variety of media. There is ICT equipment at the computer centre, but it is limited, and sessions using the computer equipment involved around fifteen learners and one workstation. Whilst learners are able to have sight of the computer equipment they are unable to engage with it in any meaningful way.

There is also a need to provide basic training in terms of approaches to teaching and learning and in ICT. The teaching methods used are didactic and there is a need to make tuition more interactive. Learning is currently passive, and there has to be a fundamental change in delivery methods. Additional training provided to module deliverers is needed, to ensure that development is made in this area. The need for basic ICT training is also evident. The

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management of computer software programmes by users is causing confusion and is too complex. Whilst deliverers are doing what they can, they do need training to ensure that they can make the use of computer equipment as accessible to learners as possible.

4.5.2 Monze

Monze is in the Southern Province, located on the Lusaka to Livingstone Road, circa 200km from the Zambian capital. There is much poverty in the area caused by the failure of the maize crop. In addition, there is a considerable amount of livestock in Southern Province, but this has been badly affected by a recent outbreak of anthrax. The population of the Monze region is 250,000 with approximately 120,000 living in Monze itself. As in other areas in the country, HIV/AIDS is at pandemic levels. This is further exacerbated by the fact that polygamy still exists in the area. The use of birth control is becoming more common, though there is some resistance to this. The reason for this is that men argue that as so many of their children are dying or have died (primarily of AIDS or related illnesses) they need to continue to have children, presumably so that there is ready supply of labour to work in the fields.

Researchers visited two sites at Monze:

- - The regional centre (in the Monze town area);
- - Nteeme (a small rural settlement 18km outside of the town).

The regional centre has faced a series of challenges over had the last eighteen months. The original centre manager was ineffectual and was, after a considerable time, moved to another post. This had an impact on the pace of development. Both the present centre manager and his deputy have only been in post for a limited time, but real progress has been made. A number of COLLIT funded literacy courses did begin last year but were suspended following the change in personnel. Until recently, the involvement of Monze in the CERP project had been suspended. The centre has now been reinstated and activity is now comparable with that at Katete and Kabwe. From discussion, it appears that a number of community development officers (who were also CERP module material developers) have also left the centre. The result of this was an initial lack of awareness of the CERP project, but this has since been rectified.

In addition to the field officers, the centre employs a number of peripatetic tutors paid on a daily rate (Kw500 – around ten pence per day) up to a maximum of fifteen days per month. They are involved in the delivery of a number of literacy classes. There is monitoring and evaluation of both tutor and learner activity conducted by centre staff. Tutors are observed in the field and learners are tested to gauge any advances made to their learning. In addition to paid staff, the centre uses a number of volunteers to deliver activity. Whilst their involvement is welcomed, learners noted that the volunteer teachers' presence was not as

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reliable as their paid counterparts. If CERP material is to be delivered by volunteer teachers in the future, some attention will have to be given to their training and commitment.

4.5.2.1 Resources

Both the regional centre and its satellites are poorly resourced. The centre has one computer housed in a small office. Very limited paper-based material is available, and there is only one audio-recorder, which is of acceptable quality. When learners do have access to the computer, there is little that they actually do, in terms of learning activity, with the new technology available.

4.5.2.2 Activity observed

Literacy classes were observed at both the regional centre and at Nteeme. At the regional centre, around twenty people were taught in a small office – there is a designated centre in existence but refurbishment has not yet been completed (funding for refurbishment is available under the COLLIT Project but little progress has been made). The computer was used as a vehicle for session activity but it was unsuited for this purpose. Only a small number of the learners were able to have sight of the screen and the teaching activity taking place had little meaning for many of them. The tutor appeared to have received only basic training and the combination of this and poor resourcing and inadequate accommodation presented a series of challenges. A key issue was that though the tutor had received some CERP-funded ICT training at UNZA, it was too advanced and therefore of limited use to learners. That said, the classes were having an impact as in the weeks that the sessions had been running, a number of learners had started to read and were able to write their name for the first time.

At Nteeme, the session was held in the open air under the shade of a tree. Resources included a blackboard, one text and each learner had a notebook. Though the tutor primarily adopted a didactic approach, he made the session informative and enjoyable for the learners. He also made a concerted effort to involve learners in the lesson using question and answer sessions, song and drama activity. In addition, he had taken it upon himself to cycle to the regional centre (18km away) to develop text-based material to support learning activity. It should be noted that the tutor had also received CERP ICT training at UNZA in the previous week and had put to use the knowledge that he had acquired. Activity focused on one section of the text, exploring word sound and construction.

4.5.2.3 The learners – Monze

The majority of the learners were female, and attended sessions during the week. They were involved in other activities that included:

- Childcare;
- Subsistence farming/food production;
- Running the household.

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All had a desire to either read or write, though this was generally with regard to Tonga (the regional language). Very few had attended school and the level of prior literacy knowledge was minimal. Reasons given for wanting to read and write included:

1. The ability to read a variety of materials (including letters and the Bible).
2. Enabling learners to support the education of their children. This was of particular importance to these learners as they were unable to afford school fees. (It should be noted that 'basic' schooling has recently been made free for all, however the need to provide texts, paper, writing instruments and uniforms put schooling for children out of the reach of most families. Where schooling does happen, this is usually of the seemingly most intelligent male child. Where families habitually number eight or more children, the scale of need can be fully appreciated). One learner said *'Children who grow up in towns learn better as they have a lot of things.* [I would] *like to teach rural children the same, these lessons will help on this.'* Learners also hoped to be able to support learning activity of others in their local communities.
3. The ability to use and understand money and be able to manage household finances – especially in terms of receiving the correct amount for any produce sold at market, or any aid received. As one learner described *'When we go for food* [government subsidised maize meal] *we have to sign. If I can't write how do I sign?'*
4. The desire to learn about methods of earning additional income from activity. Learners hoped that the ability to read would enable them to make use of material on entrepreneurship, so that they could support small-scale economic activity.
5. The need to understand modern technology and advances in science and practices, especially with regard to farming methods.

With regard to CERP material, the learners felt it was good as it provided them with additional information that they did not previously have. They also claimed that the material produced was more accessible to them than existing government pamphlets. One issue was that learners had previously farmed with animals, but due to the recent drought and lack of food for livestock, they were no longer able to keep them. CERP materials have provided learners with information on how to farm without using draft animals. They added that CERP material had also shown them new methods of farming that were more efficient and would increase their crop yields. One learner noted that a major issue that she faced was *'being left with orphans… we haven't enough food or space… since the animals have died we have to find a way to improve productivity to be able to feed my extended family with the orphans.'* She felt that the CERP material would provide the information that would enable her to increase crop yields and therefore help her to feed her extended family.

In terms of future development, learners wanted more resources, particularly those focusing on knitting, cooking, hygiene and agriculture. CERP materials are going some way to providing the extra resources that these learners desire.

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4.5.2.4 **Monze – conclusions**

Development at Monze was initially slower than the other regional centres, primarily due to the staffing difficulties that the regional centre experienced during the CERP Project. This said, activity has now taken place (as evidenced by that at Nteeme). Capacity building is taking place at Monze and the knowledge base is increasing. Despite the delays in implementation, the pro-active stance taken by regional and satellite staff suggest that where CERP materials are used, then considerable advances are being made. There are two key issues with regard to activity at Monze:

1. The need for greater resourcing;
2. The importance of basic training in both ICT and approaches to teaching and learning, that meet learner needs.

UNZA could be approached in the future to address these issues. If it does not have the capacity to provide what is needed, then other agencies should be involved.

4.5.3 **Kabwe**

Kabwe is a medium-sized town located approximately 150km from Lusaka in Central Province. It is the regional centre that is closest to the national capital. The centre is housed in a range of small buildings located on the outskirts of the town. It has a number of satellites at which teaching and learning activity is offered. The majority of the population is involved in subsistence farming activity. The main employer in the town had been the copper mines but since these have closed down there is little industrial activity and unemployment is high. There is some new industrial development (textiles production) funded by the Chinese Government.

4.5.3.1 **Resources**

The centre had a video camera and four computers. E-mail was available but connection to the network was erratic. There were some paper-based materials (these being the CERP modules on Conservation Farming and Health), and there is access to audio-recording equipment that is being heavily used in materials delivery.

4.5.3.2 **Activity observed**

During the first visit, UK researchers met six learners at the regional centre. Learners were interviewed as a group with translation being provided (from Bemba) by a member of regional staff. During the visit, researchers observed limited activity taking place. As in the other centres, a didactic pedagogic approach was taken, in which the learners took a passive role, responding to, rather than fully engaging with, activity. There was some use of the computer equipment available but the tutors involved did not have the necessary knowledge to use the equipment to its fullest potential.

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At the second visit, researchers met over sixty learners (all female) at the regional centre and around twenty-five learners at Natuseko, a small farming unit circa 30km from the Kabwe regional centre. Learning took place at Natuseko, as it was relatively accessible for learners to travel to from their individual land holdings. At the centre, learners were using CERP material directly from a computer (using CD-ROM) supported by paper-based text. In Natuseko, researchers observed a practical session taking place in a field that was part of the satellite centre. Activity was focused around a section of CERP material highlighting the benefits of specific planting methods, in preparation for activity in October when farmers have to prepare their ground for sowing.

4.5.3.3 The learners – Kabwe

The majority of the learners seen were women and there appeared to be a considerable variation of age amongst the group. This would suggest that centre and satellites attract a wide age range of learners as opposed to one specific age group.

Learners were from both the local area and further afield. Respondents had heard about the centre from a number of sources. These included:

- From advertising – posters were placed in the local market;
- Hearing about activity from friends who had already attended courses;
- Hearing about classes from local literacy officers.

As a group they were involved in a wide variety of activity outside of attending sessions at the local centre. These can be divided into domestic and subsistence activities:

- Domestic: Washing and cooking activity.
- Subsistence: Producing food for consumption by the family and for sale in the local market. Food sold included vegetables (cabbage and tomatoes), sugar and bread.

One member of the group owned her own farm though she added that yields were not high as she was unable to afford fertiliser to prepare the ground. It was evident that this group of learners were highly motivated and interested in developing their entrepreneurial skills, in the sense that they saw beyond the production of food for their family, recognising the cash benefits that could come from selling their produce.

With regard to involvement in literacy activity they had definite reasons for participating in the sessions offered. These included:

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1. The desire to read and write. There were a number of reasons for this that included:
    - Being able to understand language to communicate with friends and colleagues (especially with regard to being able to conduct business). In addition it was noted that the speaking of English was useful as it meant that individuals could communicate throughout the provinces of the country regardless of where they were, as it was the common language of Zambia;
    - Being able to read (primarily the Bible);
    - Being able to write. Being able to write English meant that people could write letters – one respondent noted that she would be able to write letters asking for funds for local widows and orphans.

2. The desire to engage with new technologies (primarily the computer).

The group discussed the pedagogic approaches that they had experienced at the centre. It was felt that the tutor-centered didactic model of learning was not very successful. It was noted that lessons involving writing down what was said by the tutor were not good, as they forgot the information covered relatively quickly. The approach that they felt was most successful was the use of the computer equipment. The reason for this was that using the computer meant that they could learn without always having to have tutor input, as the computer became the main mode of delivery. That said, they noted that they still needed tutor input, as their computer skills were not as good as they would have liked.

With regard to the materials, all were very positive about the content and it was evident that they had already experienced a number of life-changing lessons. The content of the material was felt to focus on issues that were important to them – especially information relating to illness and disease (HIV/AIDS for example). As well as learning the facts, the group discussed the wider implications of the disease in terms of impact on the family group and on the local economy, in terms of an increase in the number of children without parents, fewer people to support families and so on. One respondent noted that she had previously not understood the link between hygiene and health but she now realised that 'You can be sick if you are dirty'. For this woman, this information has had a great impact on her life and presumably also on that of her family.

In general discussion with the learners it became evident that there was a thirst for knowledge and a real desire to embrace the use of technology to support learning. For example, learners were very positive about using both audio and paper-based materials in a combined approach. The learning experience already appears to be having a life-changing impact on learners and their hope was that their learning should continue. They expressed a desire for more computer equipment, but this desire did not seem to be founded. Engagement with computer equipment appeared to lack substance. The computer was being used as a typewriter rather than a resource. From observation, use of the computers

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was mechanical and involved the learning of sequences rather than engagement that had any real meaning for the learner.

4.5.3.4 Kabwe – conclusions

CERP related development at Kabwe had initially been in advance of the other two centres. Activity was building on COLLIT involvement and an established body of developers and deliverers was in place. Subsequent staff change (the CERP Operational Manager) meant that development was suspended for a period of three months. Despite facing these issues and challenges, the newly appointed CERP field officer has ensured that Kabwe has made up this shortfall. At the time of the final visit by UK researchers, delivery of module material had resumed. There are a number of key issues with regard to Kabwe:

1. The importance of having some consistency of staffing throughout CERP activity;
2. The need for a greater focus on interactive pedagogic approaches;
3. The approaches using to learning should not be constrained by the conservatism of Ministry staff.

5 General Project Outcomes

This section provides an overview of outcomes of the CERP project. Outcomes are seen against two distinct, but related, criteria:

1. The five key DfID categories;
2. The original CERP objectives.

5.1 Outcomes against DfID Categories

5.1.1 Capacity Building

With regard to capacity building, this is both on an institutional and personal level and involves a number of key groups. Though the initial project proposal highlights capacity building in an institutional context, the development of the project suggests that capacity building has exceeded the original scope as outlined in the proposal. Activity illustrates that capacity building has developed in the following ways:

1. Institutional Capacity Building

In this context, capacity building has focused on the development of the skills of staff both from within UNZA and also government regional centres. In terms of the University, the CERP project has enabled it to both build on skills that its staff already had and to develop new skills. This will ensure that a body of knowledge will remain within the University, but, perhaps more importantly, also in the rural areas. Rural communities are now able to access knowledge that was previously only held at the centre. CERP has acted as a catalyst for this process. Key issues associated with institutional capacity include:

- The development of a knowledge base within the University in terms of approaches used in developing innovative material using module developers from outside of the institution.
  Action:
  Whilst development has taken place, this has been limited in terms of the number of people involved. In addition, the degree of innovation both in approaches and material delivery reflect the difficulty that UNZA faces in meeting the considerable demands of the project. Though there is a body of knowledge within the University this does not, at present, encompass the use of new technologies to any great extent.

- The involvement of younger staff within the institution to lead on key areas of development such as the use of ICT to enhance the materials produced.
  Action:
  Four young staff have led on the development of ICT to enhance the materials used. Whilst this has benefited those involved, they have had to fit this activity alongside their normal workload.

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- The involvement of the University in activity focusing on the needs of people within rural communities.
  Action:
  The project has enabled the university to engage with material developers, deliverers and learners in the field. In addition, UNZA has also developed its links with Government Ministries such as The Ministry of Community Development and the Ministry of Health.

- Each regional centre has at least one member of staff that has received both material development and ICT training.
  Action:
  The training received has not always been tailored to the prior knowledge and specific needs of the individuals involved. Some effort has been made to address this by UNZA, providing additional training as and when requested.

2. Personal Capacity Building

- The impact of the project on a range of people has been, in their view, wide-reaching.
  Action:
  In terms of central academics, they feel that they have been able to develop their research skills (via the Needs Assessment for example) and their experiences of working with people outside of the university context. For the module developers, involvement has given them the ability to write educational materials and more fully understand the needs of the local communities that they serve. More generally, they feel that the skills that they have gained will enable them to develop personally. For example, developers noted that they were now more able to manage knowledge more effectively and were more reflective on practice. In addition, the involvement in activity had encouraged them to think about furthering their education.

  Though material deliverers and learners had not been able to work with the complete set of CERP project materials, it was evident from their experience that development such as this was building their capacity. Deliverers were now able to use ICT equipment to a greater extent than prior to project involvement. With regard to learners, involvement in activity had encouraged them to engage more fully in the learning process and develop their own skills. In addition, the knowledge that they are gaining (for example relating to health and farming) was felt to be useful in developing a wealth of information that will continue to impact on the wider community.

5.1.2 Education and Training

- The CERP Project has provided education and training activity for eight module developers through residential workshops held at UNZA. This training has had an impact on the people involved, particularly with regard to the development of written materials. The number of people involved in developing the materials is greater than

originally envisaged and this has meant that CERP activity is providing education and training for a larger number of people than originally expected. As well as the material developers, young academics at UNZA have received training to enable them to participate in Needs Assessment activity.

Action:

Further development still has to take place to provide training as and when necessary.

- The CERP project has built upon and is extending COLLIT-funded activity.
  Action:
  An example of this is that module developers who are also involved in the COLLIT project are passing on their newly acquired ICT knowledge to module deliverers in their local centres.

- The synergy between the CERP and COLLIT Projects has contributed to education and training.
  Action:
  This is both at UNZA and in the regional centres and satellites.

- Groups of learners are currently using CERP material in all three regions.
  Action:
  From UK researcher visits (see Section 3 for relevant discussion) impact has been made on the literacy skills of the target cohort.

5.1.3 Participation

A larger number of people were involved in CERP activity than initially envisaged. The importance of this lies in the range of people involved, rather than just the number. Participants have not only been from the University or from a single Government ministry, but from a variety of ministries, a range of University Departments and from the rural areas. The involvement of such a wide range of people is a new development in the country. Those involved in the CERP Project include:

- Representatives from government ministries;
- UNZA staff (including central academics and editors);
- Module developers;
- Module deliverers;
- Learners;
- UK team researchers;
- International experts (from the UK, Namibia and Canada).

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5.1.4 **Globalisation**

- Materials produced by CERP will be able to be used throughout Zambia.
  Action:
  The reason for this is that the materials are not context specific, yet they take account of the cultural nuances of different provinces. Within the duration of the CERP project, materials have been produced in English and the three regional languages predominantly spoken in the provinces involved. For wider distribution, further translation into the remaining regional languages will be needed.

- As English is the official language of Zambia, the materials add to the drive towards reducing illiteracy and poverty levels, both of which are major in-country government objectives.
  Action:
  The Zambian Government is currently developing a policy for education for all due to be launched in the September of 2003. CERP materials could provide a foundation for this.

- International experts have been involved at all stages of CERP development.
  Action:
  Their involvement has provided an international context in which CERP can be located. Involvement has been at all stages of the CERP Project, from initial discussions, through the material development process and also in monitoring and evaluation of project outcomes.

- The concept and process of the project (though not necessarily the materials that may be specific to Africa) could be adapted as a pattern of capacity building from the grass roots in other developing countries.

- A member of the UNZA core academic team visited the UK in July 2002.
  Action:
  Vitalicy Chifwepa visited three universities in the UK (De Montfort, Keele and The Open Universities) and two schools who make extensive use of new technologies across the curriculum. Issues of adult education were also explored and a number of leading UK experts are willing to provide future support to develop adult education in Zambia, if requested. (Please see Appendix 7 for the report on this visit).

5.1.5 **Dissemination**

Dissemination of project activity has been ongoing. Briefing and scoping meetings were held with senior civil servants in the Zambian Government at the set-up stage of the project. A one-day seminar was held at UNZA in the June of 2001 (see Appendix 1) that was attended by representatives from Government Ministries and senior members of the University. Again, project information was disseminated and the decision was made to develop a Zambian literacy website. This site is now live and it offers visitors the opportunity

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to share knowledge and expertise. Recently, links with developments in other countries (Zimbabwe for example) have been added. This site is a key vehicle for the dissemination of project activity. The site contains:

- The Needs Assessment;
- Exemplars of module material;
- Advice on developing distance-learning materials;
- Background information on the CERP project.

- At the conclusion of the funding period a dissemination conference was held in Lusaka (Tuesday 3rd September 2002). The purpose of this conference was to share experiences of material development and usage since the start of CERP Project and to suggest ways in which activity could be sustained.
  Action:
  The team decided that delegates should include representatives of all stakeholders. Delegates included:

- Learners;
- Module developers;
- Module deliverers;
- Core team members (from the UK and Zambia);
- Senior Civil Servants and representatives of Government Ministries.

A conference report can be found in the appendices (see Appendix 6).

- A Research Information (RI) Sheet was written for the project and posted on the NFER website. This sheet summarised the aims and objectives of CERP, project timetables and UK and Zambia partner information.

- The UK research team have agreed to contribute to a forthcoming DfID Research Seminar (date to be confirmed).

5.2 Outcomes Against CERP Objectives

As described, the CERP project had three key objectives and four desired outcomes. These are discussed below.

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5.2.1 Material Development

- To develop two educational modules (covering basic education but taught through the context of health education and farming practices) which can be delivered by audio/radio, paper- and web-based means.

  Action:

  CERP has developed a number of stand-alone modules that can be divided into study packs (see Appendix 4 and Appendix 5). In addition to paper-based materials, modules have been transferred to CD-ROM and web.

5.2.2 Monitoring and Evaluation

- To evaluate these modules in terms of models of delivery for community based learning and a range of broad educational outcomes for participants.

  Action:

  UK researchers and international consultants have monitored and evaluated the process from the start of the project. Activity has included interviews, observations and feedback on modular material. Section 3 of this report gives an overview of monitoring and evaluation activity completed as part of the project. In addition to the overview previously described in the report, the two CERP consultants have written papers giving their thoughts on the module material. These are included below.

5.2.2.1 The CERP Module Material – Overview paper by the CERP UK Consultant

Joan Stephenson, UK Consultant to the CERP Project (and core team member), prepared this paper.

5.2.2.1.1 Overview

To date two completed modules and seven draft modules have been written as a result of activity in the CERP project. Of these, only one, that on farming methods, has been trialed to any extent in the field. A very big strength is that completed modules have been translated into local languages and that they directly address the perceived needs of the learners as a result of the initial Needs Analysis (see Appendix 3). It has been problematic in gauging the register of language needed (rural, semi-rural and town dialects all having differing levels of loan words, etc.), and exemplars used. The writers also occupy a very different stratum of society from the end users of the materials.

The response to the first lesson in that module has been very positive amongst the groups of farmers (both female and male) interviewed. This would seem to bear out the premise that any written material targeted at the perceived needs of the participants will result in further learning, since there is either no existing material or that which is available is either too technical, set at too advanced a level (either of literacy or knowledge) or is not immediately relevant to the needs and concerns of the learner. Without the CERP project it is highly unlikely that even this basic position would have been reached. The CERP

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material certainly fills a gap, and as such is to be welcomed and rated successful. Indeed the Ministry of Education in Zambia have stated that they welcome it warmly and will use it as a major tool in their forthcoming new initiative in a programme of adult education to alleviate poverty. As well as the actual material itself, the future contribution that those who now have experience of producing such resources can make should not be overlooked.

It is always difficult when assessing areas outside one's own culture and/or immediate experience, to establish a base line against which to make any evaluation. Should conclusions be based on standards set within the home experience, or take into account, where and as much as possible, the limited understanding of the experiences and needs of the people for whom they are designed? Any judgments are going to be subjective. We have elected to take two stances, that of a professional in the field and attempting to put ourselves in the place of the learner.

5.2.2.1.2   Specific issues

Even though the outcomes have been positive, a number of issues still remain to be resolved over the quality of the modules and how this basic sufficiency can be built on in the future, by those who have now had basic training in writing techniques and those who are to use the material henceforth with learners in the field. The challenges of distance education also need to be further addressed. Some of the team responsible for this training were themselves distance learning practitioners and some further suggestions for tackling the issues inherent in learning and teaching at a second or even more distant remove have been points of discussion during the CERP project (see, for example, Appendix 8 as one instance), but a fuller menu of techniques should be incorporated into the programme, as written, if the modules are to have anything like the full impact possible.

A major factor is some confusion over the purpose and objectives of the modules. Is the principle target to teach people to read, to enhance reading skills, to impart a limited body of knowledge on a specific subject or to encourage people to think for themselves? As an overall objective is to support people in their struggle to overcome poverty and its concomitant consequences, all of these, plus others such as fostering entrepreneurship, are desirable. A further target of making learning enjoyable and relevant has been addressed to some extent, though with major limitations. The modules as they currently stand do not differentiate between these objectives and therefore fall short on all fronts.

The format of dialogue has been adopted throughout. This is a positive move in personalizing the knowledge to be put across, but a lack of variety in approach will inevitably become repetitive and boring. The pedagogic style favoured is very didactic, with any interaction on the part of the learner being restricted to answering questions, the quality of which is sometimes suspect. This very much mirrors the state of educational practice in the country and, as is inevitable, writers and teachers begin with what is most familiar and

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comfortable to themselves. More imaginative and diverse ways of presenting the material now need to be developed. For instance no use is made of music and singing in the methods adopted, nor are there games or puzzles, so useful for reinforcement. Further support is needed by the deliverers of these modules in addressing teaching and learning techniques and most specifically in differing both the approach and the level, even the language, of the module they are teaching according to the needs of the individuals within their groups. One centre had elected to trial the modules with a group of literate farmers. In the circumstances this was a wise choice even though it has led to claims of elitism and does to some extent work against the central ethos of the project, to work towards alleviation of the conditions of the very poorest. Had the original timescale for material production been kept to, the pilot trial of this module would have signaled the lack of differentiation by ability inherent in all these modules as they now stand.

5.2.2.1.3   **Literacy and ICT**

As alluded to above, the lack of clarity in primary objectives has produced a set of modules where the basic levels of difficulty both in the register of language, and the skills teaching techniques are not those required by absolute beginners on the road to literacy in whatever language. For example the vocabulary is not controlled, the non-language clues (e.g. illustrations/diagrams etc) are minimal and not always self-explanatory or appropriate and there is little or no attempt to address specialist vocabulary. The comic-strip technique could have been more widely used, and there is no mitigation for these drawbacks in the format of the individual lesson itself. All of this could have been, and should now be addressed, through support material produced for the deliverers of these modules. A basic portfolio of materials and techniques for sound, letter and word recognition and building, along with word/sentence games and quizzes, using and extending the vocabulary needs to be developed alongside strategies for ensuring understanding, rather than 'barking at print', is a major requirement. From observations of lessons in progress it is not clear that these skills can be assumed to be a part of the writers' or deliverers' expertise. In only one case were any of the basic techniques in teaching people to read and understand print demonstrated, and this was in a lesson using material other than a CERP module. A 'say and repeat' regime prevails. There was no evidence of building on transferable skills, nor of a consolidation of that which had gone before. The process for the learner is very much a passive one. Where ICT hardware and software are available, these modules do not reflect the more interactive techniques it could provide in language learning, both the deciphering of written text and oral development and understanding. The approach is very much of text reproduced on a screen. Even use of audio has been restricted to the reproduction of a reading of the text, which although an important and powerful tool, does not reflect the more imaginative way in which new technologies could have been used. Similarly in areas (the majority) where the physical conditions for extended use of ICT are not available, visual/audio material using illustrations/posters and even 'flash-cards' have not been utilized to any great extent.

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A concentration on learning to switch on and switch off a computer and manipulate, in a rote learning fashion, the techniques for accessing a programme, have taken precedence over the application of ICT to learning outcomes. There has been little attempt to supplement the high numbers of users for each machine by making and utilizing more low-tech support materials. This should not, however, be seen as a criticism of the workers in the field, most of these techniques being outside their usual practice. Any suggestions made have been positively welcomed. A measure of the challenge here lies in the viewing of a computer as a panacea for all ills, and the comparative lack of experience in computer usage and knowledge on the part of the instructors themselves. In our view this is as a result of an amalgam of a number factors, historical practice, a lack of knowledge of possible techniques on the part of all concerned and perhaps most significantly, the exclusion of the ICT experts from the initial formation of the modules. Some additional exposure to current techniques used in UK schools and colleges at an early stage in the project would have been beneficial.

A general assumption of too high a level of base knowledge and experience affected this and all other areas.

5.2.2.1.4   Content

There is little doubt the subject of the modules fills an expressed need on the part of the learners. As far as we were able to gauge, the basic information supplied was welcomed. However in our view this was not always as extensive as it could be or expressed in the most appropriate ways for the learners involved.

Leaving aside the points made above in discussing literacy issues, and those appertaining to the pedagogic approach taken, those modules that deal directly with new practical skills, in essence training manuals, seem most successful. There is a straightforward body of knowledge, some attempt at diagrammatic underpinning and on the whole a coherent progression through the subject matter. For anything other than a very basic introduction to the topic, additional more technical information will be needed. But at this level, with first time learners, an adequate coverage is reached. Observations and interviews with farmer-learners provide evidence that hitherto unknown techniques are being aired and these are very appropriate to the subsistence farmer's situation and therefore hit the target of helping in the fight against poverty and starvation. The non-technical nature of the material and the simple presentation are strengths for this audience. The use of commonly found articles, like bottle tops and cans, in the techniques is appropriate and encourage the imaginative use of otherwise discarded material in a way very prevalent in the culture. The use of the teren rope in the Conservation Farming module is a good example of this.

In other places, however, the level of content is inadequate. This is perhaps best illustrated in the HIV/AIDS module. Here the information given is confusing and inadequate for answering the subsequent questions, which themselves do not always make sense and the

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relevance of which is difficult to comprehend. This module also illustrates very clearly one of the dilemmas referred to in the opening paragraph, that of cultural mores. In particular the use of the word 'innocent' in referring to victims of the multiple use of razor blades, implying that to be HIV positive makes one 'guilty'. This is an example of the use of language directly contradicting the desired message of not ostracizing those with AIDS, specifically tackled in other parts of the dialogue. A reluctance or perhaps cultural difficulty in addressing some of the more contentious aspects of practices leading to infection further compound the low level of effectiveness in addressing the issue and changing practice likely from the module content and format as it now stands. Perhaps a wider scrutiny of literature available from a similar context would alleviate this.

The subjects covered by the modules in draft, all featured on the 'wish-list' for the future obtained from the present learners as well as arising out of the initial needs audit. Further development of these, taking into account the points arising from the sustained use of the modules now being taught, should form a major part of any follow-on work in our view.

5.2.2.1.5   Teaching methods and points for consideration

As outlined in each of the sections above, this aspect is a major area to be considered, if the material is to fulfill its role. These would include a wider use of approaches and techniques, differing according to the prime objective (i.e. literacy/knowledge/challenge etc.), to be developed, and taking into account the readiness and ability of the learner, the prior knowledge they bring to the class, the range of resources available, innovative uses of both low-tech and higher resource teaching techniques, and some knowledge on the part of the instructor of learning styles.   Further workshop type sessions, with electronic support (possible at all centres, but not sub-centres or satellites) for both module writers and deliverers will be needed, with all involved working alongside one another with desirable criteria to be fulfilled as a guide, for this development to take place. It is likely that the support/impetus in drawing out these themes and skills will have to come from outside the present in-country team.

Ideally a portfolio of resources and a support manual for deliverers needs to be produced in both low tech and more advanced electronic learning formats. At the very least ICT should be used as a vehicle for getting new and exciting materials of all kinds into the field quickly. The portfolio should include:

- Materials addressing the basic practical use of computers in the easiest way possible (presently the accessing of material has been made unnecessarily complicated);
- Some background knowledge about the elements of computer system and its uses, including an introduction to the specialized vocabulary;
- More advanced word-processing and computer software use techniques, to follow on after a basic competency and confidence has been established;

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- Basic methods and aids for the teaching of reading (including phonic material, word-family, cloze procedure exercises etc.);
- Aids for the development of comprehension;
- Writing techniques; games and quizzes;
- Problem-solving challenges; additional knowledge sheets on the subjects introduced;
- A wide range of teaching methods/approaches (including group, individual and class approaches) stressing non-didactic, more interactive techniques;
- The usual teacher training basics of varying format/pace and stimulus of lessons etc.;
- Basic preferred learning-styles analysis techniques; support for evaluation and marking of learner progress;
- Help with the recognition of and catering for differing ability and achievement levels; and
- Glossaries of where to get further help/knowledge, among other things.

All these items to address not only the immediate needs of the teachers and learners, but also to reflect a cross section of approaches of learning and teaching in both a traditional and innovative way e.g. paper; illustrations; audio-visual; CD-ROM and white board across low-tech and high-tech options.

5.2.2.2 The CERP Module Material – Paper by the CERP International Consultant
Barnabus Otaala, (University of Namibia) International Consultant to the CERP Project, wrote this paper. It is produced verbatim.

5.2.2.2.1 Introduction
It is understood that the CERP Project is a research and development project developing the current work of the partners in Africa through extending the boundaries of knowledge and practice. There are four key outcomes:

1) Development of models for providing education using ICT in rural areas;
2) Culturally acceptable paper-, audio- and web-based materials;
3) Completion of study of materials by a sample of the target group;
4) Evaluation report.

Given this understanding one could say at the outset that Zambia has developed a successful combination of outreach programmes to the surrounding communities and innovative academic programmes and methodologies, including the use of ICT, to deliver them.

In commenting on the modules submitted, it may also be important to look at the issue of administration of distance education programmes, effective use of distance education technology, and management in distance education.

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It might be helpful to give a brief statement on technology as a change agent, as well as on constraints that might be encountered in introducing technology. A comment is then provided on multiple-choice items, completion items, short-answer items and true-false items, as a way of preparing to comment on each of the seven modules. After a comment on each of the modules, general comments are made on issues that touch on all the modules. Finally, some concluding remarks are made.

5.2.2.2.2 Technology as a change agent

Throughout history technology has been noted for its capacity to encourage change. Some of the best examples include the inventions of agriculture, democratic governance, the printing press, gunpowder, mass production, the automobile, and the telephone. Technology, by definition, is intended to produce changes in behaviour. For most new technologies, the change created is quite small. For technologies like those mentioned above, the change can profoundly reorganise life, society, and the manner in which people interact and communicate. Information and Communications Technologies (ICT) are the most heralded recent nominees for the status of world-changing technologies. Regardless of a person's view on the significance attached to these new technologies, there should be no doubt that they are changing the ways in which many of us interact with one another and do much of our professional work. It is also obvious that these technologies are becoming omnipresent in larger working environments around the world, particularly in business, government and more recently, in education. From the project's perspective, it seems efforts have been made to explore the potential to encourage positive and multi-faceted change in the education sector in Zambia at the time that this technology has opened the door for such change. The approach has therefore been that the introduction of new technologies creates an environment that is fluid enough to allow for the reflective introduction of new ideas and attitudes that may only be tangentially related to the technology being introduced. Further, and we recognize that this is more difficult to test in the short term, these positive changes may be sustained after the window of change created by the technology has closed and new habits and attitudes have been formed and set in place.

5.2.2.2.3 Constraints

As anybody who ventures on a new project in Africa knows, there are always a number of constraints to be encountered. In general, though, they can be broken down into four main areas: donor-related contractual constraints, constraints related to a lack of experience with the new technologies, constraints related to existing policies, and thinking that opposes the changes supported by the project. One can surmise the CERP Project has not been an exception in this regard, at least based on the correspondence announcing meetings in Lusaka which did not take place.

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5.2.2.2.4 **A comment on multiple-choice items, completion items, short-answer items and true-false items**

A brief comment on each of the above-named items seems in order to provide a basis for commenting on them as they appear in the various modules.

Multiple-choice Items

Multiple-choice items typically present two or more options, one of which is correct or definitely better than the others. In many of the multiple-choice questions included in social science tests, an attempt is made to require the student to make use of general knowledge in the interpretation of materials.

Completion Items

The completion item, as a special form of the short-answer item, may be defined as a sentence in which certain important words or phrases have been omitted, with blanks inserted for the student (learner) to fill in. Unless they are prepared with extreme care, they are likely to measure rote memory rather than understanding.

Short-answer Items

The short-answer (free response) items is one of the easiest to prepare. The main challenge is to phrase the items so that they require responses above the knowledge or rote memory level.

True-false

Well-constructed T-F tests can compare favourably with multiple-choice tests when using testing time rather than number of items as the basis of comparison. The danger of negative suggestion when students read statements that are false has been overstated, but it may not be wise to use T-F tests as pretests when misinformation might be learned, or with young children, who may be more susceptible to misinformation. In such cases, it is better to avoid the true-false format; instead of a declarative statement, use a question that can be answered by the two options **yes** or **no**.

5.2.2.2.5 **Comment on each of the seven modules**

Each module of the seven modules was read in detail; however, the comments which are made below refer only to identified sections in the module where improvement could be effected, or where the reader wants to comment positively on the content of the lesson or module. At the end there will be some general comments that apply to all modules.

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Module One – Health Education

Unit 1

Lesson One: What is HIV/AIDS and STDs?
- Should not the objectives come first, followed by introduction?
- In many countries in Africa today many people are aware about HIV/AIDS (although they may refer to it in different ways, e.g., 'the slimming disease', or the disease people get when they 'sleep around'. It would be helpful to get the learners to think and write down what they know, as a starting point, and then clarify any misunderstandings from the 'book knowledge'.
- Good questions at the end.

Lesson Two: Modes of Transmission
- Should not the objectives come first, followed by introduction?
- Activity 2 is not really an activity because the learners are again reading! An activity involves something different like writing down ideas from one's experience that relate to the lesson.
- Final activity requires mainly a *'recall'* response. This could be substituted with activity that involves a higher order of skills than recall.

Lesson Three: Signs and Symptoms of HIV/AIDS
- Should not the objectives come first before introduction?
- Too short: only one page, for such a complex issue.
- Activity 2: True/False, could be replaced by questions which test beyond recall.

Lesson Four: Preventative Measures
- Should not the objectives come first before introduction?
- Too short: only three-quarters of a page, for such a complex issue.
- The second content should be an activity.
  There are several beliefs and superstitions about ways to prevent and cure AIDS. The learner should be given an opportunity to provide some of these in activities and then identify those which are misleading and why.
- True/False items should be replaced as they tend to test mainly recall responses.

Lesson Five: Cultural Beliefs and Practices
Section A:
- Should not the objectives come first before introduction?
- True/False questions should be replaced for the same reasons cited above.

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Section B:
- Could have a sub-title which captures the three sub-sections on breastfeeding, polygamous marriages and use of used blades.
- On breastfeeding, there are beliefs or misconceptions that baby formulas are better than breast milk. These beliefs and/or misconceptions could be brought into the lesson as a way of capturing learners' knowledge of the world around them, and what happens in their communities.
- True/False items could be replaced.

Unit 2   Safe Motherhood and Family Planning

Lesson One: Safe Motherhood
- Should not the objectives come first, followed by introduction?
- Good coverage.
- Good pictures.
- End questions could come under an activity.

Lesson Two: Family Planning
- Should not the objectives come first, followed by introduction?
- Somewhat too brief for a complex topic such as this one, with many traditional beliefs and practices which militate against family planning.
- The lesson could include asking learners to think about family planning practices in their communities, how successful they are, and what the constraints/barriers encountered are.
- The questions at the end should come under an activity.

Unit 3   Common Diseases

Lesson One: Malaria
- Should not the objectives come first, followed by introduction?
- Many learners know much about malaria and its symptoms, even though some of the information may be incorrect. This knowledge could be tapped through activities.
- Questions could be put under an activity.

Lesson Two: Measles
- Should not the objectives come first, followed by introduction?
- Measles is a common disease in many African communities. Learners should be encouraged to think about local ways of dealing with the disease. There may be local remedies which work; how do we bring them on board? What are the problems encountered with the local treatments? Are there any beliefs about modern medicines or approaches to treatment?

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- The reading (conversation) is good.
- Questions could be put under an activity.
- Good questions as they relate to the reading.

Lesson Three: Tuberculosis (TB)
- Should not the objectives come first, followed by introduction?
- There should be an effort to distinguish TB from any ordinary coughs. Some sort of activity could do this, or it could involve writing some content on the distinction between TB and ordinary coughs.
- Use of *'step'* here may be misleading. Steps are usually associated with stages or activities. Perhaps *'section'* could be used. Also one could introduce what is going to be discussed and then say *'we shall answer three important questions with regard to TB, Question one; Question two; Question three'*, and omit *'step'* altogether.
- Questions should be covered under an activity.
- There should be a comment or summary statement on the questions.

Module Two – Poultry

Lesson One: Common Poultry Breed
Learners should be asked about local (and other) poultry breeds in an activity. That would provide some 'fun activity', especially if the learners include other learners from elsewhere doing the same course. They could discuss this as a group.

True/False, not a very useful activity!

Lesson Two: Poultry Housing
Considering that many learners may be poultry keepers or have observed this activity over many years, some activity could be provided to tap that knowledge/experience, e.g.:
- What are the local ways of keeping poultry?
- What are the advantages and disadvantages of each?
- How can local ways be improved upon? This information can actually be deduced from the preceding lessons.

Lesson Three: Poultry Equipment
Length: One and a quarter pages only!

It would be helpful to allow learners to relate the knowledge acquired in the lesson to that acquired through experience. An activity could be to ask learners to identify which of the equipment is used in the local setting and perhaps to find equivalents in their local setting.

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Lesson Four: Management of Broilers
- Adequate length.
- Good questions at the end with more open-type questions.
- Efforts should be made to see if the learners have experience in just keeping broilers. The likelihood is that the local chickens are multi-purpose birds!

Lesson Five: Marketing of Chickens
- Good conversation.
- Good questions.

Module Three – Conservation Farming

Lesson One: Conservation Farming
- Should not the objectives come first, followed by introduction?
- Perhaps there is need to get learners to think about the knowledge they already have. For instance, in an activity learners could be asked questions to compare what they have learnt in the lesson(s) with their own practices/experiences in the rural areas.

Lesson Two: Crop Residue Management
- Should not the objectives come first, followed by introduction?
- Having both open-ended and True/False items is a good idea.

Lesson Three: Conservation Farming for Hand hoe Farmers
- Should not the objectives come first, followed by introduction?
- Activity of *'fill in'* is probably not as good as that which requires some higher level thinking.
- Activity 2: Good questions.
- Activity 3: Good questions (open-ended) together with True/False items.

Lesson Four: Equipment for Farmers Using Oxen
- Should not the objectives come first, followed by introduction?
- Perhaps there is need to give learners instructions about questions; something like: *'Read the conversation and answer the questions that follow.'*
- Good mixture of open-ended and True/False questions.

Module Four – Vegetable Farming

Lesson One

An activity could (should) be given to get the learner to think about what he/she has read in the conversation before supplying the summary.

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Lesson Two: Land Preparation
-   Same comment as for Lesson One.

Lesson Three: Nursery Establishment and Management
-   The steps are well done.
-   An activity that asks learners to think about reasons for each step would probably be better than the completion exercise given. This information could be related to what goes on in villages. For example:
    'Why is it important to sow seeds in rows?'
    'It is common for seeds to be scattered by hand; what is wrong with the approach?'
    'What else can be used as mulch instead of grass?'
    'Can one not grow vegetables without first having a nursery?' 'Why or Why not?'

Lesson Four: Transplanting
-   Too short - three quarters of a page!
-   True/False questions could probably be transformed into more engaging questions testing higher order skills beyond recall.

Lesson Five: Management of Vegetables
-   The lesson seems to end abruptly!
-   There is no activity to capture/test the knowledge acquired.

Module Five – Groundnuts

-   This module starts with Unit 2: Is this intentional? Where is Unit 1?

Lesson One: Groundnuts Growing
-   There is probably a need to elaborate on technical terms such as *'pops'* or *'pegging'*.
-   It is rather interesting that there are some rural people in a country like Zambia who don't know what groundnuts are! Or is this the assumption made by townspeople writing about rural people?
-   Perhaps some form of activity could be introduced to capture/tap the knowledge already in the community, and then moving on from there. The rural people could give native names for some of the varieties of nuts and their uses.
-   Perhaps a need to elaborate on words such as **Virginia** and **Spanish** in the text.
-   Good questions at end of the lesson.

Lesson Two: Land Preparation
-   There is no specific statement of objectives.
-   There are no instructions for this lesson – only a passage is provided,

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- followed by questions.
- It is a one page lesson!

Lesson Three: Recommendation Measured for Groundnuts Management. Different Varieties of Groundnuts Seeds Must be Collected and Brought Together for Discussion

- The opening makes reference to groundnuts seeds learners have brought to class. How did they come to this? There is no previous reference to this.
- There is no objective given for this lesson.
- There are no instructions as to what to do with the passage.
- The passage has technical terms such as *'chipego'*; *'conet'*; *'Rosette virus'* which may be unfamiliar to learners.
  These should be explained or elaborated on, with comparisons being made with local varieties of groundnuts.
- The language used is a bit too much above the learners' heads e.g. *'Optimum plant population of', 'lines of ridges', 'Pre- and post-emergence herbicides may be used …,' and 'once pegging begins, avoid earthing up ...'*
- Good questions at the end of the lesson.

Lesson Four: Varieties of Groundnuts

- Objective stated, contrary to previous lessons. Need for consistency.
- A picture follows statement of objective, without any introduction.
- Good questions at the end of the lessons.

Lesson Five: Diseases

- Objectives stated as one, when in fact there could be two, which can be introduced by using bullet points. For example:
  - By the end of this lesson you should be able to …
  - …
- The language is somewhat too technical: 'small chlorotic spots .. on leaflets';
  The spots develop into…
    'manure, sprouting, sub circular lesions,'
    '… Where most sporulation occurs …'
    '… is altered by the host genotype', etc.
  Certainly there is need to unpack the technical language.
- Under Questions, use of words such as *'name'* and *'list'*, call for answers which do not go beyond *'recall'*!

Lesson Six: Harvesting and Post Harvesting Handling

- Good objectives and clear tasks.
- Good comparison of seeds arising from tasks.

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- Again, language is not user-friendly, e.g., '... *in order to avoid aflatoxin contamination'*.
- The lesson ends abruptly. There should be some activity and/or summary.

Module Six – Sunflower

Lesson One: Land Preparation
- Should not the objectives come first, followed by introduction?
- Good questions that capture the essence of the conversation.
- True/False items tend to test 'recall' rather than higher order skills.

Lesson Two: Planting
- Objective comes first, which is fine.
- Instructions seem to be incomplete; they should state: *'Read the passage and answer all the questions that follow.'*
- Questions are good.

B. Fertilization
- Where is A? Is it Lesson One?
- Objective correctly positioned.
- *'Read the passage'* is an incomplete instruction.
- Questions is actually one question, and is actually an activity rather than a questions.

Lesson Three: Weeding
- Objective correctly positioned.
- Before the pictures there should be an introduction.
- Good questions.
- Also good summary, but add after *'thieves'* something to relate this to the list, otherwise it stands out alone.

Lesson Four: Harvest and Post Harvesting
- Objective correctly positioned and stated.
- There should be an introduction before the learner reads the story to provide some background.
- The completion exercise should be replaced by an activity that captures the knowledge acquired and relates it to something within the learner's experience/ background. For example, rats and mice are a common problem in many rural African homes. Learners could think about some local ways of dealing with the problem and how effective (or not effective) they are.

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Unit Summary

Very good inclusion – check spelling of *'summary'* though!

The summary could do with a brief introduction, which involves a *'rounding-up'* of the Unit; for example:

> You have now acquired some knowledge from this Unit. Let us put all these pieces of information into a summary. You need to do the following in order to have a successful harvest:

> 1.
> 2.
> and so on.

Module Seven – Soil Erosion and its Control

The lessons are not chronologically (serially?) organized. We start with Unit: Conservation Farming; then we move to Lesson Four on page two, then to Lesson Five then Lesson One, under the heading *'Soil Erosion and its control (land management)'*; Lesson 2: Crop Rotation, Lesson Three; and then Lesson Four again. This leaves something to be desired!

Lesson Four: Soil and Moisture Conservation
- No objectives(s).
- No instructions about reading.
- On Questions use of the word *'mention'* requires recall-type responses.

Lesson Five: Causes and Effects of Soil Erosion
- No objective(s).
- Instructions are necessary so as to relate to questions at the end.
- An activity should follow the passage before moving on to further information on processes.
- In the passage itself there is a need to be more explicit in explaining terms such as *'tillage operations'* or *'rain splashes'* or *'gravity'*. These may appear simple to the teacher, but the learner needs to know more about these. Hence the need to relate them to the learners' experience/background. Learners could be asked what they know about their land and what happens to it when there is much rain. This could then be added to by use of technical terms.
- After the conversation between Maswa and the Extension Officer, an activity should follow again. This could relate to what they say and the learners' own experience.
- In questions, words like *'mention'* or *'list'* encourage recall responses.

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Lesson One: Soil Erosion Control by Crop Cover
- Unit should come before Lesson.
- Objectives should be at the very beginning.
- Instead of the True/False items, it is preferable to use open-ended questions in activities.

Lesson Two: Crop Rotation
- Good objective and positioning, but use of the word *'state'* is not very helpful.
- Good introduction to the conversation.
- On assignment, instead of completion of sentences it would be better to add a second activity or use open-ended questions.

Lesson Three: Timelines of Planting, Intercropping, Kraal and Green Manure in Soil Erosion Control
- Good objective and positioning.
- Good introduction.
- Good use of dialogue (conversation).
- Good questions at the end of the conversation.

Lesson Four: Protecting Loss of Moisture from the Soil
- Should not the objective come first, followed by introduction?
- Good introduction of the conversation.
- Good questions at the end.

We now turn briefly to general comments on all the modules.

5.2.2.2.6   **General comments on all the module material**

Below are general comments on objectives, layout, lesson length, conversations, and activities, before concluding remarks are provided.

General comment on objectives

Usually they should come at the beginning of the lesson, followed by introduction. What is meant by *'demonstrate'*? Will the candidates do some practical work at the end of the lesson?

Objectives should be addressed to the students, i.e., *'At the end of this lesson **you** should be able to'* … This is like a conversation with the learner/student.

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General comment on layout

There should one format for all units. Some modules have table of contents, others just plunge into Lesson 1, others give units and then lessons. At the end of the lesson there are either questions or activities or exercises. A uniform approach would be better. I would recommend activity which may include questions to answer or a discussion, etc.

General comment on lesson length

In a school set-up even children have to go through 40 minutes of a lesson. The lessons in the modules are far too short – some only one page!

It is expected that in distance education a lesson should be at least one hour, but could be two hours broken up into reading and activities. Since these are adults (I presume) surely they need more than ten minutes of work at a time (this seems to be the length of one lesson in its present form).

General comment on conversations

There is no attempt to capture the knowledge embedded in the conversations. There should be a question or an activity that asks students to identify the purpose of the conversation, i.e., what they have learnt from it.

Generally all modules are concluded in user-friendly, customized language. Only in one module was the language use rather technical.

General comment on activities

Activities should be followed by comments/reaction/reaffirmation, etc. so that the students know what is expected. This could be soon after the activity or at the end of the unit where all activities are commented on.

5.2.2.2.7 Concluding remarks

The CERP Project is conceived to address the perceived needs of learners, and in terms of feedback seems to be providing benefits to the learners, which benefits would no doubt be seen when more time has been allowed to complete the activities in the project, and sufficient efforts have been made to address some of the identified constraints in programme development, administration, and use of technology. In the final analysis, however, the need to start where the people are and build on their strengths cannot be over emphasized. In underlining this need in relation to issues on early childhood care and development, the Bernard van Leer Foundation (1991) states:

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'In Africa … there are strengths that are universal yet rarely recognized by outsiders and even by those inside … Within communities there are people who are helping others – what can we do to support them? There are early childhood programmes that are having a positive impact on communities – let us identify why they are having such an impact. People co-operate and share for their mutual benefit – can we extend this sharing and cooperation into other areas of their lives? Traditionally, children are prepared for adult life from a very early age by participating in household and family duties - - how can this be adapted to prepare children for the next century while still retaining the best of their traditions? How can we develop an instinctive ability to listen to the community and interpret its strengths so as not to impose our agendas but build on what the community already does and knows?'

5.2.3 Sharing of Knowledge

- To share and develop skills and knowledge in a collaboration between educators.
  Action:
  The NFER, the leading independent educational research institution in the UK, worked in partnership with the University of Zambia. In addition project discussions were held with academics from:
  - *The UK*
  - *South Africa*
  - *Zimbabwe*
  - *Namibia*
  - *Canada.*

  Knowledge has also been shared within Zambia:
  - *within the University (including cross-departmental collaboration)*
  - *between the CERP team and the Government of Zambia*
  - *between the University and module developers*
  - *between the module developers and the University*
  - *between the University and module deliverers*
  - *between the module developers and module deliverers*
  - *between the module deliverers and the learners*
  - *between learners.*

5.3 Desired Outcomes

The objectives above provided a focus for project activity. In working toward these, four desired outcomes were formulated to measure the success of the approaches taken.

5.3.1 Module development – ICT

- Development of models for providing education using ICT in rural areas.
  Action:
  The CERP project has produced web-based and CD-ROM materials. In addition, the regional

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centres have used audio and video equipment to support learning. The use of ICT has provided a series of issues and challenges. Whilst progress has been made, it is limited in nature.

The academic at UNZA whose role it was to develop the ICT element of CERP (Vitalicy Chifwepa) has provided a brief report on the development of ICT and CERP (see below).

5.3.1.1 CERP ICT activity

An ICT team was developed at UNZA whose remit was to head up the use of new technologies in the development and delivery of CERP material. This report outlines what was achieved and provides comment on the degree to which ICT was applied. It will also provide discussion on some lessons learnt in the process.

5.3.1.2 Activity completed

Activity completed and involvement of the ICT team members will be outlined according to the outcomes as defined at the beginning of the project:

1. Production of educational materials: Culturally acceptable paper-based, audio-based and web-based materials.

The CERP Project website was created as early as July 2001. The creation of the web based learning materials on the other hand only began at the end of April 2002. The print modules from which the ICT based modules were produced were not finalised before this date. Until April 2001, draft module material had not yet been finalised since illustrations to be used within the text (and translations) had not been fully completed. However, based on the drafts, and as an outcome of the two-day training workshop for module developers and other staff from the three regional centres held at the end of April, three modules (Health Education, Poultry and Conservation Farming) were developed and posted to the Project Site. And one (Vegetable Farming), was developed into a PowerPoint presentation.

In June 2002, two modules (Health Education and Conservation Farming) were finalised (with illustrations), in print format. Between July and August these were adapted into Hypertext Mark-up Language (HTML) lessons and posted on the website and burnt onto CD-ROMs that were distributed to the three regional centres. Some interactive learning activity was introduced at this stage, using HTML. Two modules are available in Bemba, Nyanja and Tonga (Health Education and Conservation Farming). The Health Education Module has been further developed into interactive units and lessons in English and Tonga. The other modules will be broken into interactive HTML units and lessons later.

Centres have developed audio and visual lessons out of the same modules with the use of the audio-cassette and video recorders. Regional centre staff and learners have created a

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number of lessons and songs on both audio and videotapes based on CERP module materials.

2.   Educational outcomes for the communities involved.

The learners have been introduced to both print and electronic formats of the modules. Though they have not been able to use the materials for the CERP team to fully measure module impact, the learners have indicated an interest in using both print (paper-based) and electronic material to support their learning.

3.   Educational outcomes for the young staff involved.

One of the key outcomes of CERP was development of capacity of younger staff. In order to achieve this, all CERP ICT activities included training of such staff. Activities included:

i)   Identification of the team members

An ICT working party of seven people was identified. In addition to Vitalicy Chifwepa and Saul Zulu, (both core team members and UNZA academics) the following were identified as members of the Working Team in the ICT component:

- Two UNZA students from the Department of Library and Information Studies
- The CERP field officers from each of the regional centres (Denny Maluti, Margaret Nkhosi Mwanza and Gertrude Muvwimi).

ii)   Training

Training was provided to the two UNZA students (Alex Mushyeshyo and Mwaka Sikombe) that enabled them to maintain the CERP website maintenance. They were selected to be team members as they had completed a course on web design and development as part of their undergraduate studies.

Training was also given to regional centre staff on the adaptation of the paper-based (printed) modules into electronic formats. The team undertook a two-day training workshop on the identification of appropriate computer based media (PowerPoint and Hypertext Mark-up Language) and then adapted some of the CERP material. The training was held at UNZA on the 29th and 30th April 2002. It could not be held earlier as the printed materials were not ready. Although the drafts had been prepared, they were not yet in their final format. It was important that the modules were final, rather than draft versions, because ICT adaptation had to be based on finalised module

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material. This said, the decision was taken to hold the training session before all the modules were finalised in order to avoid losing more time.

Regional Centre staff were also given training on how to use digital and video cameras and audio recorders so that they would, in the future, be able to use this technology to develop material in the field (for example, the collation of local stories).

iii)   Visits

Vitalicy Chifwepa visited leading distance education and ICT institutions and experts in the UK in July 2002. (See Appendix 7 for the report of this visit).

4.   Educational outcomes for the educators involved

Due to the delay in the production of print materials the modules were not in the field long enough to be able to fully ascertain either the impact or suggest the best models to use in the future development of ICT to support learning in rural communities. However, at this stage it can be said that development to date suggests that there is a limit to which ICT can be used to support learning in remote rural areas. The further away from administrative centres the more difficult it becomes to sustain equipment associated with new technologies. The main reason for this is that this equipment (computers and the Internet, for example) depends on electricity and telephone lines, and in many rural areas in Zambia, these do not yet exist. The technology that could be used in these circumstances is audiotape and battery operated audio-tape players.

A key lesson learnt from CERP is that the involvement of the ICT team during module content development is important. ICT elements should be developed alongside print material, rather than be brought in once the print material has been finalised. If the ICT team had been involved in CERP module development at an earlier stage, then greater advances could have been made.

5.   Develop sustainable networks

A website has been created and is hosted by the UNZA Computer Centre as part of the DDE Web site (http://www.unza.zm/apina_copy(1)/index.html). The host (the Directorate of Distance Education website) was chosen because there was no cost for hosting this, and this site would continue to be maintained after the CERP-related funding had ceased.

A listserv has been created on Yahoo for the CERP Project. This was hosted here, rather than at UNZA, because the listserv facility is not available at the University. Yahoo is free

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of charge, and this will mean that the CERP Discussion Group will be sustained after CERP has finished.

5.3.2 Cultural Context

• Culturally acceptable paper, audio and web based materials.

Action:

From discussion with module deliverers and learners in the field, CERP material does largely appear to be culturally acceptable. Where there are issues, these arise when the centre (UNZA) uses language and exemplars that reflect urban rather than rural cultural practices. The UNZA team is aware of this issue and will be mindful of it in any further amendments to CERP material.

5.3.3 Learner Involvement

• Completion of study of materials by a sample of learners from rural communities.

Action:

CERP material has been used by learners in all three regional centres and their satellites. This material will continue to be used in the future.

5.3.4 Reporting

• Evaluation report.

Action:

Quarterly progress reports have been submitted to DfID for the duration of the project. This report provides the summative evaluation of CERP.

6 General Conclusions

The initial CERP Project indicates that the use of new technologies may enable communities to leapfrog what might previously have been seen to be necessary stages in the growth of educational provision and the development of a body of knowledge in a community, but only to a limited extent. Within CERP, ICT has already proven to be an ideal vehicle for the distribution of ideas, initiatives and materials, directly into areas that are difficult to reach by other means. This project sought to test out and extend the use of ICT in non-formal education and has achieved a measure of success in doing this. However, if the essential spread of knowledge and information is not to be slowed down, low-tech methods of production and delivery must be developed alongside their high-tech equivalents. Waiting for the spread of connectivity, or even basic requirements like power, buildings and security, would disenfranchise the very section of Zambian society most in need. Similarly the modes and quality both of the material itself and the delivery of it in the regional centres and satellites must illustrate greater variety and adaptation to specific user need. There is currently no differentiation according to need or experience, and this is something that any future development will have to address.

7 Observations and Issues Arising

This section highlights observations and issues, based on the knowledge gained and lessons learnt from the CERP Project.

7.1 **Observations and Issues**

These are in no specific order:

- There is a need for continued development of material in the field.
- Resources developed must be of use to the learners and focused on topics which learners wish to study.
- CERP module developers should play a key role in developing or revising materials.
- The extent to which CERP material impacts on learners in rural communities is primarily dependent on CERP representatives in the field.
- CERP representatives in the field should be given greater autonomy in developing materials.
- The training received at the centre (UNZA) has been valuable in terms of capacity building at the local level.
- There is a need to provide ICT training to module developers, in terms of basic computer skills, prior to more advanced training – developing material for websites for example.
- There is a need to re-focus the training that module developers are receiving. There should be a move away from the process of material/resource development to a focus on delivery methods.
- Training should be provided on different pedagogic approaches. Whilst UNZA may be able to provide some of this training, additional agencies could be involved as and when required.
- More resources should be made available at a local level. If regional centres are to produce their own material, then resources must be made available for them to do this. For example, centres could be provided with equipment budgets to purchase scanning equipment or photocopiers. This will enable materials to be produced and distributed to the areas that need them most.
- There should be devolution of activity from the centre, as the centre does not always have the capacity to deliver.
- Delays in delivery can have a negative impact at a local level.
- There needs to be continued quality assurance of module material and monitoring and evaluation of activity.
- Partnerships need to be created and supported between regional centres to ensure the exchange of effective practice.
- There should be greater co-operation between Government Ministries, to maximise CERP related developments made to date.

7 Observations and Issues Arising

- Transport costs from satellite to regional centres should be included in future funding programmes. The fact that learners in remote satellite centres have not always been able to access the resources at the regional centres has created issues and challenges.
- Relevant material produced by other sources (e.g., the South African Literacy Programme) should be assessed and considered for future.
- Module developers should use the existing formal education structure to test materials prior to delivery. For example, materials could be tested in schools with younger learners. If this approach was taken, teaching staff could also comment on whether materials were pitched at the correct level for the learners in the locality.

Appendix 1: Notes of CERP Seminar held at the University of Zambia - June 2001

Session 1

1.1 **Opening by the Vice-Chancellor (University of Zambia)**
Main Points:

- Welcome to experts in the field.
- Grateful to DFID, NFER (for Zambia focus with UNZA). In line with the mandate and history of distance learning education and also University work with NGOs, distance learning, ICT expertise and Six Nations Project. University plays an effective role.

Also:

1. Importance of distance learning for non-formal education is an important socio-economic process, develop people in terms of own goals. Application of distance learning provided opportunities for entry to education. Advantages are:

   - Few teachers reach large numbers.
   - No need for new buildings.
   - Learn and earn – no productivity loss.
   - Economical once materials developed – many students using paper, audio visual, etc. – increasing the world Chair of Commonwealth for learning Zambia context – poverty levels, high percentage of illiteracy, high percentage of HIV, low agricultural production. Focus to eliminate high level of poverty – CERP has got this focus. Project focus, collaboration; use of ICT etc., Government, NGOs, private sector must collaborate and should have shared ownership. CERP must respond to rural population, needs and implemented through Government policies and existing structures. ICT means change in education projects and make population more part of that learning process. The result is that there is a need to use ICT to support and enhances learner centred approaches to support change and development.

Richard Siaciwena thanked the VC and introduced team members and international experts (Tony Dodds) and the DfID representative Shay Linehan. RS then introduced all delegates and shared information concerning the day: purpose, context, etc.

Session 2

2.2 **Overview of CERP Aims**
Richard Siaciwena gave an overview of project aims and objectives and described how these should be further developed throughout the day, based on shared experiences, common trends and practical approaches. He then briefly discussed Six Nations Study (RS project

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coordinator 1998/9). Published by the Commonwealth of Learning (COLL) in 2000. The project involved Ghana, Kenya, Zambia, South Africa, Uganda, and Tanzania. There were different projects for different areas: Health in Uganda, Kenya (AMRU), Radio in Zambia, Literacy in Ghana, Agricultural projects in Tanzania, and Adult Education in South Africa. South Africa later ceased involvement.

Project chaired/directed by COLL. Study from non-formal education report commissioned by COLL and National Extension College (UK). Carried out by Tony Dodds who commented that liaison was needed for this approach. Focus on information about programmes and comparison of trends. Each country had researchers and research guidelines and was monitored by the project director. Progress related to socio-economic issued of local communities, also looked at programme impact: great impact but problems with this. The conclusion was that distance education could (if facilitated correctly) ensure that progress is made and it can reach a large number of population.

Lessons from the Six Nations Study included:

1. Need to develop processes (esp. outside government).
2. Give certificates accepted by governments.
3. If progress relevant – this is a real success.
4. Programmes implemented through host nation policies/ systems do work.
5. If programmes are relevant, these are more attractive to learners.
6. Traditional media (printed), audiocassettes still useful for rural communities. Where radio is not accessible, audiocassettes are very useful.

2.3 The Six Nations Study – Namibia

Tony Dodds then described the experiences of the Six Nations Study in Namibia:

TD believes that, from the survey that while there is a lot of experience of traditional media, little research as to what worked, success/failure, common themes, etc. Ideas were to identify good practice and help policy planners to develop new projects from lessons learnt. Namibian colleagues began a project using many materials. This pilot project was for cattle farmers and used a variety of media such as audio and paper-based materials. He felt that CERP could learn from lessons of five countries project – that there was a need for logical progression in the design and workings of this. The CERP project was drawing on development in five countries. very important. To the end of 1999 most projects made no use of computer-based technology, but since then the speed at which technological change taking place is very fast, in infrastructure, potential and access. One of the negative findings of the report was the lack of ICT use. The challenge was felt to be not use it, or use it in very different ways. Initially TD discovered the potential of radio (though this is still under utilised). TD felt that one has to explore, in realistic terms, the use of ICT but you cannot get carried away by it. Also, the

Appendix 1: Notes of CERP Seminar held at the University of Zambia - June 2001

question is also about how you combine ICT with traditional media to ensure that it is effective for learners – so do you stop using radio because you are using ICT? So you need to move on to the use of ICT (400 groups of farmers are being supported in Namibia to help them move forward to utilise new technologies) So there are a number of challenges, but it is very important to look at ways of capitalising on both new and traditional media.

2.4   **The COLLIT Project**
Glenn Farrell gave an overview of the COLLIT project

The Commonwealth of Learning (COL) was established in 1987 to facilitate development of education using distance education and encouraging use of new methods. Core study from UK, Canada and Australia. Also project based funding (DfID, etc). COLLIT is funded by DfID. Late 1997 – proposal for pilot looking at use of ICT in terms of enhancement to existing literacy projects. Emergence of ICT enabling development of content to be incorporated in the forms of delivery.

Definition of literacy:

1.   Basic literacy – reading, writing, etc;
2.   Functional literacy – tasks of reading related to everyday life;
3.   Technological literacy – part of all population life-using equipment etc.

Project requirements – partnership, give added value to existing materials, leverage, and money. Important to ensure participants had access to ICT appliances and connectivity (Internet etc.), had to provide training and ensure that activities were community-based, but up to communities to build capacity and have ownership. Three countries were involved (Bangladesh, India and Zambia) but Bangladesh had to withdraw. Two countries – leader partners in country level and other partners, (for example, in Zambia, the Ministry of Community and Social Services. There has been the development of three regional community-based learning centres in Zambia. The outcomes to date are that:

1.   Learners have enhanced literacy in all three areas;
2.   Legacy of trained materials;
3.   Increased capacity of staff, design, information, research and management;
4.   Learning centres are in place to illustrate possibilities for farming, health, etc.;
5.   There are plans for sustainability importance of collaboration to ensure institutions can afford this.

GF added that the programme had an external evaluator (Judith Calder from the Open University in the UK) as well as local management groups. The outcome of the project will be a website based final report.

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2.5 The COLLIT Project – Progress to Date

Vitalicy Chifwepa (Member of the CERP and COLLIT Teams, UNZA) described progress to date.

There is a project Steering Committee (Mwansa, Siaciwena and others). Initially a big steering committee, but now smaller. Developed a framework and proposals for activity in three centres (Kabwe, Katete and Monze). These centres would have equipment including computers, audio equipment, digital cameras, internet, etc. The identified centres have a centre manager and all have bought computers. Starting with print materials, there will be a focus on ICT and lessons will be learnt from this. Training taken place of centre/operational mangers and trainers. This training is now being used and monthly meetings with teams are taking place. So far, learners are coming including those who can read and continue to localise materials for local areas.

2.6 The CERP Project – Perceptions/Overview of UK Partners

Marilyn Leask gave an overview of CERP.

CERP is a collaboration/partnership using ICT to support learning. ML was unsure where it will go and what works well. ICT very expensive so collaboration is critical for example, in health, business related government departments, etc. Interesting to see how needs are satisfied. CERP is about building on what has gone before. CERP builds on COLLIT activities, but mustn't duplicate it. It will also try to keep people better informed via a website (amongst other things) and ensure building new stuff. Five main outcomes of CERP are:

1. The production of educational materials – ICT usage and stored in electronic and traditional format;
2. Educational outcomes for locality;
3. Involvement of local and young people;
4. Outcomes for educators;
5. Developing of networks to enable people to keep in touch more easily.

ML added that the CERP proposal was developed in Internet Cafes in Australia! She added that she looked forward to working with colleagues in Zambia.

2.7 Discussion and Questions & Answer Session

1. Tony Dodds

Initially Namibia the CERP project focus – COLL and CERP is of interest to Namibia, can we share experience with other countries even if no direct link to project?

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Crucial to share this experience – on six nations, much done over electronic media – and this is at a stage to share. Dickson Mwansa hoped that sharing would take place and that there would be exchange via electronic and telephone conferences. Glenn Farrell agreed and added that COLLIT would be pleased to share information. He added that the COLLIT website was important as it enabled people to be honest with their experience, and outline what they would do things differently and what they could share.

2. Vitalicy Chifwepa

Any socio-cultural factors to look at ICT use in Namibia?

TD noted that there were three main factors:

-   Difficult to find the right ways of tapping into materials – so hard to find. So important to find correct ways of searching, must have search mechanism to find information.
-   Infrastructure issues –not looking at new projects, look at older projects where ICT didn't figure. Now into a very new area.
-   Also social and cultural aspects till need to be overcome (accessibility).

3. Darlington

For the COLLIT projects, what is the role of the communities?

Vitalicy – looking at them as partners, what are their needs/input. Dickson – writers come from communities – folklore stories, etc – materials support reading and writing. Glenn – Got three different areas – in India – learning materials and the centre and responsibility of community. Other centres – community based advisory groups and others (Zambia) are developing management and involvement from locality. Success is based on the degree to which centres get their management and levels of involvement from the local community.

4. Enock

Community centre is good. Fear that new ideas and ministers have communication and delivery resources – this means resources are being divided. I would like to see resolutions to pass to ministers to harmonise centres – better use of resources and how do we contact government.

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5. Marilyn

John and Soweto. Communities set up own tele centres based on interest groups (Education and Health) – people employed. Membership fee of 400 Rand per annum. Now five centres in Soweto looked after by people. The result of this is that all are stakeholders.

2.8   **Session 2 – Conclusions**

Dickson Mwansa concluded this session by describing how there were a number of issues to consider. These included:

  - Harmonisation;
  - Issues and challenges to learn from for this project to learn from;
  - The importance of the exchange of information;
  - The key role of collaboration and partnership.

Session 3

This session was chaired by Richard Siaciwena.

3.1   **Literacy Development in Zambia**

Dickson Mwansa described the development of literacy in Zambia.

Literacy Programme has been in place for 54 years – this was created whilst Zambia was still a British Colony (Northern Rhodesia). Basic and functional literacy was included. In 1990s, return to functional literacy. Basic literacy fine but people finished these programmes quickly and then they became illiterate again as had nothing further to study. Functional literacy focused on cash crops (maize) – this was functional and boring. Also WHO health material, but certain pictures included in the text were disliked by people, and they were put off. People like social, family related not business issues. Skills training through ministries in non-formal education – is a form of learning, but use of non-teacher teachers, not organised (on radio, etc). Also print media most common. Printed in English, so perhaps translate to other language, for radio, good but expensive. Simulations good and ICT just beginning, but there are no structures for non-formal education. DM described the context of non-formal education in Zambia:

  - Partnership not strong;
  - Fragmentation of interest groups;
  - No research;
  - Need for a policy;
  - Need to identify key areas of study;
  - Need information on what can be achieved.

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He added that there were 11,000 NGOs in Zambia for 10 million people. All competing for the same people, so a lot of agendas. Some you can trust and others you can't.

3.2   The DfID-funded Primary School Literacy Project

Shay Linehan described the DfID funded Primary School Literacy project.

Previously missionaries with Bibles – now experts with laptops – need Africa to identify its needs and respond. Involved in primary reading programme (not distance learning, no real ICT use and formal sector focus – though might extend this to non-formal education). Ministry Education policy – English the main language, but movements to reverse this policy. 1995 SAMEC research – Grade 6 pupils in Zambia – 25 per cent Grade 6 could just read, three per cent at desirable levels for learning – these were in schools. Problem of access – literacy prioritised – 1996 literacy agenda/policy changed – DFID gave £10.2 million for seven years – now more use of other languages by January 2002. Also teachers trained (face to face). Implementation – in Grade 1 – Zambian Language, Grade 2 – English, Grades 3 – 7 consolidation. Great success for young people at education Grade 1, reading at Grade 5 levels – rise of expectations. Also community and parental support, collapse of absenteeism in pilot schools. Using local language at early grade – parents involvement and parents story telling in local language and developed by pupils. Also more involvement and parents story telling in local language and developed by pupils. Also more teacher motivation and demand for education. The PRP as easy as ABC. Achieve Grade 1, build on development at Grade 2 and consolidate Grades 3 – 7.

Numbers of Schools involved:

June 2001:	50 schools
January 2002:	800 schools
2003:	4,300 schools

PRP not a traditional project – comes under BESSIP auspices. The BESSIP aim is to increase access and give all primary pupils a school place by 2015, but supply and demand issues – need buildings and education for all, but must have quality to ensure that people will continue to come. People only come if quality of education is there – for literacy and numeracy.

3.3   **The Zambian Agriculture Broadcasting Programme**

Mr Katowezhi (Agriculture and Culture information services) described the development of the Zambian Agriculture Broadcasting Programme.

Zambian Agricultural Broadcasting introduced in 1966 with UNESCO funds. Initially a pilot in three provinces. Then Ministry realised importance and in 1967 the programme

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commissioned under aspects of the Information Services and now National Agricultural Information Services – mission to promote farming messages – cut across all departments to disseminate information via audio, TV, video. The Programmes are in English and two local languages. Group in broadcasting, publishing and communication and public relations support farmers and policy makers. Popular programme – 30 minutes directed to well organised groups, 1,200 in total in rural areas. Each group has 15 members, with a gender and age mix. Non-members can attend if they wish. Find that it is very good two way process as groups can give information and get feedback. Also agricultural sector investment programme (ASIP) – Decentralise message via nine communication centres and 72 district centres with ICT information form experts. So the key point – ICT use and material must be put into local language.

3.4 **Ministry of Health Activity**

Mr Makono (from the Ministry of Health) gave an overview of Ministry work in rural communities.

Background to Health Education based on a series of crosscutting issues. Shift from preventive to health promoting projects – more involvement of local communities – 1980 to 1990, decline in disease patterns and life expectancy increased to 57 (female) and 56 (male). Now dropping because of HIV/AIDS. Now involvement of individual people in their own healing, communities design their own intervention programmes, etc. Also communication processes important – take issues and develop programmes. Also inter-activity between central and local levels – but funding is an issue. Also mobilisation programmes and meeting with experts (groups and individual ownership, etc. Progress link to literacy – materials in print (English and other language) and TV, etc. (but these are expensive). ICT use in tele-health, and website accessibility for the doctors, etc. – so tele-health/medicine to encourage the locality. But no structure, so this is a problem especially at local levels. The structure needs to develop, especially in relation to communication at all levels.

3.5 **Literacy Programmes in Zambia**

Patrick Choye described Literacy Programmes in Zambia.

Developed from missionary and returning soldier work. Taught skills – blacksmith, carpentry, etc. In 1966, a literacy campaign began across Zambia – basic literacy classes were developed. Reading, writing and numeracy up to 1971. After 1971, introduction of functional literacy programme – 1971 to 1973 – training of instructors and writing of materials esp focus on cash crops. But not successful, so in 1990 – campaign started and ran from 1990 to 2000. After this, introduced in/before 2000 a further pilot funded by Arab/Gulf fund on income generation for rural women in Zambia, as mostly women attended literacy classes. Programmes syllabus on literacy developed incorporating:

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Environment, HIV Issues – books based on research of what people wanted to do/learn.

At present – because of poverty, want to bring back functional literacy programme and basic literacy – going to retain instructors and train them in ICT with support from UNZA, COLL, in three Zambian districts.

3.6 **Health Education – Distance Learning**

Discussions took place focusing on research looking at distance learning in the context of health. Based on health technologists, nurses and other staff trying to update knowledge and skills of health officers and technologists, especially in rural areas because of lack of information. In rural areas – malaria equipment and HIV/AIDS. Research showed that radio, printed material would be useful. Those in districts spoke of ICT – computers, internet, and also the phone (though only a very few because of cost). Most popular was the radio and radio cassettes and if access (in Districts) – ICT and TV, though radio the most preferred.

3.7 **Discussion and Question and Answer Session**
1. Lillian

How can you maintain population interest in reading and any materials?

Need more variety, materials from within Zambia and then outside. Glen – saw example in India (via COLL) – officials think that basic literacy issues solved by this ability is soon lost. COLL using centres as literacy collection (health, agriculture, and fishing) that are open to community, also video and audiotapes. Young people also writing stories for the library, but literacy for what, must support and enable them. Saul Zulu– in Zambia material in libraries not relevant and much in English, so little impact for rural areas because of lack of connecting. DM – need to link to what is happening in formal education system and illiteracy impacts on social context. Billie – PRP initiative a very good one but concern that entertainment part of reading is important but Ministry of Education focus not as a positive as working to publishing entertaining things. Also concern that there is a lack of non-formal education policy – even when funding – duplication of ministries – so need for a policy to take to government.

2. Emela

Any plans for tele-medicine type approaches?

South African network for research and training of the environment (CDG) funded by Germany – based on case studies, teaching material came from this. But seminars expensive, so perhaps use ICT/internet. But:

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1. Trainers need training to use internet because they were not computer literate;
2. Target group illiterate – so how can these people use this.

Mr Makena added that one could use South Africa to develop technical side, but is very expensive. Still putting the plan together. A pilot in the hospital between this and US experts. Also in district terms, hope to localise information and make it accessible across Zambia for operations, etc.

3. Lucy

What about adult learners and relapse into illiteracy?

After two years, population should go to night schools but this is no longer happening. But people get local language follow-on books available, but because of economy cannot print this. Rural libraries – some closed and books, in short supply, but are going to collaborate between adult education etc – link to local/regional centres. Fred: collapse of right school because students have to pay teachers, also younger people attend night classes and older ones no longer did. So shift in age of participation. Richard Siaciwena: ICT make production of this more easily. TEVETA response – entrepreneurship pilot based round centres (Education linking beneficiaries (drop outs, etc) to agencies (esp non-forma institutions) – ICT could facilitate networking and linkage. Shay – idea of a reading culture is different, if population don't read, no culture. Also published only if a demand. From PRP, there is a demand for Zambian language reading materials – parents also demanding literacy – if there became political demands, something might change. Also publishing only 20 per cent of cost, so cheap to produce a book locally, don't need the big publishers involved. ICT could help with this – cheaper production. Marilyn Leask – careful about ICT because it is expensive, but helpful as a filing cabinet of information. Also in rural areas people find a mass of information form web.

4. Rev Michael

Trying to get education to all people by 2015. Need to ensure that the adult population is catered for and CERP goes to 2002, but what after?

5. Fred Libindo to Mr Katowezhi

Useful to talk to Teacher Ed because useful to link the communication, ASIP centres/Teacher Ed. Centres: need to collaborate ministries at permanent secretary level. Mr Katowezhi – see where centres and resources are and put them in one pool – saved money use to open tele-centres. Dickson – but protection of self interest is of concern, dislike sharing of resources, etc.

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6. Luckson

How these learners be made to value ICT?

Richard Siaciwena noted that this would be discussed in the plenary session.

3.8 **Session 3 Overview**

Richard Saciewena provided an overview of the session. He noted that many issues had been raised and that good discussion had taken place. He concluded by noting that Session 4 would be based around a synthesis of the main points raised so far. This would be provided by Tony Dodds.

4. Session 4

Session 4 was chaired by Marilyn Leask who described how the purpose of the session was to link discussion directly to the aims and objectives of CERP.

4.1 **Synthesis of the Main Points**

Tony Dodds provided a synthesis of the main points from the three sessions.

Session 1:   Background of projects – context for seminar and way that seminar is charting a path.

Sessions 2 & 3:   Zambian context – Institution/Ministerial activity.

Future: Must be realistic and what goes on, has to build and add on to what has happened in Zambia to date.

Issues/main points:

1. Zambia: Very rich history in creation of non-formal education (e.g. agricultural radio programme for 40 years) – very effective methods – agricultural forums, etc. Must bear in mind this experience. Also health education structure very impressive, structures and experiences in place.
    Also: The literacy programme – cyclical and many different stages but return to certain issues and ideas. So wealth of experience is very important, so can new developments (ICT) work and be effective?
2. Context of declining resources and collapse of structures and general decline.
3. Collective power issue – are we really serious when we say education for all – is this for all adults and well as children for learning? Have to have the political will and without this nothing will happen. Have to carry political clout to get resources to ensure that change takes place. Need to mobilise popular (and then political) support.

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4. Question of literacy – how to stop people lapsing back into illiteracy? Not just failure of literacy progress but need for the materials to provide opportunities to maintain literacy. So lack of resource but also a lack of interest. Little literature available to read for fund – light reading materials, etc. Also the appropriateness of materials an issue and might be unusable by the majority – so must be appropriate. Also the issue of multi-lingual situations – Zambia, English and seven other languages. Need to ensure that materials correspond with multiples of languages.

5. Are all aware there are technologies that can overcome the problems identified? How to meet the challenge and open up the wealth of information available and how to integrate technologies into experience to make the most of these technologies is the issue. But use the past experience – in Namibia there is radio medium but not used for education – need to find the right mix of old and new technologies.

6. Collaboration important. Must not duplicate resources to centres or have separate ministry centres. Also have to find non-bureaucratic structures to ensure that resources can be shared. Have to avoid duplication.

7. Crucial role of capacity-building at all levels from ICT experts, regional tutors, and so on to enable people to use the facilities that are there. Need people to support this at all levels.

8. Translation/transformation of existing documentation. Materials around but difficult for people to use. Need to transfer technical information into a user- friendly form. Material has to be useable and develop and support individuals.

9. Community involvement – centres have to be maintained by the local communities. Tele-centres have to be maintained via community involvement and management cannot rely on just one person.

10. Limited access for most rural people to ICT, not going to change in the near future. Business not gone to rural areas. Have to intervene to stop the digital divide becoming the permanent divide. Access not there for most people. So if ICT is wanted, the facilities have to be made available – it will be community access for the next 10 years not individual access.

11. At the beginning of an exciting period in terms of ICT, but there is no ready answer. Must not have exaggerated ideas of benefit and the other extreme of no access. So now is the time for focused projects. So, need to focus on issued and what challenges will be and identify issues and problems. Must begin to plan, try out and learn form experience at this stage.

4.2 Response by CERP UK Director

Marilyn Leask comment on Tony Dodd's overview. She noted that:

1. Working on an EU project. Materials printed in core languages with other countries taking the onus publishing in own language;

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2. ICT allows self publication as publishers won't publish because of the lack of market;

3. Collaboration critical;

4. About talking not acting. Her dream is to have children having access to knowledge as they never could have done before – for example the Manchester Institute courses.

5 **Plenary Session 1**

A plenary session took place which provided a forum for discussion on issues raised throughout the day. Notes highlight issues raised by individual delegates.

1. Dickson Mwansa – Political will issue. How can you influence government to see non-formal education as a viable way of contributing to problems of policy. Only 0.2 per cent of a material budget is spent on literacy. So who can do this and how? Also, sustenance of reading is an issue and can't just churn our materials.

2. John – Must develop an immediate action plan – but need one person with a mission, what needed to be done, terms of reference. Richard Siaciwena responded that a CERP Action Plan would be developed and Marilyn Leask hoped that there would be a group founded from this conference to take forward development and to give it a political will. She added that collective pressure was needed to ensure resource is found. She added that there was a need for a pressure group, and that would be the group formed from this conference. Richard Siaciwena concluded that there was a need for a government ministry to properly oversee non-formal education.

3. Rev Michael – Ministry of Education could take a lead but often there hasn't been a constant support because government changes and one doesn't follow another – need another pressure.

4. Saul Zulu – Zambia grappling with issues of poverty. Perhaps if came up with action plan could lever both donors and government.

5. Glen Farrell – Important to recognise effect of ICT in that if forces convergence, provides a more holistic view and begins to blur distinctions of place, role and time. When technical infrastructure in place makes no difference where teacher/learner is. So important to remember market place won't solve the digital divide so governments have to be involved, have to work with government, BESSIP developing strategy etc, so need to have a vision and plan to take the government, must have a champion for this.

6. Dickson Mwansa – Also depends on the time when you target government/ministries. The benefit is that there aren't civil service rules of engagement – so be frank with ministers.

7. Tony Dodds – Michael Young had the OU idea but brought politicians in and OU was created by Harold Wilson: perhaps use the VC to call permanent secretaries together – University might take the lead.

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8. Marilyn Leask – Two action plans: CERP project plan and bigger picture plan. Begin this by time of the elections and plan in the future, at least 18 months ahead for budgetary reasons. Richard Siaciwena should (with colleagues) develop the bigger picture action plan through CERP, might provide guidance for future.

9. Glen Farrell – At present the discussion is theoretical and visionary. But there is COLLIT and this project will provide hard evidence for impact of ICT. CERP will add value to COLLIT and provide more information. If these seen as phase 1 things that do/don't work and people are kept informed this will define the vision. Phase 2 will take this further with set objectives. Also, importance in talking to ICT private sector provides – is in their interest to get infrastructures in place and also powerful in terms of linkage to politicians. ICT and education infrastructure planning never develop together but they should.

10. Darlington – Digital radio station (AKMED sponsored) about to be opened – perhaps link this to existing projects. Not comfortable as technology may impact on work force, especially teachers.

11. John – Can not have both ways. Human effort will have to go if people cannot move with the times.

12. Marilyn Leask – ICT provide additional material for teachers, not instead of.

13. Tony Dodds – Long history of radio projects but never became nationalised as teachers perceived that ICT would replace jobs – not the case, but the way it was introduced/packaged was important. In South Africa (Allset Project) got teacher support because it wasn't seen as a threat – community involvement the key.

14. John – The way that product are marketed is the key. Begin with the people.

15. Marilyn Leask – Agree with this and there is a need to find out more about the use of digital radio.

16. Darlington – Digital radio information comes from the locals – is formatted, etc and than downloaded to radio.

17. Glen Farrell – Important to have radio as one facet of a community based education project, as at Katete.

18. Tony Dodds – The World Space System. Programmes can be beamed up and down, but needs a $250 radio to pick this up and have to go via a digital radio station and onto normal radio if don't have a special radio. To broadcast to satellite have to pay expensive fees.

19. Emola – Need to come up with a strategy plan – is ICT going to be accepted. Sustainable, personnel available – all questions that have to be answered. Good to get politicians involved and write the speeches for them.

This Plenary Session came to an end and there was a break for refreshments.

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Plenary Session 2

Notes highlight issues raised by individual delegates.

1. Marilyn Leask – Need to hold a meeting to create a longer-term action plan. Seven of the delegates agreed that they would meet in the near future.
2. Billy Nkunika – When thinking about modular materials, multi-lingual translation a problem. Need to look at the implications of this.
3. Glenn Farrell – So much on the Internet is in English but programmes available in India that translates from English to local language. So perhaps regional collaboration needed to support this.
4. John – Indian scholars spent years in Silicon Valley – COMESSA might be doing this. This could be done in Zambia by gifted/talented children.
5. Marilyn Leask – Link to SISCO Academies (sponsored by USAID). Useful contact with UNZA and creation of SISCO accredited pupils perhaps.
6. Tony Dodds – World Bank money supporting creation of African Digital Library – free of charge at present. Mostly US books but might be relevant (in terms of books) for HE students, etc. E-book systems could be important but careful as might not stock books to service the courses that are running. Contact is Paul West at TSA. Text electronic and read on screen. Can download but have to pay. Only one person have it at a time, a limit on number of times, etc.
7. John – Eastern African Library posted books/journals on that website.
8. Marilyn Leask – Without collaboration, projects not cost effective.
9. John – Ministries should talk to their peers. For ICT each ministry pulling in different directions. Now more of a focus as pressure for one person/ministry to take control.
10. Enoch – From workshop, there is an idea of collaboration between ministries and institutions. Workshop must produce something to appear that this idea came from group and then this should go to the ministers.
11. Mr Makono – Some efforts at linkage. Need to get something from seminar and then take to minister and peers, and they might be amenable.
12. Darlington – Takes months before resolutions to be looked at. Projects should take responsibility for collaboration.
13. Enoch – Needs the policy makers. Document from group should be produced as quickly as possible so people can look at it later on.
14. Dickson Mwansa – Resolutions or a list of things discussed is needed. Is there an agreed format to reach the decision makers (ministers, etc)?
15. Mr Makono – Advocate system. Personal meetings with permanent secretary is best way.
16. Glen Farrell – Useful to make two lists: a) what decisions are people empowered to make now and b) what you do need to ask government for?

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17. Tony Dodds – Good to identify specific focus areas (content or ministries) and then in order to facilitate collaboration to give value – added on existing material what would that be? Identifying things that are doable now and what would have to be done to ensure collaboration. What will it mean, who will be involved, how would it be paid? Perhaps initially just one or two smaller collaborations.

18. Enoch – NAIS programme for reviving Co-op Societies to bring development to rural setting. ICT bring in new ideas, so can come up with new area that need ICT support.

19. Marilyn Leask – Good as would incorporate literacy and numeracy in conjunction with the ministries. This would complement development.

20. Emola – Environment projects – involving communities living in areas.

21. Mr Makono – Health projects get direct funding form District Boards for community projects. In AIDS – Mother/child transmission – three centres to reduce stigma based on community support. Also malaria projects and women literacy project – need to be sustained (funded by WHO). But structures are changing very quickly. Need to take stock of what is happening.

22. Marilyn Leask – Many ministries talking about centres. Any collaboration there?

23. Mr Makono – Different ministries have different visions and levels. But district development committees – remit to plan together and pull resources to bring institutions together, so structures are in place. But not sure how they are working. Some donors giving direct to district.

24. Saul Zulu – Barrier to collaboration are the donors themselves as they have to communicate.

25. Marilyn – BESSIP is addressing this. In future money will go direct to ministries.

26. Dickson Mwansa – So many offers of help from all angles. Thoughts on non-formal education from group must be very clear for Government.

27. Marilyn Leask – Communication across ministries is very difficult. Also SISCO academies – UNZA, etc. needs to respond to this by interest/courses: capacity building.

28. John – Historically (1983) via Irish programme there was a realised need for ICT but UNZA didn't have capacity. Last year was first year for computer studies under Belgian donor programme.

29. Billy Nkunika – Some courses at UNZA – training, etc.

30. John – Same courses. UNZA trained same people last year.

31. Tony Dodds – Via a Namibia University project (funds from African Development Bank) – programmes in ICT usage (face to face), but also going to industry 20/30 institutional designs for training, etc. – much material will be in digital form by later this year. Zambia could access this.

32. Marilyn Leask – This is a good example of how the Internet can help staff shortage issue.

33. John – 2000 meeting. Materials have been developed in Zambia and then circulated to other countries using Zambian expertise, especially in mining.

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6.   Conference Conclusions

Richard Siaciwena brought the conference to a close. He noted that the lesson learnt was that it was possible to meet to discuss issues. Also appointment of an Action Plan Task Force (as suggested by Marilyn Leask) means there was no need to wait for development – development could take place from now onwards. This meeting was felt to be unique as it was the first time that non-formal education experts have met together, and also have met with overseas colleagues. What is important is what will be done. He added that he hoped that both the government and NGOs will also be supportive. He wished all the delegates good luck for the future.

The conference ended at 5.00pm

Appendix 2: Thematic Analysis Paper - CERP Seminar One (June 2001)

1. Introduction

This paper aims to give a general overview of Seminar One of the CERP project. In addition, it provides a brief analysis of the evaluation provided by delegates on the day. All delegates were asked to complete a brief questionnaire of their thoughts on the day. Twenty responses were received and thematically analysed.

2. General Overview

It was evident from the responses received, that delegates were very positive about the seminar. Not only did it provide them with the opportunity to meet colleagues from various ministries and institutions, the seminar also provided delegates the environment in which they felt able to discuss issues that were important to them. It was evident that delegates were operating on two levels:

- In their capacity as professionals in the field;
- Also as people who have a personal understanding of the role of non-formal education in Zambia, and empathy with what CERP (and other associated projects such as COLLIT) aim to do.

In addition, delegates felt comfortable to begin to address macro-issues and challenges that have to be faced if there is to be a unified response both from this group and eventually from national government to non-formal education development in the country. As well as this, it was clear that the group dynamics worked well, as out of this initial session, it is proposed that a Working Party will be formed to develop an action plan that will be used to lobby Permanent Secretaries and the relevant ministers. It is important to note that the CERP Seminar was the first time that key actors and agencies with a non-formal education focus have met in Zambia, and therefore was of key importance. The true relevance of this might become more evident at a later date. The fact that members of various ministries attended the session served to enhance the role that this Working Party could have. Rather than simply being a University or a visiting overseas body, the proposed working party will incorporate representatives from HE and the ministries working together to achieve the goal of placing non-formal education onto the political agenda regardless of the outcome of the forthcoming general election. The premise of the CERP Seminar and the Working Party is that non-formal education is of key importance both in terms of individual education and training (and the associated ownership of this method of learning) but also that non-formal education can impact positively on the economic situation of the country.

In terms of the aims and objectives of the session, it is evident that these were met and exceeded. In addition to providing the project team with a wealth of information on which to base project decisions, the session has acted as a catalyst for development both in terms

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of possible collaboration amongst projects taking place in Zambia, and internal policy development.

3. **Overview of Delegate Feedback**

Delegates were asked to complete a brief seminar evaluation at the end of the session. Evaluation questions were:

What have you liked about this workshop?

It was evident that all the delegates appreciated the opportunity to work outside of the parameters of their own institution or ministry. The time to reflect on 'the bigger picture' with like-minded colleagues was seen as a great opportunity. In addition, the focus of the seminar on the use of ICT gave the discussions a new and innovative focus as the possibilities of ICT were discussed.

As one delegate noted, *'The workshop tackled a very important subject – the use of ICT in non-formal education for rural people. The resolution that a strategic plan be prepared will go a long way in placing ICT utilisation in its right perspective as concerns rural people.'*

The high quality of discussion was another feature that delegates valued – they were speaking to colleagues who could discuss concepts and offer suggestions for future development.

In addition, the fact that the seminar was focused around a clear aim and a precise set of objectives (highlighted at the beginning of the session) was welcomed as it provided a clear focus for the proceedings. That said, it was noted that it would have been helpful to delegates if the aim and objectives had been circulated to relevant parties in advance.

What should have been done differently in organising this workshop?

A recurrent theme amongst delegates was that they felt that the amount covered was too great for one day. A number suggested that future seminars should be spread over two days to ensure that all topics could be discussed in greater detail. Linked to this was the fact that many delegates would have liked the speakers to talk for longer (the speakers were given between five and ten minutes each). Associated comment suggested that more time should have been made available for group discussion to fully explore the issues raised.

On a separate issue, a number of delegates suggested that speakers should have circulated their papers at the session so that they could be used for reference in the future. (It should be noted that speakers were asked to provide a hard copy of their paper. Once hard copies

Appendix 2: Thematic Analysis Paper - CERP Seminar One (June 2001)

are provided, these will be circulated, either hard copy or in electronic format to all delegates).

Other issues raised included:

- The need for more discussion by the project team of what they saw as the key aspects of the CERP project.
- A number of respondents questioned why permanent secretaries from various government ministries were not present at the session. It was felt that their involvement would have been valuable both in terms of their input and in hearing what other delegates had to say. (Note: the CERP team have had meetings with the permanent secretaries of Education and Health previously as well as those in the ministry responsible for Agricultural Information Services to outline the project and secure commitment of their ministry to attend the seminar.)
- There was some concern as to the focus of the content of discussion. The majority of the seminar focused on Agriculture and Health Education. Representatives from other agencies (TEVETA for example) also attended, but their areas of responsibility were not discussed to such an extent.

What will you do about the lessons from this workshop?

From the responses it is evident that the seminar has acted as a catalyst for action amongst participants. In terms of what that action entails, this links directly to the people involved. For one participant (a student at the University of Zambia (UNZA)) the seminar has been a valuable learning experience, and what he took from it was that he would continue to develop his ICT skills. For others, the impact was not as personalised but equally as important. Many spoke of the need for greater collaboration amongst government ministries and that they would now try to encourage this within their own specific work context. Others noted that they would be taking more direct action to support the strive for collaborative working in government. In addition to developing a long-term action plan, other delegates were planning to take more immediate action. *'I will try and influence my Permanent Secretary and if possible, my Minister so that we can try and use experiences from other projects especially through collaboration.'*

Whilst there was this desire for action it was also evident that delegates were realists and used to working within the parameters of bureaucratic/civil service engagement. There was an understanding that development might be slow at first but that at least the process has begun to take shape.

Appendix 2: Thematic Analysis Paper - CERP Seminar One (June 2001)

What suggestions would you make for the content of such future workshops?

Suggestions for future workshops included:

- Practical demonstration of the use of ICT – for example, the sending of e-mail;
- Involve the Permanent Secretaries;
- Practical examples of the use of ICT in projects – video evidence for example;
- Discussion of the CERP project as it develops;
- Any resolutions to be written down and made known to delegates prior to departure;
- Circulate abstracts/papers prior to the seminar;
- Any resolutions made in Seminar One should be revised in future sessions;
- A greater multi-disciplinary approach.

4. **Conclusion**

This paper has highlighted key issues raised by the delegate evaluation of CERP seminar One. As is evident, participants welcomed the seminar and see it as the starting point of future development. In addition they have provided a number of useful suggestions for the team to take on board for future events.

Appendix 3: CERP Needs Assessment

1. **Team Members**

This Needs Assessment was carried out by Dickson Mwansa, Vitalicy Chifwepa and Saul Zulu (UNZA) to ascertain on what subject areas, learners from rural communities wanted CERP modules to be based. The Assessment was conducted in two of the three regional centres (Kabwe and Katete).

2. **Introduction**

Lack of relevant instructional materials has been recognized as a major impediment to the growth and development of literacy and non-formal education in Zambia (Mwansa, 1982; Mutava, 1988).

The motivation to carry out needs assessment for literacy work and non-formal education arose from consultations held among Zambian team members of the CERP Project in conjunction with National Foundation for Educational Research (NFER) in the UK. Funding for the Needs Assessment came from CERP budgets provided by the project sponsor, the Department for International Development (DfID), a British Government Department.

Assessment of rural needs was guided by four research questions:

1. What do people do to earn a living, which could be used for producing materials to promote self-reliance?
2. What do participants in on-going literacy project want to learn after initial acquisition of basic literacy?
3. What knowledge do people want to acquire in order to deal with challenges of every day life?
4. What organizations exist in local communities that render support to the people?

The questions influenced the research design. The report is divided into sections. Section three provides background to recent efforts aimed at eradicating illiteracy in terms of providers, objectives and trends. Section four reviews literature on motivation for participation in literacy. Section five discusses methodology used for the study, sample, data collection and analysis. Section six describes the sites in terms of location population and amenities found in the areas. Section seven presents findings of the study in relation to demographic characteristics, occupations, identified needs and institutions found in the communities. Section eight discusses findings and section nine makes recommendations.

3. **Background**

In Zambia, literacy instruction was originally introduced by missionaries around the 1940s for evangelical reasons (Hope, 1947). Later, the colonial government took interest in literacy and used it for teaching skills to soldiers returning from the Second World War and

Appendix 3: CERP Needs Assessment

in a limited way for advancing rural development. At independence (in 1964), the country emerged with 61 per cent of adults classified as illiterate. The nationalist government introduced basic literacy in 1966 to impart basic skills of reading and writings (Mwanakatwe, 1968). Basic literacy was later changed to functional literacy in 1970 (Imakando, 1985) with focus on growing two cash crops (maize and groundnuts). In the next twenty years literacy did not receive much attention due to limited budgetary allocation until 1990 just before the national elections leading to the introduction of multiparty government when the first National Literacy Campaign was launched.

The goal of the Literacy campaign was to reduce illiteracy to 12 per cent by the year 2000, from what it was in 1980. Identified target group comprised "underprivileged women and men who had not attended school and those who had relapsed into illiteracy" (ZALIT, 1991:11). The objectives of the campaign were to:

1. Mobilize resources;
2. Stimulate awareness;
3. Organize basic literacy (reading and writing) and functional literacy (nutrition, health, child care, home management);
4. Provide skills to enable people to participate effectively in national development;
5. Promote awareness of women's rights;
6. Raise people's standards of living.

A number of administrative and logistical plans were proposed. The campaign was to be implemented on a phase by phase basis starting with three provinces in 1991, three other provinces in each subsequent year and the National Co-ordinating Implementation and Evaluation Committee was formed which trained teacher trainers in three provinces: Lusaka, Western and Eastern and set up voluntary committees at provincial, district and ward levels (ZALIT, 1991). After the training exercise, the campaign was taken to scale instead of phase by phase approach. The campaign covered all provinces in 1992.

The Literacy Campaign achieved a number of objectives: it motivated involvement of other social actors in the field, led to reprinting of instructional materials, training of instructors and creation of awareness that illiteracy was still a contributing factor to lack of development. During the period 1990-1995, 32 different organizations integrated literacy training in their developmental activities using instructional materials reprinted by the Zambia Alliance for Literacy. Altogether 95,500 primers of *Grow More Maize* were reprinted, 1,926 voluntary instructors, nominated by wards and chiefs, from among school leavers were trained to strengthen the work of Social Development Assistants who organized two literacy classes per centre as part of the literacy programme. Up to 1995, a total of 46,064 people had participated in the campaign. Seventy per cent of participants were women (MOE, 2000).

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Table 1**: National Literacy Campaign Enrolment Figures 1992-95**

YEAR	MEN	WOMEN	TOTAL
1992	4,278	11,514	15,514
1993	3,010	7,434	10,310
1994	2,872	7,084	9,910
1995	3,746	6,584	10,330
TOTAL	13,906	32,616	46,064

Source: Department for Community Development, 1995

For the period 1990 to 1995 government spending on literacy increased but was in real terms reduced by the escalating costs of material production. Most of the financial outlay was spent on reprinting of instructional materials, training and payment of instructors. There was not much to spend on purchase of vehicles, publicity and development of new instructional materials.

Between 1999 and the year 2000 a number of factors affected provision of literacy. First, government failure to remunerate part-time instructors dampened morale among part-time instructors and attendance dropped. A study of literacy revealed that literacy had stagnated (Mwansa, 1997). In 1995 UNESCO, laid out some funding secured from the Arab Agriculture Fund, for production of a curriculum for literacy and instructional materials aimed at rural women. The project did not result in increased participation by women in literacy as no classes were introduced. In 1998, the Commonwealth of Learning introduced the project on the use of ICT in literacy. The project was integrated into the literacy programme of the Ministry for Community Development and involved partnership with the University of Zambia. A primer module containing 21 lessons and an instructor's guide were produced. Subsequently materials were adapted to the computer using the power point programme. Participants could learn from computers. Additionally, a syllable board was introduced which participants used in internalizing new words. Within one year many women were enrolled in classes in rural areas.

3.1 **Section 3 – Summary**

Recent efforts at promoting literacy in Zambia have indicated that large scale literacy programmes are not sustainable unless there is strong political will, which in the Zambian context has been lacking. Basic literacy, functional literacy and the national literacy campaign did not receive enough support and were not perceived as strong vehicles for national development. The major challenges facing literacy work in Zambia are a lack of relevant instructional materials, limited funding and lack of training for instructor. The introduction of ICT into the literacy programme is a new phenomenon, which is likely to enhance production of materials and build capacity for instructors in the use of modern communication technology to access information to use in literacy work. Its sustainability will depend on government commitment to the programme.

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4. **Literature Review**

This section reviews literature on motivation for participation in literacy programmes.

The bulk of research into participation has, until recently, concentrated more on participants with higher literacy skills such as those taking part in professional and continuing education (Houle, 1961; Boshier, 1971; Burgess, 1971) and less on those taking part in literacy programmes (Rockhill, 1982; Horsman, 1989; Beder and Valentine, 1990; Marshall, 1990). In addition, more quantitative than qualitative methodologies have been employed to study participation (Rockhill, 1982). Cross (1981) has identified, via in depth interviews, hypothesis testing and factor analysis as some of the methods, which have been employed adding that there *'are lots of commonalities among the findings.'*

Houle's (1961) seminal work, involving in-depth interviews among 22 participants in continuing education, concentrated on the study of participants and not the act of participation. He identified three types of participants according to their motivational orientations. The first group was made up of goal-oriented participants or those people who used education to accomplish clear cut objectives. The second group consisted of activity-oriented learners made up of all those people who participated because they found in the circumstance of learning a meaning, which had no necessary connection with the announced purposes of the activity. The last group was made up of learner-oriented or those people who sought knowledge for its own sake.

The significance of Houle's study is that his typology arose from interviews and not from a pre-determined theoretical stance. He also acknowledged that the categories were not mutually exclusive but that there were areas of overlap. Second, the study spawned other studies using similar approaches – a combination or both qualitative and quantitative approaches (Boshier and Shefield, 1962; Burgess, 1971).

The limitation of the typology lay in its focus on the participants to the exclusion of the reasons for participating (Boshier, 1971). Further, the limitation of motivational orientations only to three categories was not clear apart from the fact that most conceptual frameworks and religious metaphors contain three frameworks (Boshier, 1985:114).

Shefield (1962, 1964) using factor analysis found five and not three factors which he tried to reduce to three to fit the Houle's typology. Working in the same way, Burgess (1971) administered a questionnaire to 1,046 subjects and identified 15 reasons which he grouped into seven factors: desires to know, to reach a personal goal, to reach a religious goal, to escape, to take part in an activity and to comply with formal requirements.

Boshier (1971) tested Houle's typology by using factor analysis and also developed a research instrument called Education Participation Scale (EPS), which could be used cross-

culturally. In the first study he administered a questionnaire to 233 participants taking part in an evening class program at a school in Wellington, New Zealand. He came up with 14 factors for participation which contained elements of homeostatic and hetereostatic behaviours.

In the second study, Boshier and Collins (1985) relying on studies and data from a number of countries where EPS had been used, identified six factors: social contact, social stimulation, professional advancement, external expectations and cognitive interest. They also categorised social contact, social stimulation, external expectations and community service as factors associated with participants with low level of education.

There is little contention with the instruments used by Boshier and his associates to study participation, but there are some misgivings about the labels, which they attached to participants. Boshier classified participants as life-chance and life-space. The life-chance participants were described as those people associated with neuroticism and spasmodic participation while life-space participants were considered as those people who participated continuously. In what Rockhill (1982) has called a *'giant leap in logic'*, Boshier linked this classification to social economic classes by inferring that participants from upper socio-economic classes are more life-space oriented than participants from lower classes. Rockhill has faulted this labelling and concluded that, *'biased pictures of people result from a research approach which seeks to interpret human behaviour using constructs from research literature rather than from the perspective of the people being studied'* and she argues that it would be important to know something about self organizing principles, common sense understanding about experiences of learning, different values placed upon different forms and types of learning and rationalization and intent with respect to organized experience.

Boshier has also discerned the limitation of factor analytical approach when he says, *'factor analysis, as in other statistical operations the research gets what it puts in.'*. Thus there are limitations in relying on statistical operations to understand human behaviour. Other adult educators have advocated use of qualitative approaches (Freire, 1970; Monette, 1977; Rockhill, 1982).

Beder and Valentine (1990) used a combination of in-depth interviews and factor analysis to study why low literate adults choose to participate in particular lessons. They identified ten broad categories as: self-improvement, diversion, literacy development, community church improvement, job advancement, economic need, educational advancement and urging of others.

Knox (1982) and his associates contended that participation is a process that involves awareness, development of interest, evaluation of interest and adoption of participation. Participation is also impinged upon by what Knox calls change events.

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Cross (1981) made study of barriers to participation and identified them as situational, institutional, dispositional and information.

A number of studies on participation in literacy in Africa have shown that literacy programs attract more women than men (Harasim, 1983; Lind, 1988; Stromquist, 1990) but they have not focused on why there is such lack of interest among men when levels of illiteracy among rural men and women are only minimally different. Stromquist (1990, 1992) reviewed literature cross-culturally and found that more women than men participated in literacy programs of countries such as Botswana (61 per cent), Kenya (78 per cent), Zimbabwe (90 per cent) and Zambia (70 per cent). On the other hand the illiteracy differential, particularly among rural men and women, is small. It ranges between six per cent and 25 per cent. There is not much research accounting for low male participation in literacy though there are reasons for unequal female access to educational opportunities that include early marriage, early dropout, domestic responsibilities and preferential treatment for sons when it comes to enrolment in formal education.

Mkamanga (1989) carried out an investigation into factors that contributed to low male participation in literacy programs in rural areas of Lilongwe District of Malawi and found that the largest number of male and female participants and teachers attributed low male participation to three reasons: a) shyness about revealing their illiteracy; b) shyness about learning with women; and c) fear of being taught like children. Soonga (1984) studied the causes of male dropout from literacy programs in rural Zambia and found that most men said they were shy about learning with their wives.

Male shyness about learning together with female counterparts and vice versa cannot be isolated from the socio-cultural socialization of the people. In most rural communities men and women have traditionally learnt in separate groups. Richards (1982), who studied the initiation ceremonies of the Bemba and Turner (1968) who closely studied similar ceremonies for boys among the Ndembu found that each activity was carried out exclusively for one sex. Thus shyness might be due to novelty of new learning situations in which people who have been socialized separately are required to sit and do things together later in life. Horsman (1989) carried out interviews among women in the Maritime Provinces of Canada. Among the reasons accounting for their participation were need for company, need for social contact, for the sake of the children, need to help with the education of their children, need for further education and for job. She also says that most of the participants the teachers said were illiterate were able to read and write relatively well.

Rockhill (1987) studied experiences of Hispanic women with both limited knowledge of English and limited formal education. She held conversations with 50 women and critiqued and contrasted the experiences of the women with the way literacy is conceptualized as power. Her central finding was that contrary to the belief that women lack motivation,

women yearn to go to school but they are confined to their homes. She contends that theories of inequality do not take difference into account in a way that can get at how inequality and domination are reproduced but instead the differences and practices that give rise to inequality are concealed behind the concepts that mask, categorize and mark (p. 158).

Her concern was with how empowerment occurs in the private sphere and how literacy is lived in concrete practices and daily interactions. She concluded that inquiry in the relations of power has been limited to showing that literacy requirements of schooling and mainstream culture differ from and are invested with more power than those of the community and the home (p. 120).

Rockhill's approach to researching into literacy agrees with the motive for this research, which was that research studies in literacy have concentrated on assessment and confirmation of what those that commission researches want and not what actually obtains in the field. Projects, which do not confirm or affirm what prime initiators of the projects wanted, are considered to be failures and other new solutions must be found. Usually solutions are externally generated and do not seem to satisfy the needs of participants. Kassam (1980:115) has raised this issue with evaluation of literacy as he notes that *'the impact of literacy has been evaluated by measuring most behavioural changes related to socio economic development. The invisible, the innermost, the personal and qualitative effects of literacy have been ignored. Such narrow focus in literacy has become what constitutes development⁰ this has led us to view and design literacy as an overwhelmingly technical solution to problems that are only partly technical.'*

Though literacy projects start with limited objectives, evaluations that focus only on the achievements of the objectives underestimate the broader impact of education on learners. There is a lot of change created in individuals which the school may not have planned for which can only be understood by establishing closer relationships with the learners.

Bhola (1983) reviewed approaches to the eradication of literacy work in a number of countries, including African countries, and attributed participation to political will. He postulated the theory that there are countries following reformist, reconstructionist and revolutionary approaches to the eradication of illiteracy. He showed that greater results were coming from those countries, which adopted a revolutionary approach to social change and concluded that political will was a vital condition for eradication of illiteracy. While state intervention is necessary the motivational factors, the values and attitudes of participants are among vital human elements, which should be considered. Bhola did not focus on these.

Marshall (1990) made a case study of literacy in work place in a Mozambican factory in which literacy had been carried out quite successfully for some time. Her observations were that workers participating in literacy brought fears and hopes which were shaped by their daily experiences and that their expectations were based on the power of literacy in the

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home, the community and experiences mediated by gender, race and class (Marshall 1990:61 – 84). This approach fits more into humane or humanistic understanding of intricacies of change and effects of literacy on people and their societies.

Mwansa (1993) made an in-depth study of participation in literacy in Zambia and found that people participated in literacy for reasons that included fear to expose illiteracy, learning for the sake of children, learning to read the Bible.

5. **Methodology**

The methodology used was principally qualitative. It involved participants fully in analyzing their needs, feelings and the communities in which participants lived. The sample was purposively selected both in terms of the sites and the participants in the study. Two sites, one typically rural and the other peri-urban, were chosen. The rural communities satisfied the following conditions:

- Had some literacy activities taking place;
- Were located at least 10km away from town;
- A majority of people earned their living by working on the land;
- Were accessible by a gravel, rather than tarmac, road.

For peri-urban areas, the following reasons were considered:

- Had some literacy activities;
- Were within 10km radius from town;
- A majority of people were engaged in the informal sector of the economy.

At each site participants were drawn from:

- Those currently attending literacy classes;
- Past participants in literacy classes;
- Government officers and representatives of non-governmental organizations working in the communities.

Since the numbers of involved were not large, everyone in each group was included in the study.

5.1 **Data Collection**

Data was collected through use of various but interrelated participatory and qualitative techniques that included:

- Participatory learning tools: falling under these were tools that enabled participants to draw on flip charts. PLA tools have been adopted from mathematics, geography, and history and made simple for people in the communities to use. Included in these are matrices, Venn diagrams, maps, and time lines of major occurrences or events in the local areas.
- Focus groups: participants worked in small but homogenous groups (officers, past participants, current participants) to analyze and discuss main findings. The discussions were recorded on videotape.
- Interviews with selected participants to gain further insights into needs and aspirations.

5.2 **Data Analysis**

Data were analyzed in groups and among groups and fully involved participants and researchers. The PLA tools enabled participants to stay focused in their analysis of needs, knowledge and institutions. The maps, matrices, and Venn diagrams were the sources of analyzable information. Teasing out commonalties and similarities arising from diagrams, maps, charts and Venn diagrams did comparative analysis. From different tools, findings were abstracted into composite matrices and video recordings were also transcribed and analyzed into major and minor categories of findings.

6. **Description of Sites**

Data were collected from three sites: Muswishi, St. Paul's and Makululu. Each site consisted of sub-sites comprising officials, past and current participants in literacy. At Muswishi data were collected from two women's clubs (Twafwane and Buyantanshi), at St. Paul's from the Women's club and from Makululu from two literacy clubs: Makululu A and Makululu B. Each site is described in terms of location, population, economic activities and amenities provided.

6.1 **Muswishi**

Muswishi is a rural site located some 30km east of Kabwe, the former mining town. It has a population of 21,615 comprising 52.73 per cent females and 47.27 per cent males (CSO, 2002). The area is primarily for farming and is surrounded by commercial farmers. Ethnically the area is occupied by many ethnic groups that are from the other parts of the country and beyond. The main ethnic groups are Bemba, Tonga from the Southern province of Zambia and Ndebele from Zimbabwe. Thus Muswishi can be considered as a convergence point of different cultures. The site comprises two villages: Kalangwa and Matona. The two villages have a limited number of amenities and institutions that provide service to the community. They have one school, a clinic and thee churches: Seventh Day Adventist Church, Methodist Church and United Church of Zambia. The main source of water is a small river and one monopump.

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An agricultural extension officer services the area. There are two grocery shops. The two clubs of Bwafwano and Tumfane provide literacy. The Co-operative League of the United States of North America (CLUSA) is the key NGO that provides agricultural credit to the people in the community.

6.2 St. Paul's

St. Paul's is located 45km east of Kabwe town comprises five villages of Nkolola, Chella, Kaini, Mbokoka and Lunsemfwa. Mondame and Muketeshi streams on the east and western sides bond the five villages respectively and by the Mulungushi River a tributary of Luangwa River on the Northern side. A bridge on the Mondame stream connects the area to Kabwe town. One noticeable human-made feature is a dam on Mulungushi River. The dam supplies electricity and water to Kabwe town.

The main occupation for the people of St. Paul's is farming primarily for subsistence and secondarily for cash. People grow groundnuts and maize for consumption and cash; sorghum for consumption; sweet potatoes and cotton for sale. Outside farming, women are engaged in production of local beer and knitting of table clothes for sale.

There are four discrete groups of institutions found in the area:

1. Five institutions of learning: one co-educational secondary school (St. Paul's), a pre-school, a primary school and a community school;
2. A Roman Catholic Church;
3. A police post;
4. A centrally located market.

Key NGOs found in the area are CLUSA and Dunavant. CLUSA provides credit facilities to farmers engaged in cotton and maize farming while Dunavant provides seeds and agricultural extension services.

6.3 Makululu

Makalulu is a peri-urban settlement located 10km South west of Kabwe town. It is a shanty compound sited on an outlier land belonging to the lead and zinc mine. Much of the land is on a low-lying flat terrain. There are no notable land features. The population of the settlement is 10,000 people. The main source of livelihood is farming and petty trading. People are engaged in production of maize, cassava for consumption. People are engaged in production of maize, cassava for consumption. Amenities found in the area include:

- A clinic, which serves as a cholera centre during the rainy season and provides other health services to the community;
- Water sources that include two monopumps and six communal taps which are located in one area;

- Two women's clubs (Makululu A and Makululu B and a community school that serves as a community learning and assembly centre;
- Five churches with one of them conducting home based care activities;
- Four resident development committees with members scattered in the area;
- Four community taverns;
- A graveyard on the eastern edge.

The major institution involved in community mobilization for self help activities is Peri-urban Self Help (PUSH). It focuses on road maintenance, hygiene and literacy.

7. Needs Assessment Sites – Characteristics

7.1 Demographic Characteristics

Table 2: **Demographic Characteristics**

OFFICERS			MAKAULU	MUSWISHI	ST PAULS	TOTAL
GROUP	RURAL	URBAN				
MEN	1	2		3		6
WOMEN	4	6	12	15	11	48
	5	8	12	18	11	54

A total of 54 people participated in the study. Thirteen were officers drawn from ministries of community development, local government and agriculture and 41 were participants from literacy and women's clubs. The majority (48) were women and only six were men. The large number (30) was from rural sites of St. Paul's and Muswishi while a small number was from the peri urban area (24).

The participation of a large number of women in literacy and non-formal education has been confirmed in other studies (Mwansa, 1993). Men avoid taking part in literacy classes in which they are mixed with women for fear of making mistakes. Men fear to expose their ignorance in front of women.

7.2 Occupations

The occupations of peri urban and rural areas differed quite remarkably. Peri urban occupations were in the informal sector that included petty trading, buying and selling of basic essential commodities such as sugar, cooking oil, baking pan cakes and flitters and sell of second hand clothes.

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Table 3: **Ten common occupations for peri-urban areas, identified by officials and communities**

Peri-urban based officials	Makululu A	Makululu B	Rank Order
Street vending	Farming	Selling flitters	1
Selling vegetables	Selling at market	Selling mealie	2
Formal employment	Working in office	Selling charcoal	3
Tuntemba business	Selling charcoal	Selling beer	4
Shop trading	Cooks	Selling kapenta	5
Sell of second hand clothes	Digging wells/lat.	Selling salad	6
Beer brewing	Black smithery	Selling fish	7
Prostitution			8
Selling of fritters			9
Maize farming			10

Those involved traveled daily to the main town to sell different goods and services that included second hand clothes and charcoal. Within the settlements women sold flitters, mealie-meal, sugar and salad.

7.3   Institutions

Institutions were identified according to the services they offered and social linkages that existed among them.

7.3.1   Mushwishi

Of the three sites, Muswishi had eleven institutions that served the community. Three institutions were for education or advocacy for education (P.T.A, Education, FAWEZA), five were involved in supporting agriculture through agricultural extension, provision of credit and creation of co-operatives (MAFF, Co-operative, Forestry, Veterinary, CLUSA). Three institutions were involved in social and institutional management and organization (Village Committee, church, football). Their locations (in relation to Muswishi) are detailed below.
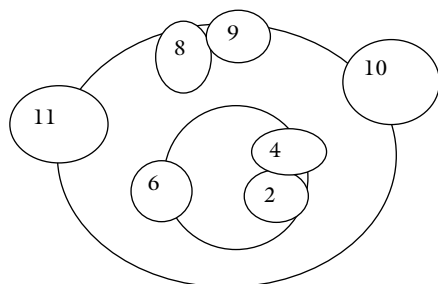
In terms of the core occupation of the area, Muswishi was is endowed with institutions that focused on supporting and promoting agriculture. What was not clear was the capability

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and internal efficiency of each institution. For example Co-operative League of the US was strong in providing credit but was seen as being too strict in the recovery of loans. Some of the members observed that getting a loan from CLUSA was tantamount to mortgaging freedom. In the event of failure to pay back loans CLUSA would confiscate any property and as one learner noted, *'CLUSA can come and take your property if you fail to pay the loan.'* The central institution to lives of the people of Muswishi was the MAFF. It provided agriculture extension services on growth of sweet potatoes, and raising of cattle.

7.3.2 **St. Paul's**
St. Paul's had the second largest number of institutions. There were four institutions of which only one institution (CLUSA) was engaged in the core business of providing agriculture loans. The other three were primarily organizational or social institutions. Though agriculture was central to St. Paul's, the community lacked effective institutional support. CLUSA is a foreign organization engaged in a project with limited lifespan. The diagram shows the location of institutions at St. Paul's.
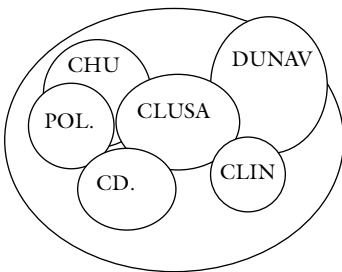
7.3.3 **Makululu**
Makululu was the least endowed with institutions that supported social economic activities. There were four institutions all of which concerned with management and community organization. They included the Resident Committee, churches, and a clinic. Main economic activity of the community, which was petty trading, had no institutional support. Thus the business remained small scale, unorganized, subsistence and inefficient.

7.4 **Learning Needs**
Identification of needs relied on multiple sources in terms of sites and participants.

For the rural communities information was collected from participants in literacy, women's clubs and officers from three ministries of agriculture, community development and health but working in the three sites.

Appendix 3: CERP Needs Assessment

Officers identified 31 learning needs, current participants identified 20 learning needs while participants in women's clubs identified nine learning needs. All the needs were ranked in groups. Each of the needs on the list was given a score out of the total listing and then given a rank. Ten highest ranked needs were identified (see table).

Table 4: **Ten common learning needs for rural areas identified by officials and communities**

Rural Based Officials	Twafwane (Muswishi)	Buyantanshi (Muswishi)	St. Paul's	Rank Order
Home management	Maize growing	Speaking and writing English	How to measure	1
Livestock production	Reading letters	Speaking Bemba	Speaking and reading English	2
Livestock health	Writing letters		Applying for loans	3
Conservation farm	Poultry farming	Knitting shawls	Poultry farming	4
Use of local foods	Bee keeping	Running a CBO	Oil press from sunflower	5
Preservation of foods	Cookery	Hygiene	Farming	6
Applying for loans	How to speak English	Budgeting	Baking bread	7
Reading English	Child care	Child care	Sewing with machines	8
Writing English	Knitting dolls	Home management	How to read	9
Home remedies	Sewing with machines	Sewing with machines		10

Through comparative analysis among the four groups of participants, eight of the highest ranked needs from all these groups were identified on the basis of frequency of distribution among the four groups of participants. Only those, which appeared two times and above, were identified as significant.

Table 5: **A composite matrix of frequently identified needs for rural areas, by sites**

	Learning Needs	Frequency	Sites Where Needed
1.	English (speaking, reading)	4	Officers, Buyantanshi, Twafwane, St. Paul's
2.	Livestock production	3	Officers, Twafwane (poultry) St. Paul's (poultry)
3.	Sewing with machines	3	Twafwane, Buyantanshi, St. Paul's
4.	Childcare	2	Twafwane, Buyantanshi
5.	Knitting	2	Twafwane, Buyantanshi
6.	Applying for loans	2	Officers, St. Paul's
7.	Reading	2	Twafwane, St. Paul's
8.	Home management	2	Officers, Buyantanshi

Appendix 3: CERP Needs Assessment

The most highly ranked need was use of English. This was recognized by the four groups. In focus group discussions participants gave reasons for attaching importance to learning of English which was a minority language used mainly by the more educated people. The main reason given was that the people living in Muswishi area traveled often between Zimbabwe and Zambia and English was used at the border where they were required to fill in forms and at times. They were asked questions in English. The second reason was that a lot of literature existed in English and if they knew English they could access information for themselves. The last reason was that English would enable those who wanted to go further with education do so.

The second most common needs were livestock production and sewing with machine. Poultry production was particularly mentioned at Twafwane and St. Pauls.

Occupations at the rural sites were predominantly agricultural. The most highly ranked farming crop was maize. This was the staple crop for all the people. It was seasonal, labour and capital intensive. The second was market gardening for immediate cash. Participants produced tomatoes, cabbage and rape. The products were produced for the urban market – Kabwe. Market gardening is perennial and people can grow crops two to three times a year. The third source of income was growing of sweet potatoes.

Traditionally, sweet potatoes have been grown as a subsistence and not a cash crop. The Ministry of Agriculture Food and Fisheries is promoting growth of potatoes as a cash crop. The officers are promoting its consumption and preservation. Rural communities are also engaged in selling of basic essential commodities including soap, candles, and paraffin. Participation in retail trade was regarded as urbanization of rural areas through small shops.

For peri-urban areas of Makululu nine most highly ranked needs were entrepreneurship, prevention of diseases, family planning, hygiene, child care and nutrition, budgeting, cooking, reading and writing English and simple arithmetic.

Table 6: **Ten common learning needs for peri-urban areas, identified by officials and communities**

Makulu A	Rank
Entrepreneurship	1
Disease prevention	2
Family planning	3
Hygiene	4
Child care and nutrition	5
Budgeting	6
Cooking	7
Reading and writing English	8
Simple arithmetic	9

Appendix 3: CERP Needs Assessment

At each subsite, participants used matrices to identify occupations in which they were engaged. They were asked to identify those activities which brought them income.

Table 7: **Ten common occupations for rural areas as identified by officials and communities**

Rural Based Officials	Twafwane (Muswishi)	Buyantanshi (Muswishi)	St. Paul's	Rank Order
Growing maize	Maize growing		Growing maize and groundnuts	1
Growing sweet potatoes	Growing round nuts		Selling of local beer	2
Growing groundnuts	Growing popcorn		Growing sorghum	3
Fishing	Growing sweet potatoes		Market gardening (tomato, rape)	4
Charcoal burning	Growing fingermillet		Knitting table clothes and shovels	5
Growing paprika	Vegetable		Growing cotton	6
Growing rape	Tomato		Growing popcorn	7
Growing tomatoes	Selling of local beer		Growing sunflower	8
Growing impwa	Bee keeping		Making children's clothes	9
Growing local beans	Fishing		Sell of goats	10

7.5 Katete

7.5.1 The Needs Assessment – Katete

The Needs Assessment in Katete replicated the methodology used in Kabwe. Data were collected from four sites (one urban and three rural). The participants in the assessment comprised community leaders (Area development committee leaders, Department of Community Development staff, Church leaders) government officials drawn from the Ministry of Health) and Ministry of Agricultural Food and Fisheries, literacy Instructors from the Department of Community Development, member of women's clubs, current participants in literacy classes and past members of literacy classes.

7.5.2 Description of the Sites

7.5.2.1 Kafumbwe

Kafumbwe is located 30km south of Katete Sub Boma along the road leading to Mozambique. It is a rural area with agriculture whose main economic activity is farming. In the early 1990s the area received an influx of refugees from Mozambique due to the fight between Renamo and Frelimo. Most of the refugees left after peace settlements in that country.

The main institutions found in the area are: the Department of Community Development that provides literacy and promotes women's development work; Clark Cotton Agency for

extension and credit services; a basic school; the Department of Agriculture which provides extension work; Economic Expansion in Outlying Areas (a development agency of the Ministry of Agriculture), and a clinic.

7.5.2.2 **Kagoro**
Kagoro is about 25km south east of Katete town. It is an administrative center or sub-Boma of Katete, which houses government offices belonging to Ministries of Agriculture and Health. It is characterized by bare land with high deforestation.

Kagoro is a bare area, however it characterized by government administrative offices of health, agriculture, etc. It is a historical administrative sub-centre. It has shopping areas and a market.

7.5.2.3 **Katete Central**
Katete Central is a site nearest the main training center and closest to the provincial office of the Department of Community Development. It is an urban center with learners living within walking distance. Katete has market for both selling and buying of requirements for income and consumption; shopping centre; a Cooperative training college.

7.5.2.4 **Kapiko Village**
Kapiko Village is located about 15km from the main center. Basically it is a farming area. Families have been grouped into clusters. Kapiko is a densely populated area.

7.5.2.5 **Kafumbwe**
Kafumbwe has a water borehole; kraal for cattle; market for their agricultural produce, and a trade center for groceries and some basic clothing.

Table 8: **Demographic Characteristics of Participants**

| | URBAN | | | RURAL | | | |
	Katete Central	Women's club	Officers and instructors	Kafumbwe	Kafumbwe Women club	Kagoro	Kapiko post Learner
MEN	2	1	15	5	3	2	8
WOMEN	6	7	5	5	10	11	4
TOTAL	8	8	20	10	13	13	12

A total of 120 people participated in the study and consisted of 20 officers (from the Ministry of Health (2); Ministry of Agriculture, Food and Fisheries; Cooperative College; Department of Community Development; Instructors; and Community Leaders) and learners from Kafumbwe (23) divided into learners (10) and women club (13).

Appendix 3: CERP Needs Assessment

7.6 **Occupations**

There were slight differences in economic activities among those chosen by officers and the learners although the instructors were closer to what the learners identified as occupations they were engaged in. Among learners, the top economic activities were growing cotton, maize, sunflower, groundnuts, and cassava. Urban participants included some trade in sunflower oil and piecework or casual employment.

Table 9: **Occupations of learners as identified by instructors and other officers (Community leaders, Agricultural staff, and health staff).**

Instructors	Other officers	Rank Order
Maize growing	Cotton growing	1
Cotton growing	Maize growing	2
Groundnut growing	Sunflower growing	3
Sunflower growing	Groundnut growing	4
Cassava growing	Cooking oil production	5
Gardening	Piece work	6
Charcoal burning	Selling second hand clothes	7
Poultry rearing		8
Sweet potato growing		9
Fish farming		10

Table 10: **Occupations as identified by post and current learners (peri-urban)**

Katete Central	Women's club	Rank
Gardening	Growing cotton	1
Maize growing	Growing groundnuts	2
Cotton growing	Growing maize	3
Sunflower growing	Growing sweet potatoes	4
Groundnut growing	Selling buns	5
Beans growing	Selling vegetables	6
Beer brewing	Sewing	7
Charcoal burning	Keeping pigs	8
Selling second hand clothes	Rearing chickens	9
Selling bans	Keeping goats	10

Appendix 3: CERP Needs Assessment

Table 11: **Economic activities identified by current rural and post literacy learners and women club members.**

Kagoro current	Wataya (post literacy)	Kafumbwe current learners – men	Kafumbwe current learners – women	Women club (Kafumbwe)	Rank
Cotton growing	Cotton growing	Groundnut growing	Cotton growing	Sunflower growing	1
Groundnut growing	Gardening	Maize growing	Sunflower growing	Groundnut growing	2
Beer brewing	Maize growing	Cotton growing	Gardening	Maize growing	3
Sunflower growing	Selling domestic animals	Sunflower growing	Pig rearing	Cotton growing	4
Growing cowpeas	Groundnut growing	Gardening	Beer brewing	Beans growing	5
Gardening	Carpentry	Brick laying	Selling milk	Growing kachamba	6
Vegetable selling	Tin blacksmithing	Tin blacksmithing	Piece work	Oil extraction	7
Selling sweet potatoes	Charcoal burning	Making clay pots	Poultry	Blacksmithing	8
Selling cassava	Sunflower trade	Making hoe and axe handles	Charcoal burning	Gardening	9
Selling bananas	Beer brewing	Banana selling	Clay pot making	Sugarcane growing	10

5.7.7 **Learning Needs**

Learning needs identified by learners differed from those identified by officers and more significantly was that the learning needs were not close or similar to the economic activities of the learners.

Officers identified needs were reading and writing in general, health education, English, Arithmetic, crop production (maize, cotton, sunflower, groundnuts, and cassava). And the common needs for participants in literacy.

Table 12: **Learning needs identified by instructors and other staff.**

Instructors	Community leaders	Agricultural staff	Health staff	Rank
English language	Arithmetic	Crop farming	Antenatal care	1
Arithmetic	Writing business plans	Livestock rearing	Postnatal care	2
Reading and writing in local languages	Banking and financial management	Marketing of produce	Family planning	3
Computer skills	Using modern ICT	Reading and writing	Youth friendly services	4
Life skills (carpentry, cookery)	How to vote	Agricultural storage	STI/HIV/AIDS prevention	5
Health education	Letter writing	Health education	Water and sanitation	6
	Reading instructions from various institutions	Easy communication (radio, TV, computer and internet)	Reading	7
	Reading the Bible			8
	Understanding under five and antenatal cards			9

Appendix 3: CERP Needs Assessment

Past participants in literacy identified, in order of ranking:

Table 13: **Learning needs of the peri-urban post and current learners.**

Katete Central	Women's club	Rank
Sewing and knitting	Animal husbandry	1
English	HIV/AIDS	2
Reading and writing	Field crop production	3
Computer skills	Business management	4
Carpentry	Sewing	5
Cookery	Reading and writing	6
Arithmetic	Carpentry	7
Business management	Operating hummer mill	8
Health education	Operating oil making machine	9

For Katete Central, sewing and knitting, learning English, reading and writing, and computer skills were identified as the most priority areas. On the other hand, the women's club identified animal husbandry, HIV/AIDS, field crop production and business management as priority areas.

Rural participants and past participants in literacy identified the following learning needs:

Table 14: **Learning needs of rural current and post learners.**

Kagoro	Kapiko (post literacy)	Kafumbwe men	Kafumbwe women	Women club (Kafumbwe)	Rank
Reading and writing	Field crop farming (cotton, maize, groundnuts, sunflower)	Computer skills	Arithmetic	Making soap	1
English	Computer skills	Arithmetic	Computer skills	Sewing and knitting	2
Field crop farming (cotton, maize, groundnuts, sunflower)	Carpentry	English	English	Cookery	3
Health education	Bricklaying	Health education	Reading and writing	Carpentry	4
Human rights	Home Economics	Home Economics	Home Economics	Shop management	5
Hygiene	Hygiene	Chinyanja	Health education	Making paraffin	6
Home Economics	Arithmetic				7
Arithmetic	English				8
Computer skills	Social studies				9
	Science				10

Appendix 3: CERP Needs Assessment

In Kagoro, reading and writing, English and field crop farming were identified as priority learning needs. In Kapiko, field crop farming, computer skills and carpentry were the priority learning needs. On the other hand, men and women in Kafumbwe identified computer skills, arithmetic and English as their priority learning needs. However, women's clubs in Kafumbwe identified their priority learning needs as making soap, sewing and knitting and cookery.

The most frequently cited learning needs identified by the different groups were:

Table 15: **Summary of learning needs**

Learning Needs	**Frequency of citation**
Health education	6 groups
Reading and writing	6 groups
English	5 groups
Arithmetic	5 groups
Field crop production	4 groups
Home Economics	3 groups

Health education and reading and writing for its own sake. Health education has been identified as a major subject of interest to participants in literacy programmes in Zambia (Mwansa, 1994). Reading and writing for its own sake is equally important though most designers of literacy instruction have tended to ignore it. English as a second language has equally emerged a in a number of studies but has not been given much attention because of its limited use in local areas.

One of the reasons given for wanting to learn English was the need to be in touch with the rest of the urban communities and helping children who go to school.

7.8   **Institutions**

Even though the sites were wide apart, they had certain institutions working among them in common. Thus patterns and features common among the institutions merged. First there were few but centrally controlled government and non-government institutions.

Appendix 3: CERP Needs Assessment

Table 16: **Distribution of institutions among four sites in Katete.**

TYPE	NAME OF INST/ORG	KAPIKO	KAFUMBWE	KAGORO	KATETE
GOVERN.	1. MAFF	X	X	X	X
	2. COMM.DEVE	X	X		X
	3. VET DEPT	X	-		X
	4. CO-OPERATIVE	X	-		X
PRIVATE	5. CLARK COTTON	X	X		X
	6. DUNAVANT COTTON	X	X		X
	7. ECONOMIC EXPANSION	-	X		X
	8. CLUSA	-	-		X
NGO	9. LUTERAN WF	-	X		X
	10. WORLD VISION	X	-		-
	11. PAM	-		X	-

The Ministry of Agriculture, Food and Fisheries and Ministry of Community Development were providing extension services and literacy respectively. Like in Central Province the two ministries are central to rural development. In Katete the Ministry of Agriculture promotes.

Second, there were six non-governmental and private organizations involved in social economic development. Two private organizations (Dunavant Cotton and Clark Cotton) were engaged in the promotion of growth of cotton as a cash crop; two organizations (CLUSA and Economic Expansion in Outlying Areas) were involved in provision of credit for cash crops; three organizations were involved in provision of service and relief supply (World Lutheran, World Vision International and the Red Cross). Third, there were no notable community-based groups or committees in the four sites except for the women's clubs organized as part of literacy activities run by the Ministry of Community Development. Fourth, there were visible and strong presence of churches and other religious institutions. There were six churches in Kapiko village alone.

Table 17: **Distribution of churches.**

NAME OF CHURCH	KAPIKO	KAFUMBWE	KAGORO
ROMAN CATHOLIC	X		X
WATCH TOWER			X
CHURCH OF ZION	X		X
REFORMED OF ZAMBIA	X		X
CENTRAL AFRICAN CHURCH	X		X
PENTECOSTALS	X		

There were about six churches in all the areas visited. However there was a conspicuous absence of churches in Kafumbwe.

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8. **Discussion of Findings**

The rural and peri-urban sites were different in respect to their location and economic activities but had one commonality of being poverty stricken. In rural and urban areas people lived below the poverty datum line. In terms of occupation, the rural sites of St. Paul's and Muswishi were predominantly agricultural with a few people involved in retail trade. The common form of agriculture was production of maize both as a cash and subsistence crop. Similarly, the people of Katete engaged in agricultural activities, the predominant crops being cotton, maize, and groundnuts for sale and consumption. The urban communities engaged in some retail trade.

In Central Province, the growth of maize as a cash crop was well supported by agricultural extension services provided by the Ministry of Agriculture Food and Fisheries (MAFF) and loan facility provided by the Co-operative Alliance of the United States (CLUSA). In Eastern Province MAFF and CLUSA supported the same cash crop as well as groundnuts. In addition, Dunavant supports cotton production in form of extension, credit and market assurance.

In Central and Eastern Provinces MAFF promotes growth of maize because it is the staple crop for most of the people. However though maize production has been the focus of literacy in the past, returns from maize production have been minimal because the crop is labour and capital intensive requiring physical attention and application of chemical fertilizers which are often beyond reach by peasant farmers. Additionally, returns to peasant farmers have been minimal due to uncertain market that has led to small farmers being exploited by unscrupulous buyers of the maize crop.

The emerging sources of income for the rural communities in Central Province were market gardening and growth of sweet potatoes. Market gardening concentrated on growth of rape and tomatoes and was seen an activity that did not receive much agricultural extension. Growth of sweet potatoes for consumption and cash was being promoted by the MAFF transmitted through demonstrations and field days. A similar trend was apparent in Eastern Province with chickens and goats being promoted due to the goats' ability to stand drought. Men engage in what they referred to as piecework in form of brick laying, carpentry and short-term labour in urban areas.

The learning needs for the rural communities did not fully coincide with the occupations in which the people were involved. In Eastern Province key areas of interest were those pertaining to communication, skills training and livestock farming. Other areas of interest were communication, hygiene, home economics and arithmetic.

In both provinces participants wanted to learn English in order to function effectively in their interaction with government official and colleagues who had been to school. In

Appendix 3: CERP Needs Assessment

Central Province participants wanted to learn English to help them in their cross border trading between Zambia and Zimbabwe. Participants wanted to learn conversation English to enable them to communicate with immigration officials at the border with Zimbabwe and they wanted to learn some English to be able to fill in forms. In Katete participants wanted to learn how to speak English in order not to be at par in conversations with friends from urban areas. In Central Province a small group wanted to learn Bemba because they were migrants from other parts of Zambia.

Under skills training, sewing with machines was identified as a second rank need. Tailoring was seen as important in that it would bring some extra income through sewing of school uniforms.

Use of English has arisen as a need in a number of needs assessments pertaining to literacy but not response has been made to this felt need.

In terms of farming, livestock stock farming focusing on poultry farming was a second rank considered to be an important activity that would promote income generation.

9. **Recommendations**

Recommendations arising from occupations, institutions available in the rural communities and identified needs, a number of recommendations are made to the COLLIT project regarding support required to enhance learning or knowledge sharing among participants in the on-going literacy project.

First, materials should be produced that should cover skills training in tailoring particularly the design and making of female and female clothes. The materials would be used to support women participating in women club activities at St. Paul's and Makululu.

Second, materials be produced which should focus on poultry farming to support learning for people at Muswishi. Materials should be produced in a single module that is sequentially arranged with activities. There are materials in English on poultry farming which could be adapted for use by new learners.

Third, learning of English should be introduced for the two groups of learners. The English should emphasise conversation in such situations as dealing with immigration officers, filling forms acquiring a loan, opening a bank account etc.

In order to reduce the cost of production and transportation materials designed for print should be adapted to ICT and transmitted electronically to the learning centres. At the centres, materials can be directly used in learning through use of the computer or down loaded and accessed through print.

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Regarding the need to learn English, there is need to exercise caution and design materials suitable for conversational English. There is need for a pilot class for English that could be studied before scaling up this area of literacy. Materials that have been produced for Breakthrough English literacy currently used in primary may not be suitable for adults but could be adapted for use by adults:

- Production of materials should involve officials from the Ministry of Agriculture and Food fisheries and the Ministry of Community Development who participated in the needs assessment and work in the local areas;
- The materials should be designed in modular form that will promote self-study both electronically and through print media;
- Though most of the materials will stress on economic production, culturally relevant materials in form of short stories, songs, riddles and proverbs should be collected and integrated into the learning activities of the classes.

References

BEDER, H.W. and VALANTINE, T. (1990). 'Motivational Profiles of Adult Basic Education Students', Adult Education Quarterly, 40 2:, 78 – 94.

BHOLA, H.S. (1984). Planning and Organization of Literacy Campaigns, Programs and Projects. Baden: Foundation for International Development.

CHLEBOWSKA, K. (1990). Literacy for Rural Women in the Third World. Paris: UNESCO.

DARKENWALD, G.G. and VALENTINO,T. (1985). 'Outcomes of Participation in Adult Basic Skills' Education Lifelong: An Omnibus of Practice and Research, 8, 5, 17–22, 31.

DOUGLAH, M. and MOSS, G. (1968). 'Differential Participation Patterns of Adults of Low and High Educational Attainment', Adult Educational Journal. xviii, 4, 247–259.

FREIRE, P. (1989). Pedagogy of the Oppressed. New York: Continuum.

HAY, H.(1947). Northern Rhodesia Learns to Read. London: Edinburgh Press.

HORSMAN, J.(1989). 'From the Learner's Voice: Women Experience with Illiteracy', in TAYLOR, M.C. and DRAPER, J.A. (eds) Adult Literacy Perspective: Culture Concepts Inc.

IMAKANDO, M. (1985). 'History of Adult Education in Zambia' a paper prepared for presentation at the Seminar on Literacy organized by the Department of Extension and Conferences, University of Zambia at Ridgeway Campus, 15th-19th June, 1985.

KASSAM, Y.O. (1980). 'Literacy Evaluation: Past Experience and New Approaches' in

FORDHAM, P. Participation, Learning and Change. London : Commonwealth Secretariat.

MARSHALL, J. (1990). 'Literacy and Power in a Mozambican Factory', Comparative Education Review. 34,1, 61–84

MUTAVA, D. (1988). 'Forty Years of Struggle Against Illiteracy', Prospects.18, 3.

MWANAKATWE, J. (1968). The Growth of Education in Zambia Since Independence. Nairobi: OUP.

MWANSA, D.M., MSIMKO A. and SIKANETA, S. (1988). Youth and Adult Literacy: An Investigation into Social, Cultural and Economic Factors which Constitute Causes of Relapse into Illiteracy in Zambia. Paris: Unesco

MWANSA, D.M. (1982). 'Training for the Marginal – A Critique of Literacy Campaigns in Zambia' Journal of Adult Education, 1, 1.

RICHARDS A. I. (1982). Chisungu: A Girl's Initiation Ceremony Among the Bemba. London and New York: Tavistock Publications.

ROCKHILL (1982). Researching Participation of the Qualitative Perspective Adult Education 33, 1, 3–19.

ROCKHILL, K. (1987). 'Gender, Language and the Politics of Literacy', British Journal of Sociology of Education. 18, 2, 153–168

SMOCK, A.C. (1981). Women's Education in Developing Countries: Opportunities and Outcomes. New York: Praeger Publishers.

STROMQUIST, N.P. (1992). Women and Education in Latin America Knowlege, Power and Change. Boulder and London: Lynne Rienner Publishers.

Appendix 4: CERP Modular Material - Module One: Health Education

MODULE 1: Health Education

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Appendix 4: CERP Modular Material - Module One: Health Education

UNIT 1

LESSON ONE

WHAT IS HIV/ AIDS AND STDS?

Introduction:
By now you have all heard about HIV/AIDS and STDs. Some of the people close to you or yourself might have been affected by these diseases. People have different understanding of these diseases. Therefore this lesson intends to help you understand what HIV, AIDS and STDs are.

Objective:
At the end of this lesson, you should be able to explain the meaning of HIV/AIDS and STDs.

Content:
Now read the following conversation between Tabita and Ganizani.
Tabita lived in Kafunkha village. She was a member of a literacy class. One day, Tabita was listening to an HIV/AIDS and STDs radio programme but could not follow the programme well because she did not understand some words. One morning she decided to go and see Ganizani; who was a member of the neighbourhood committee. They engaged themselves in the following conversation:

Tabita   :   Hello Ganizani.

Ganizani   :   Hello Tabita and welcome.

Tabita   :   Thank you. Yesterday I listened to a radio programme on
                  HIV/AIDS and STDs. What are they?

Ganizani   :   You mean you have never come across these words?

Tabita   :   I have had a chance only once, but I have difficulties in getting
                  the meaning behind the words. Could you kindly explain to me?

Ganizani   :   HIV is a small germ that causes AIDS. HIV weakens the body
                  and makes it difficult for the body to fight against diseases.

Tabita   :   Thank you, I have now known what HIV and AIDS is. But
                  they also talked about STDs. What are they?

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Ganizani   :   Yes, STDs are diseases passed on during sexual intercourse from an infected person to an uninfected person. People with STDs have high chances of contracting HIV/AIDS.

And now that you have read the conversation answer the following questions.

1. Explain the meaning of:
    • HIV
    • AIDS
    • STDs

2. What is the difference between HIV and AIDS?

3. How are STDs and AIDS connected?

4. Suppose you came across a situation where two people were arguing as to what HIV/AIDS and STDs are and they requested you to explain what they are, what would be your explanation?

LESSON TWO

MODES OF TRANSMISSION

Introduction:
Now that you have known what HIV/AIDS is from the previous lesson, this lesson will lead you further into discussing how it is transmitted.

Objectives:
By the end of this lesson, you should be able to:
• explain how HIV/AIDS is transmitted;
• explain in which ways HIV/AIDS is not transmitted.

Content:
Now, read the following passage for you to deepen your understanding:

You will get HIV if you are in contact with the blood, sperm or vaginal fluid of someone who already has HIV and if the germs get into your blood.

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This can happen if you have a wound or cut at the point where your body comes into contact with the infected blood. There are other instances where you can get HIV even when you don't have an existing wound. This is when you use, without sterilizing it, the same needle or syringe, razor or any sharp instrument that cuts the skin after an infected person has used it.

In addition to the above-mentioned ways, you can get HIV if you have unprotected sexual intercourse with an infected person. You can also pass it to your child, as an infected mother before, during or even after birth. This happens when there is blood contact between mother and baby. You can also get the germ if you receive unscreened blood which is infected.

These are not the only ways in which you can get HIV. There are others which are not mentioned here. However, these are the major ones.

Activity 1

Now answer the following questions in relation to the above passage. You should give either true or false depending on your understanding of the sentence:

1. You can get HIV if you have sexual intercourse with anyone _____.

2. You cannot get HIV if you use a razor that has not been used by anyone _____.

3. An infected pregnant mother can infect her baby during birth if there is blood contact _____.

4. You can get HIV even if you don't have any cut in your body if you come into contact with infected blood _____.

Activity 2

Now you should understand that there are some ways in which you cannot get HIV even if you are in contact with an infected person. This is when contact is bodily and not blood, sperm or vaginal fluid contact.

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You cannot get HIV when you shake hands with an infected person, without blood contact. Do not be afraid of greeting HIV infected people by shaking hands, as this makes them feel very bad.

Photo 1: Greeting shaking hands

You can't get HIV if you eat with an infected person without blood contact. HIV-infected people easily get depressed once isolated. Therefore show your love by eating together with them.

Photo 2: Family eating together

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You can't get HIV from a mosquito after it has bitten an HIV-infected person.

Illustration 1: Mosquito bite

Without blood contact, you can't get HIV through drinking from the same cup. Therefore do not have separate utensils for by HIV-infected people.

Photo 3: Sharing a drinking vessel

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You can't get HIV because of sleeping together with an HIV-infected person without blood contact.

Photo 4: sharing the same bed

ACTIVITY

Now, for each statement in the diagram below, tick either always or never for correct answer.

STATEMENT	ALWAYS	NEVER
You can get HIV by shaking hands with an infected person even without blood contact		
You cannot get HIV by eating together with an infected person		
You cannot get HIV from a mosquito bite after it has bitten an infected person		
You can get HIV by sleeping on the same bed with an infected person without blood contact		
You can not get HIV by bathing with an infected person without blood contact		

Appendix 4: CERP Modular Material - Module One: Health Education

LESSON THREE

SIGNS AND SYMPTOMS OF HIV/AIDS

Introduction:
In the last lesson you looked at preventive measures of HIV/AIDS. In this lesson, you'll learn about signs and symptoms.

Objective:
By the end of this lesson, you should be able to mention at least five (5) signs and symptoms of HIV/AIDS.

Content:
Do you know some of the signs and symptoms of HIV/AIDS? Can you identify a person who is suffering from HIV/AIDS? Read the passage below for more information in this topic.

Nowadays people seem to be confused and are living in fear of HIV/AIDS. Further, still, there's too much suspicion of one another especially if one falls sick. However, although you cannot tell who is HIV positive or negative, it is important to know the signs and symptoms of HIV/AIDS. In any case the signs and symptoms do not automatically lead to the conclusion that one is infected but are indicators to somebody who is a suspect of HIV/AIDS infection. Now look at the following summary of symptoms:

- if you are a suspect of HIV/AIDS infection you will grow thinner and thinner resulting in loss of body weight;
- chronic fever or other continuous body discomfort like headache, diarrhea and so on;
- you may experience body weakness or feel tired;
- you maybe feeling cold whilst your body feels hot;
- sometimes you may have a cough/TB lasting for more than a month.

You should understand that HIV/AIDS has a lot of signs and symptoms. To the list above you can add other signs like having:

- herpes zoosters;
- persistent boils;
- chronic (continuous) pneumonia;
- swollen glands anywhere in the body and sores that do not go away with treatment especially around the genital area or buttocks;
- you can also have endless body rushes and itchy skin.

Appendix 4: CERP Modular Material - Module One: Health Education

Activity 1:

Suppose a friend asked you to state at least five signs and symptoms of HIV/AIDS, what would you say?

It is very easy to know that this person is HIV/AIDS positive. What can you say about this statement?

Activity 2:

Write true or false in relation to each statement

1. If you have any disease for a week then you are HIV/AIDS positive. True/False _____.

2. All those who are thin have AIDS. True or False _____.

3. If you have a cough or TB lasting for more than a month it's most likely that you are HIV positive. True/False _____.

4. All the above signs and symptoms in the passage you read must be seen in a person for you to suspect that you are HIV positive. True/False _____.

5. Chronic fever and other continuous body discomforts maybe signs and symptoms of HIV/AIDS. True/False _____.

LESSON FOUR

PREVENTATIVE MEASURES

Introduction:

In the last lesson you learnt about ways in which you can contract HIV/AIDS, in this lesson you will learn about ways in which you can avoid contracting this killer disease.

Objective:

By the end of this lesson you should be able to explain ways of preventing the transmission of HIV/AIDS.

Appendix 4: CERP Modular Material - Module One: Health Education

Content:

Now please read the following passage.

In order for you not to contract this disease, always abstain from sexual intercourse. If you cannot manage abstaining from sexual intercourse, always stick to one uninfected faithful sexual partner. And if you cannot stick to one sexual partner please always use condoms during sexual intercourse because this acts as a barrier. This is because condoms prevent the flow of body fluids.

On top of this do not use used razor blades for shading or tattooing. And also do not exchange syringes and needles when receiving treatment of infections. In addition to these measures, always use the tested HIV/AIDS free blood for blood transfusion.

Finally, please avoid using things that can contribute to the transmission of HIV/AIDS. Now that you have read the ways of preventing HIV/AIDS, answer the following questions by circling true or false.

Content:

For each statement answer true or false

1. You cannot contract AIDS if your partner is not faithful. True or False.
2. Condoms cannot prevent AIDS. True or False.
3. Abstinence is one way you can avoid AIDS. True or False.
4. Each person must buy a new razor blade for each use. True or False.

LESSON FIVE

Introduction:

You have now known how HIV/AIDS and STDs are transmitted and prevented. In this lesson, you will learn about how important it is to stop practicing some cultural beliefs, as they contribute to the transmission of HIV/AIDS and STDs.

Objective:

By the end of this lesson you should be able to state the cultural beliefs and practices that contribute to the transmission of AIDS.

Yes, even if we cherish our culture, there are some disadvantages which we incur by practicing some of these beliefs.

Appendix 4: CERP Modular Material - Module One: Health Education

Content:

Read the story of Mwaziona who lost her husband Bechani due to AIDS. According to tradition, Zilila, young brother to Bechani, married Mwaziona after sexual cleansing. Zilila fell sick. As a couple they decided to go to the hospital.

Nurse : Next. What can I do for you?

Mwaziona : I have brought my husband. He is sick.

Nurse : What is his name and when was he born?

Mwaziona : His name is Zilila. He was born during the second world war.

Nurse : Now what is troubling him?

Mwaziona : He has swollen glands, continuous cough and keeps on losing weight.

Nurse : Take him to the laboratory for blood test. Your husband looks weak, is he able to eat?

Mwaziona : Yes, but he has been passing watery stool since he became sick.

Nurse : Zilila has been tested HIV positive. This disease is currently not curable and it kills.

Mwaziona : But nurse, I'm very unfortunate, my late husband died of HIV/AIDS. I just married Zilila. But now he is sick.

Nurse : I see, it is possible that you contracted HIV from your late husband Bechani. You could have transmitted it to Zilila through cleansing. You should now know that this cultural practice must be stopped as it contributes to the transmission of HIV/AIDS.

Answer the following questions (True/False).

1. Careless drinking can lead you into having unprotected sex _____.
2. A person can be diagnosed to have HIV by looking at him/her _____.
3. Sexual cleansing is a bad cultural practice as in influences the transmission of HIV/AIDS _____.
4. Swollen glands, persistent cough and constant loss of weight are signs of AIDS _____.

Appendix 4: CERP Modular Material - Module One: Health Education

<center>SECTION B</center>

There are other bad cultural practices which must be stopped. In this section you'll learn about how breastfeeding, polygamy and the use of razor blades can contribute to the transmission of HIV/AIDS and STDs.

BREAST FEEDING

Breast milk is good for babies. Breast feeding someone's baby is a bad practice. The woman in the picture is breast feeding a child whose mother died when the child was four months old. It is difficult to know who may have HIV between the two (i.e. between the child being breast fed and the woman breast feeding).

Illustration 2: Breastfeeding another person's baby

Appendix 4: CERP Modular Material - Module One: Health Education

Now read the cartoons below.

1.

Hello! Good morning

Hello! So you have a baby.

2.

3.

No, this is my late sister's baby. She is four moonths old.
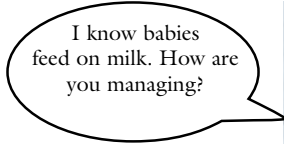
I know babies feed on milk. How are you managing?

4.
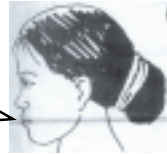
5.

I weaned my baby and started breast feeding my sister's baby.
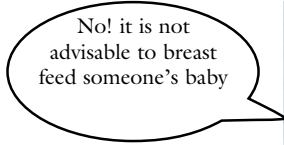
No! it is not advisable to breast feed someone's baby

6.
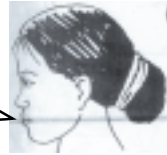
7.

Four months this baby needs milk, how are you managing?
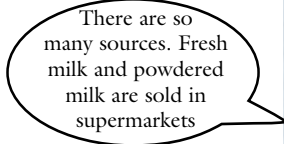
There are so many sources. Fresh milk and powdered milk are sold in supermarkets

8.

Appendix 4: CERP Modular Material - Module One: Health Education

POLYGAMOUS MARRIAGES

It is very common in our modern society to find a man in polygamous marriage. Many men marry more than one woman for different reasons. Some men do that because they want to be recognised and respected for having many wives. Others become polygamists simply because they want more labour for agriculture. It is believed that work becomes easier when you are many. Indeed, this is true but it can be very dangerous when it comes to transmission of HIV/AIDS. This can happen when one of the partners is unfaithful. In this situation, it is not only one or two who will be infected with HIV/AIDS, but all the other partners.

Photo 5: A polygamous man and his family

Now read the cartoons opposite.

Appendix 4: CERP Modular Material - Module One: Health Education

1.
> Hello Chupu. How is farming going on this year?

2.
> Hello Ziche. My maize has done so well. I finished weeding. My four wives assisted me a lot and I will have a big harvest.

3.
> Four wives! You still marry four wives nowadays with these diseases?

4.
> My friend, I am well known and respected by society because of these women and I'm proud.

5.
> If one partner can be unfaithful, the whole family can be infected by HIV/AIDS and you won't survive

6.
> I now believe you Ziche. I will think about remaining with only one wife because one of them may be unfaithful.

USE OF USED RAZOR BLADES

In our African culture, we believe that our families can be protected from harm by giving them some medicine. In most cases, this medicine is not taken by mouth but by tattooing. A razor blade is commonly used in tattooing. In tattooing, the blood comes into contact with the razor blade. If this same razor blade has been used on person who is HIV positive and it is later used on another person who is not HIV positive, the virus can be transmitted to the person who is HIV negative.

This practice is bad because innocent people can be infected. It is therefore important to make sure that the used razor blade is properly sterilised before it is re-used. Where possible, it is advisable to use one razor blade for each person. The cartoons overleaf illustrate.

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My children, today you will be protected from witchcraft.

But dad, how are you going to do it?

I will tatoo you all using this razor blade. It's very sharp.

Dad, it's wrong. We learnt at school that each person should buy a new razor blade for each use because a razor blade, when used on so many people, can transmit the HIV virus.
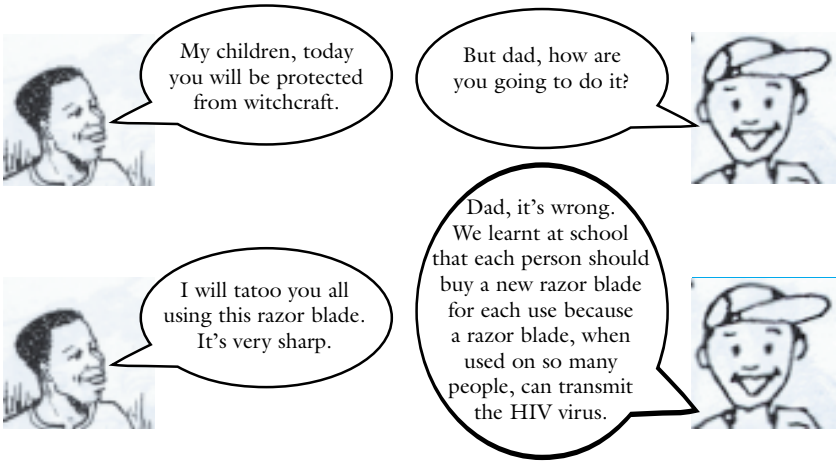
Tick in correct statement.

STATEMENT	ALWAYS	SOMETIMES	NEVER
1. Polygamous marriages are a bad traditional practice.			
2. Each person should use a new razor blade.			
3. An HIV positive mother can breastfeed any baby.			

Appendix 4: CERP Modular Material - Module One: Health Education

UNIT 2

SAFE MOTHERHOOD AND FAMILY PLANNING

LESSON ONE

SAFE MOTHERHOOD

Introduction:

Safe motherhood is making sure that any problem that may put the life of a mother and her baby during pregnancy and after birth in danger are treated or controlled.

Objective:

At the end of this lesson you should be able to explain:

• Safe motherhood and things done during antenatal visits;

• Family planning.

Content:

You have at one time attended antenatal clinic. In this lesson, you will learn the right time to start attending antenatal clinic.

Antenatal care should be started within the first three months of every pregnancy so that any problems can be found early and treated immediately. The earlier you start antenatal care, the more likely you are to have a healthy pregnancy, a safe delivery and a healthy baby.

Photo 6: Going to the Clinic or health centre

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THINGS DONE AT THE ANTENATAL CLINIC

Below are some of the activities done during the antenatal visit at the rural health centre.

The nurse will talk to you about your concerns and answer any questions you may have concerning your pregnancy.

Photo 7: A pregnant woman in discussion with a nurse at an antenatal clinic

A pregnant woman will be given an antenatal card, which she has to bring every time she comes to the health centre. The progress of her pregnancy will be marked on this card. She will be weighed and her weight be measured. The purpose of being weighed is to know whether her weight is increasing (as the baby grows in the womb).

Photo 8: A pregnant woman being weighed at an antenatal clinic

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At the antenatal clinic the nurse will tell the pregnant woman about her pregnancy calendar showing when her baby will be born. This helps the woman to start preparing for the baby on time.

Photo 9: A nurse showing a pregnant woman a pregnancy calendar

Her blood pressure will be taken to ensure that the flow of blood is normal.

Photo 10: A nurse checking a pregnant woman's blood pressure

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Her blood will be tested for syphillis and anaemia. If the blood has syphillis, the nurse will give the woman the required medicine to cure it. In the case of anaemia, the nurse will give advise and provide the right medicine.

Photo 11: A nurse taking blood samples from a pregnant woman

An expecting mother will be given an injection to protect her and her baby from the disease called Tetanus.

Photo 12: A nurse administering a Tetanus injection to a pregnant woman

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Now answer the following questions:-

1. In your own understanding, explain briefly what safe motherhood is.

2. State three things you benefit when you start attending antenatal care early.
    (a)
    (b)
    (c)

3. What is the right time to start antenatal care?

4. State four things which are done during antenatal visit at the Rural Health Centre.

LESSON TWO

FAMILY PLANNING

Introduction:
In this lesson, you will learn about what family planning is.

Objectives:
By the end of this lesson, you should be able to state:
*   What family planning is;
*   The benefits of family planning;
*   Family planning methods.

Content:
Family planning means that people decide the number of children they want to have.

WHAT ARE THE BENEFITS OF FAMILY PLANNING

The following are the benefits of family planning:

As you learnt from the past lesson, that pregnancy is hard work, through family planning, the mother's body will have more time to get better from the last pregnancy. A strong and healthy mother is likely to give birth to a healthy baby next time.

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The new baby can be properly breastfed and looked after. The family will have more time to save money for food, clothing and education for the children. Well spaced children do not usually suffer from malnutrition.

Now read the following family planning methods which people can use. The following are some of the examples:

1. Pill;
2. Medicine through injections;
3. Loop: a string which is inserted in the private part of a woman;
4. Condoms (female and male);
5. Natural family planning – a woman uses her free days to meet a man to avoid pregnancy;
6. Operation – this is done to cut and tie the tubes so no egg reaches the ovaries for fertilisation (sterilisation);
7. Vasectomy – this where the male sperm ducts are cut and tied to prevent production of strong sperms that can make a woman conceive.

People can use any method of their choice. These methods are available at the health centre and the health worker can assist your couple to decide on which method is good for you.

Now, answer the following questions.

1. Suppose you came across a person who requested you to enlighten her on what family planning is, what would you say?

2. State the benefits of family planning in relation to the following:
    (a) last pregnancy;
    (b) a new baby;
    (c) a strong and healthy mother ;
    (d) well spaced children.

3. Who can advise you to decide on which family planning method is good for you.

4. Mention 3 methods of family planning:

(a) _____

(b) _____

(c) _____

Appendix 4: CERP Modular Material - Module One: Health Education

UNIT THREE

COMMON DISEASES

LESSON ONE

MALARIA

Introduction:

There are a lot of diseases in Zambia affecting health of the people who are supposed to work and find food thus leading to high level of poverty. It is because of this situation, that this unit has been prepared. In this unit you will learn about common diseases. They are so called because they are found almost in all parts of our country. These are malaria, measles and tuberculosis.

Malaria is Zambia's leading health problem in all age groups. It is most likely to be one of the biggest cause of illness and death in your neighbourhood also. Therefore, in this lesson, you will learn about what malaria is, how it comes, how it's treated and how you can prevent it.

Objectives:

By the end of this lesson, you should be able to:
• Mention the causes of malaria;
• State signs of malaria;
• Explain how malaria is treated;
• Describe prevention against malaria.

Content:

STEP 1: Causes and signs of malaria

Malaria is caused by getting very small germs in your blood. These germs get into your blood through mosquito bites. Sick mosquitoes get the germs from biting people who are infected with malaria.

Now, how can you know that you have malaria? There are certain things that will show. These are called signs. They are divided into 2 groups. Signs of severe malaria and those of less severe malaria.

Firstly, you may start shivering. As you do that, your body will be feeling hot. Eventually, you feel as if you are very tired. Then there is headache, painful joints, vomiting, diarrhea, loss of appetite and fast breathing.

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Severe malaria has these signs:

You respond to any gesture. At this time even fitting comes in as the temperature becomes very high. Unlike in simple malaria where vomiting is not serious, in severe malaria you vomit continuously. When you reach this stage, your consciousness or memory goes down. You appear drunk and talk nonsense. You even fail to respond to treatment 2 days after receiving treatment.

There are ways of preventing malaria:
• Make sure that all the ditches are covered in order to stop mosquitoes from breeding;
• Remove stagnant water from drainages;
• Always sleep under a treated mosquito net.

If you have malaria you should go to the clinic or hospital to receive treatment.

Now, look at the numbered pictures below very carefully and do the exercise below.

Picture 1.

Picture 2.

Picture 3.

Picture 4.

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Do the exercise below.

1. Which one encourages you to sleep under treated mosquito net?

2. Which one encourages you to remove standing water from drainages?

3. Which one encourages you to go to the clinic when you fall sick?

4. Which one encourages you to bury ditches?

Now, answer true or false:

5. You can treat malaria by going to the witchdoctor. (True or False)

6. It's good to drink chloroquine without going to the clinic or hospital. (True or False)

7. Mosquitoes become many in dry places. (True or False)

8. Malaria can be prevented by burying ditches. (True or False)

9. You can prevent malaria by sleeping under treated mosquito nets. (True or False)

10. Malaria is dangerous to everyone especially children under five years, pregnant mothers and terminally ill. (True or False)

LESSON 2

MEASLES

Introduction:
All the diseases you have already learnt about are diseases you can get from another person.

These are called communicable diseases. Measles also is a communicable disease. In this lesson therefore, you will learn more about measles.

Appendix 4: CERP Modular Material - Module One: Health Education

Objectives:

By the end of this lesson, you should be able to:

- Explain what measles is;
- Explain how it's passed from one person to another;
- Describe how a person with measles looks like;
- Explain how to prevent and treat measles.

Content:

Now read the following situation:

At Valamkoko village, there was a man called Masimbe whose wife passed away 2 months ago. Masimbe had only one child, a girl. One morning, the girl was not feeling well. When Masimbe checked her, he discovered that her eyes were red, had a fever and she was sneezing. Before he did anything, he went to see Nyamazawene a Community Health worker. They went back to Masimbe's house to see the sick daughter. Their discussion was as follows:

Nyamazawene	:	When did this start?
Masimbe	:	It started this morning. I don't know what this can be, whether witchcraft or what.
Nyamazawene	:	It is a severe disease which causes a rash, cough and fever. It attacks mostly children, but also young adults.
Masimbe	:	I'm getting interested in knowing more about this. How can a child get it?
Nyamazawene	:	A child can get measles through close contact with another child who has the disease. A child can get it two hours after contact with an infected person. It happens mostly when you meet and measles spreads easily wherever young babies or children gather together.
Masimbe	:	At what age can a child get it? You know, my daughter is four years old.
Nyamazawene	:	It mostly affects children under five years. But it can also affect young adults aged 20. It's very serious in children.

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Masimbe	:	How can you know that this is measles?

Nyamazawene : There are certain things that show and they are called signs.
The first thing is that a child will have a fever, sneezing, a cough, red eyes, becomes more and more sick. Then his/her mouth sore with white spots on the inside walls of the cheeks. A child may also have diarrhoea. After a few days, a rash appears first on the forehead and neck. Later, the rash spreads to the rest of the face and body.

Masimbe : Haa! I didn't know all this. But when one sees these signs, what can he/she do?

Nyamazawene : He/she should take the child to the clinic or hospital for treatment. It can only be treated at a clinic or hospital not at a witchdoctors' place. And do you know what happens if it's not treated?

Masimbe : No. What is it?

Nyamazawene : If not treated, it can cause other diseases. It can even kill.

Masimbe : Is it only the age that matters about measles?

Nyamazawene : Not really. There are other things that you need to know also. Measles is very serious particularly in children who are poorly fed. Especially those not receiving Vitamin A. It's also serious in children living in crowded conditions. If a child's power to resist disease (immune system) has been weakened by HIV/AIDS, measles become very serious.

Masimbe : Measles can be so bad!

Nyamazawene : Yes. In fact it's a major cause of blindness among children in Africa.

Masimbe : Now, what can one do if he/she wants to avoid his/her child from getting measles?

Appendix 4: CERP Modular Material - Module One: Health Education

Nyamazawene   :   The child must be vaccinated or protected from the disease. This can be through an injection or tablets. A child must be given this protection nine months old.

Masimbe   :   Haa! Thank you very much madam. I'm now taking my daughter to the clinic. It maybe measles. She also likes playing with her friends a lot.

Nyamazawene   :   Yes. In fact I heard that there is an outbreak of measles in our area.

See the illustration below on the need to get treatment and immunization from a health center.

Illustration 1: receiving medical attention from medical personnel

Now that you have read the passage, answer the following questions:

1. From the passage, what do you think measles is?

2. If you met a person who asked you to explain on how a child gets measles, what would your answer be?

3. How can you prevent your child from getting measles?

4. What are the signs of measles?

5. If your child has signs of measles, what can you do?

6. If not treated, what can measles do to your child?

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Now tick in the box where you think the statement is applicable:

STATEMENT	ALWAYS	SOMETIMES	NEVER
1. When you suspect your child of measles you should take him/her to the witchdoctor?			
2. Measles is severe in children who are well-fed.			
3. Measles causes blindness among children.			

LESSON 3

TUBERCULOSIS (TB)

Introduction:

In this lesson, you will learn about tuberculosis. You are going to talk about what it is, how it is passed on, its control and prevention. You will also learn about how you can know if someone has tuberculosis. You will also learn about bad results of the disease.

Objectives:

By the end of this lesson, you should be able to:

• Define tuberculosis;

• Explain how you can get tuberculosis;

• Explain how to control, prevent and treat it;

• Describe how a person with tuberculosis looks like.

Content:

STEP 1: What Tuberculosis is and how it is passed from one person to another.

Tuberculosis is a disease that is caused by certain germs. It makes you cough, get weak and become thinner and thinner for a long time. It easily passes from one person to the other. It usually attacks the lungs, but may also affect any other part of the body. Therefore, in this lesson we shall dwell much on lung tuberculosis. Among other infectious diseases, tuberculosis is one of the most common diseases among the adults in the world today. This disease as you will know it, is commonly known as T.B

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Illustration 2: Seeking medical attention from a health institution

Now, how can you get lung tuberculosis? You can get it if you breathe in the germs which another person with the disease has coughed out into the air. When a sick person coughs out, he releases into the air thousands of germs which can cause the disease. You and other people around him will breath in air with germs. Those of you whose bodies can't fight and kill the germs then get the disease when the germs grow in them.

Illustration 3: A TB patient

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STEP 2: How can you know that a person has Tuberculosis?

There are certain things that a person with Tuberculosis shows. These are called signs. One will be coughing and spitting almost all the time and for more than three weeks. Someone can also complain of chest pains. You may also see the patient having difficulty in breathing. You may as well see someone to be getting thinner and thinner. Some fever in the afternoon and sweat at night also follow. The other sign is that a person's desire to goes down. Sometimes if a woman is of a child bearing age, her monthly periods may stop.

STEP 3: How can you control, prevent and treat tuberculosis?

You should go to the health centre or hospital. Then you will be examined to see whether you have tuberculosis or not. The earlier you go to the health centre the better. This is so because you will have more chances of getting well. You will also have slim chances of spreading the disease to your family, friends and neighbours. If it is confirmed that you have tuberculosis and you are given medicine to take, you must continue taking it until the health worker or doctor says you have been healed. If you stop too soon, tuberculosis will destroy your lungs and spread to those who live or play with you. As a patient you should cover your mouth (with a hand or cloth) when coughing, avoid spitting on the floor or anyhow, eat plenty of good food, have a lot of rest and enough sleep.

Illustration 4: Use of a cloth to cover mouth when coughing

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Therefore, treating TB completely is the best way to prevent it from recurring. However, you don't have to wait until you are sick. You have to be given a protection, mostly an injection. It's called vaccination. It's better to have babies vaccinated at birth or soon after birth and to other children before tuberculosis strikes them.

Will you now complete the table below. Answer Yes or No to the statement. Tick either on Yes or No.

STATEMENT	YES	NO
1. You can get tuberculosis from someone if he/she coughs the germs into the air.		
2. You have to leave your mouth open when coughing.		
3. It's good to stop treatment on the way.		
4. You have to go to the witchdoctor first when you see signs of tuberculosis.		

Now answer the following questions:

1. From the passage you have read, what is tuberculosis?

2. Suppose you were invited to a neighbourhood meeting and were asked to give a talk on transmission of TB. How would you say TB is passed from one person to the other?

3. If you came across a TB patient who thinks he/she is already healed but hasn't yet finished taking medicine, what could be your advice?

4. What is the best way to prevent the spread of TB?

5. If you met a person, how would you tell that he/she has TB?

Appendix 4: CERP Modular Material - Module Two (Draft): Poultry

MODULE 2 (Draft): Poultry

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Appendix 4: *CERP Modular Material - Module Two (Draft): Poultry*

AGRICULTURE: ANIMAL PRODUCTION

POULTRY PRODUCTION

LESSON 1: ORIGINS OF POULTRY

Poultry production is very important because it is a source of meat and eggs for millions of people in the world. A lot of people keep chickens for meat and eggs but they do not know where these chickens come from. In this lesson, we will look at the different types of poultry and their origins.

Objective:
By the end of this lesson, you will be able to;
- Identify different types of poultry;
- Narrate the origins of poultry.

Poultry refers to all kinds of domestic birds kept for meat or eggs. It includes chickens, ducks, geese, turkeys and guinea fowls.

Every living thing has history of its origins. Origins help us to know where something came from. Read the following conversation between Kondwa and his grandmother which explains the origins of domesticated birds.

Schools have just closed. Nine year old Kondwa has gone to visit his grandmother who stays on a farm 25km away from town. His grandmother keeps a lot of layers, broilers, ducks and local chickens on the farm. Grandmother has instructed Kondwa to make sure that the door to where the local chickens sleep is closed. Kondwa has just closed the door to the chicken house. It is after dinner and he sits with his grandmother in her bedroom.

Kondwa	:	Granny, where did the chickens come from and were they also created to live with people from the beginning of the world?
Grandmother	:	Sit down kondwa. I will tell you a story about how these birds started to live with us.

Kondwa sits down and Grandmother starts her story.

Grandmother	:	These birds originated from Asia. They used to live in the jungle and they were called jungle fowls. The Asian people used to hunt and eat these birds. Sometimes they used to catch a lot of these birds such that they never used to eat them

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all at one meal. As a result they started to keep some of them alive for future use. As they did this, they found out that it was better to keep these birds than spending time in the forest chasing and trapping them. In the end, they domesticated them in order to have a readily available supply of food.

Kondwa : Are you saying that Asian countries were the first people to keep birds?

Grandmother : Yes Kondwa, but it is traditionally believed that Burma was the first country to keep birds. We call keeping of birds domesticating.

Kondwa : How did these birds come to Africa and Zambia in particular?

Grandmother : As years went by, families started to increase in number. Villages were formed, villages also increased and people started moving from one place to another looking for space. As they moved, they also carried the domesticated birds, later they spread all over the world, even Africans saw that it was a very good idea to domesticate birds and they started to do the same.

Kondwa : I now understand, are you telling me that by domesticating these birds we were also protecting them from other animals that eat them and the bad weather?

Grandmother : Not only that dear. We are also able to supply food regularly. As a result these birds have increased in their body size and egg yield. Hence we are able to collect eggs frequently.

Kondwa : Granny, you are only talking about advantages, I also want to know disadvantages.

Grandmother : Everything one does always has advantages and disadvantages, Kondwa. One of the disadvantages is that, by domesticating these birds, they were easily attacked by diseases.

Kondwa : Is that all?

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Grandmother   :   No! there are many other disadvantages but I will just give you two. The other one is that, there is a reduction in the motherly care the birds have for their chicks. Initially, birds used to move with their chicks until they became big enough to take care of themselves.

Kondwa   :   I agree with you, even that hen you gave me last time when I came, doesn't want to move with its chicks but they are very small. I tried to put it together with the chicks but it was chasing them away.

Grandmother   :   I also noticed that yesterday. Now Kondwa, its time to go to bed. I will tell you more stories about birds tomorrow.

Kondwa   :   I really enjoyed that story, good night Granny, I love you.

Grandmother   :   Goodnight Kondwa, I love you too.

Questions

1. What are the advantages and disadvantages of domesticating birds?
2. What is poultry?
3. How did domesticating of birds come to Africa?

Fill in the blanks.

1. Poultry includes _____, _____, _____, _____, and _____.

2. Domesticating of birds originated from _____.

3. By domesticating birds we started to protect them from _____.

4. Birds have now increased in their _____ and _____.

5. Birds are also supplied with _____ regularly.

6. Domesticating birds has resulted in easy attacks by _____.

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LESSON 2: COMMON POULTRY BREEDS

Birds of the same family have different characteristics. When birds of the same characteristics are grouped together, they form a breed. In this lesson we will look at common breeds of poultry and chicken in particular.

Objectives:

By the end of this lesson, you will be able to:

- Identify poultry breeds;
- Explain advantages and disadvantages of local breeds of chickens.

Birds are classified according to their utility or economic values. We will first look at jungle fowl which originated from Asia. It is a wild breed which is said to be an original bird. In its natural state it lays up to 20 eggs once in a year. It sits on the eggs and hatches into young ones which it looks after up to the time they are able to look after themselves. From this breed come different types of breeds with specific characteristics.

The other breed of birds is one which lays eggs. We call such birds egg producers or layers. These birds do not fatten well to make much meat. They rarely sit on the eggs to hatch into young ones as a result they are called poor sitters. Layers are very active and make a lot of noise when disturbed.

Examples of layers are the white leghorn and the black leghorn. Others are Thornber 404, double A_3 and Abor Acre commonly known as the 'Harco'.

The white leghorn lays white eggs and has yellow legs.

Apart from layers, there are other birds which do not lay a lot of eggs but they have more meat that is why they are called heavy breeds. They make good mothers to young chicks and are less active compared to layers. An example is the Rhode Island Red (RIR).

There is another interesting breed which has a combination of characteristics for layers and that of meat. These breeds are called Dual-purpose breeds because they can be kept for both meat and laying of eggs. An example of this breed is the Light Sussex. Below is a picture of a Light Sussex hen.

We have birds which live in the bush but they can also be domesticated. They make a lot of noise and they live in communities. We call these game birds. An example of these birds is the guinea fowls.

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Some birds are kept as decorations, we call these ornamentals. They are not eaten but people like the colour of their feathers. Sometimes because of their intelligence. This group of birds are called ornamental birds and good examples are parrots and peacocks.

The other group of birds are kept in a traditional way that is why we call them traditional chickens. This breed of birds are called local because they are local chickens.

Local breeds are easy to keep because they are used to the local environment. They are also rarely attacked by local diseases. Local chickens can be kept around the home because they make use of food leftovers.

Apart from the above advantages, local breed has disadvantages. Local chickens are less productive. They can only lay up to 50 eggs per year. These chickens are usually light and their eggs are small.

Lastly, we have also another breed which comes about by using two parents with different characteristics. The young one from these two different parents will be called a hybrid. Hybrids are birds whose characteristics are better than their parents.

A hybrid layer is able to lay 290-300 eggs per year and a hybrid broiler under good conditions will weigh 2kg in 6 weeks.

Questions:
1. Where did the first bird originate from?
2. Discuss the different breeds of poultry.
3. What are local breeds and give advantages and disadvantages of local breeds?

Write True or False after every sentence
1. Jungle fowls originated from Asia and were only able to lay up to 20 eggs.
2. Layers are birds which are kept for meat.
3. Dual purpose breed can be kept for both meat and egg production.
4. Game birds are birds which live in the bush and they live in communities.
5. Ornamental birds are kept for meat production.
6. Local breeds of chickens are easy to keep because they are used to the local environment and make use of food left overs.
7. A hybrid is a bird which is born from two parents with different characteristics.
8. A hybrid layer can only lay up to 50 eggs.
9. A peacock is an example of a hybrid.
10. A local breed hen is able to lay 290 – 300 eggs in a year.

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LESSON 3: POULTRY HOUSING

Objectives:

By the end of this lesson you will be able to:

- Explain different materials required in building poultry houses.
- Identify different types of poultry houses.
- Identify the suitable place for building a poultry house.

As we all know, chickens can be kept in so many ways. Initially, there are three poultry housing systems namely Extensive, Intensive and Semi-Intensive. However, there are different building materials required for a particular poultry house. Poultry houses could either be simple or standard. Selection of a place where a poultry house is to be built is yet another important thing that need to be considered.

Mr. Chama has been keeping chickens for ten years. He knows the conditions to be looked into before building a poultry house. Zaga wanted to start keeping chickens but he did not know how to start it. One afternoon, he visited Chama to find out more about poultry housing.

Read the following conversation.

Chama	:	It's good to see you Zaga after a long time. How are you?
Zaga	:	Fine thank you. How are you?
Chama	:	Fine.
Zaga	:	Am happy I've found you home. I've come to find out from you about how I can build a poultry house. I want to start keeping chickens like you do.
Chama	:	OK. Building a poultry house isn't really a lot of work but before doing that, it is important to look for a right place for building.
Zaga	:	What could be the right place?
Chama	:	Well, it should be level and well drained.
Zaga	:	Why should it be like that?

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Chama	:	Because when the place isn't level and well drained, the water will be logging around the poultry house which can weaken the foundation.
Zaga	:	This sounds good. I'll make sure I level up that high land in my farm.
Chama	:	That will be good of you.
Zaga	:	By the way, how far from home should the poultry house be built?
Chama	:	Well, it should be just near enough for easy supervision and to ensure security.
Zaga	:	OK. What building materials would one require for building a poultry house?
Chama	:	On that one, it depends on what type of a house you want to build.
Zaga	:	What are those types of houses?
Chama	:	There is simple and standard type of poultry houses.
Zaga	:	Tell me about the two so that I choose one of them.
Chama	:	In simple type of a house, you would require poles, mud or bricks, chicken wire and grass for thatching and in standard type of house, you would require burnt bricks or concrete blocks, chicken wire, timer and iron sheets or asbestos sheets.
Zaga	:	Now that I have little money, I would build a simple one.
Chama	:	Yes, in fact for a simple type of poultry house the building materials are locally found. This really enables someone to start a poultry project.
Zaga	:	This sounds good. I'll be able to build one after the rain season is over.
Chama	:	But in future, I would advise you to build a standard one.

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Zaga	:	Why?
Chama	:	Because the grass thatched roof can catch fire and can rot but the standard one is permanent.
Zaga	:	I'll definitely do that Chama.
Chama	:	Am glad you will.
Zaga	:	Sure and thank you very much for the information.
Chama	:	You're welcome Zaga.
Zaga	:	Bye.
Chama	:	Bye.

Questions:
1. Explain the conditions to be considered when selecting a place for building a poultry house.
2. List down the differences between a simple type of poultry house and a standard one.
3. Why is the standard type of poultry house expensive to build?

Exercise:
Write True or False.
1. Poultry houses should be sited on a well drained and level land.
2. Poultry houses must be located very far from home.
3. Water logged conditions around the poultry house are bad because they weaken the foundation.
4. It is better to build a standard type of poultry house when you have little money.
5. A simple type of poultry is not long lasting.
6. Poles, grass, mud and chicken wire are locally found.
7. Concrete blocks, Asbestos sheet, timber and chicken wire are materials used when building a standard type of poultry house.

Four days later, Mr. Zaga went back to Chama to find out more about the three poultry housing systems that Chama had talked about. Chama was very happy to him back again.

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Read the following conversation.

Zaga	:	Yes Chama.
Chama	:	Yes.
Zaga	:	Am back again to learn more about the three types of poultry housing systems you talked about last time.
Chama	:	OK, I'll start with the extensive one.
Zaga	:	The word 'extensive' sounds strange, what is it?
Chama	:	This is where chicken are kept on a free range. They move freely over a given space.
Zaga	:	Can't the chickens be eaten up by animals when left freely?
Chama	:	Yes, definitely they can but this type of keeping chickens freely is suitable to those farmers with big farms and a lot of chickens.
Zaga	:	What about laying eggs? Don't the chicken lay eggs in the bush?
Chama	:	Yes, that is why it is important that chickens are provided with simple laying nests and shelter.
Zaga	:	What about a house where the chickens can sleep?
Chama	:	That can be constructed especially with grass, with simple shelter where there is a lot of space.
Zaga	:	This sounds to be a cheap one.
Chama	:	Yes, because in intensive and semi-intensive system, chickens are confined to a place where they can be protected and supervised.
Zaga	:	Is this where one needs to build a permanent poultry house?
Chama	:	Yes, because the house can either be in a wire fenced cage or covered with deep litter.

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Zaga	:	What is deep litter?

Chama : Deep litter could either be grass or wood shavings.

Zaga : OK Chama, I now won't have problems in building one poultry house.

Chama : Good.

Exercise:

Fill in the blanks.

1. In intensive poultry housing system, chickens are easily _____ and _____.

2. Deep litter can either be _____ or _____.

3. In extensive poultry housing system, chickens are left to move _____.

LESSON 4: SYSTEMS OF POULTRY PRODUCTION

Poultry can be kept in different ways depending on the type. Many people prefer keeping chickens to other types of poultry. The breed of chickens one chooses to keep will determine the system one will use. In this lesson we will look at different poultry production systems.

Objectives:

By the end of the lesson, you will be able to:

• Explain different systems of poultry production;
• State advantages and disadvantages of different systems.

Rearing chickens can be done in many ways. Some people allow their chickens to move around the yards or homestead looking for food. Chickens are not provided with any food. This system is called the extensive type or free range system. This is commonly practised when keeping local chickens.

Chickens which are reared on the extensive system are easy to keep especially when it comes to feeding. Birds feed on green grass, insects, grasshopper and other things they find in the yard.

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Since birds are able to move freely, they will have variety of foods, so they will not eat each other and their eggs. When birds eat each other we call this cannibalism. Birds do a lot of exercise so they do not remove each other's feathers. This is called feather pecking.

While we appreciate that the extensive system is the cheapest way of keeping chickens, it has some disadvantages you need to take note of. In this system, the farmer has no control over the chickens and eggs. Chickens are not protected in any way because they can be killed any time. They can also be stolen. Birds get diseases easily when they mix with sick ones. It is also difficult to control the disease.

Some people keep their chickens in poultry houses with a wire fence around. This system is called semi-intensive type. Chickens move around the fence. You are able to control the feed and eggs. The birds will be protected from thieves and other enemies that may kill them. Food is given to the birds and the farmer can monitor their growth closely. The only disadvantage is that when the wire fence is small, it can get too wet and increase the risk of diseases. This system is also common for local chickens.

Chickens are sometimes kept in chicken houses through out their life. The houses are constructed in a special way to provide a good environment for chickens. This system is called the intensive type. Chickens are kept inside all the time.

This system is very common for people who keep hybrid broilers and layers. The birds are nicely protected and they are looked after closely. The farmer provides food and water for the birds. There is total control over the eggs and fee. Each and every bird has a share of food unlike in the extensive system where they will have to look for their own food. One can easily prevent and control diseases.

This system is very expensive, a lot of money is needed for one to start keeping chickens in this system.

Questions:
1. Discuss the different systems of poultry production.
2. What are the advantages and disadvantages of the different system.

Fill in the blanks.
1. When chickens are allowed to move around the yard or homestead the system is called

   _____.

2. The extensive system is commonly practised when keeping _____.

3. In the extensive system, the birds are provided with _____.

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4. Birds can be _____ or _____ in the extensive system because there is no protection.

5. In the semi-intensive system, chickens are kept in _____ with a _____ around it.

6. The best system for hybrid broilers and layers is the _____.

7. In the intensive system, birds are _____ through out their life.

LESSON 5: POULTRY EQUIPMENT

Objectives:
By the end of this lesson, you will be able to:
• Identify different types of poultry equipment;
• Explain the use of different poultry equipment.

As we all know, in all poultry housing, poultry equipment need to be used. These are drinkers, feeders, perches and laying nests.

A feeder is an equipment where the food of the chickens is put. Initially, the food is called feed. The feeder can either be rectangular or round dish.

A drinker is an equipment where the chickens drinking water is put. A drinker can either be simple round metal or plastic bowls. For small chickens, an upside down bottle is cheap and easy.

A perch is usually made of wood. This is where chickens like to spend the night because the perch is a high place. Chickens spread themselves evenly on a perch.

A laying nest is where chickens lay eggs. They can be made of wood or other locally available materials, such as bamboo or hard types of grass. The nest need to be filled with a thick layer of grass to prevent eggs from breaking. Placing of a jumping perch in front of the nests is important because it enables the chickens to get up to the nests.

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Exercise:

Write True or False.

1. A feeder is where chickens' drinking water is put.
2. A drinker is an equipment where the chickens' food is put.
3. Perches are made of metal.
4. Laying nests must be filled with a thick layer of grass.

LESSON 6: MANAGEMENT OF BROILERS

Broilers are hybrid chickens which are kept for meat. These chickens need a lot of care from the time they are bought as chicks to the time they are sold. Therefore, in this lesson you will look at how broiler chickens are taken care of and we call this management.

Objectives:

By the end of the lesson, you will be able to:

- Explain how a chicken house can be prepared for the arrival of chicks;
- Explain how to manage chicks.

Read the following conversation between Amake Lungisani and Amake Chidyelelo. Amake Lungisani used to work for Zambia Railways in Kabwe. She was given her benefits and wanted to start keeping chickens to help her look after her children because her husband died. This morning, Amake Chidyelelo happens to come to Amake Lungisani's house.

Amake Lungisani   :   Good morning Amake Chidyelelo, you have done well to come I was in fact thinking of coming to your place. Come in.

Amake Chidyelelo   :   Good morning and how is everybody here?

Amake Lungisani   :   We are all fine. Can I make a cup of tea?

Amake Chidyelelo   :   Yes please. (Amake Lungisani proceeds to make tea).

The two women sit down to have a chat while sipping some tea.

Amake Lungisani   :   You have been keeping broiler chickens for sometime now. I want to start keeping broilers as well. So, I thought that you would teach me how I would go about this. Things are not going on well since my husband died. I thought of keeping chickens so that it can help me pay school fees for my children.

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Amake Chidyelelo   :   No problem, I will be very glad to help you. It's a very good idea and am sure it will help you a lot. Now, where do I start from.

Amake Lungisani   :   You start from preparations since I have no idea on this.

Amake Chidyelelo   :   We will start with housing. You must make sure your house is nicely prepared and cleaned.

Amake Lungisani   :   The poultry house is ready, even today I can bring some chicks. I told my worker to sweep it.

Amake Chidyelelo   :   It's not just a matter of bringing in chicks any time. Cleaning of the poultry house must be done carefully. If the house has been used before, you must make sure that you remove all the litter and then sweep the house. You should scrub the floor, walls, feeder and water troughs. A disinfectant must be used to disinfect the house and everything in the poultry house.

Amake Lungisani   :   You have talked about a disinfectant. What is it and where can I get it from.

Amake Chidyelelo   :   A disinfectant is a chemical used for cleaning things to kill germs. It can be bought from a shop at a reasonable price.

Amake Lungisani   :   I see, is that all?

Amake Chidyelelo   :   No. Some people even pour boiled water before disinfecting the house. You can also use an insecticide to kill the mites and other poultry insects. After cleaning the house, then you need to ensure that electricity supply and heat sources are OK.

Amake Lungisani   :   Is that so, what type of heat sources can I use because the house is not electrified yet.

Amake Chidyelelo   :   You can use a brazier, we call it mbaula in our local language. The brazier should be placed inside the poultry house after all the charcoal has been burnt completely and no smoke is coming out of it. When you put electricity in your poultry house, you can use infra-red lamps one or two to provide heat for 100 or 200 chicks. You can also use ordinary electric bulbs,

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		about three of 200w are sufficient for 200 chicks. Electric heaters can also be used and a lot of people prefer them.
Amake Lungisani	:	You have talked of lighting, since there are no lights, what alternative can I use?
Amake Chidyelelo	:	You can use paraffin lamps and candles. Some people use big battery torches.
Amake Lungisani	:	Are those things supposed to be put on the day when you are collecting your chicks?
Amake Chidyelelo	:	Preparations should start 2 to 3 days before the chicks arrive. Put a heater or brazier in the chicken house. This is because the heat source will remove excess moisture which may be found in the house. It will also warm up the house before the chicks arrive and it will help you test the house if it is functioning well. Oh! By the way, I nearly forgot to mention the type of covering you use on the floor of the poultry house. We call this covering litter. You can use dry grass the type that is used for covering houses. Wood shavings can be used as well but they shouldn't be very fine because they can cause problems. Some people use maize bran which is also good but one must be careful because the chicks may start eating maize bran and not feed.
Amake Lungisani	:	But why is this litter important? I thought litter can keep diseases.
Amake Chidyelelo	:	No my dear! Litter is very important in a poultry house. It keeps chicks off cold floors and absorbs droppings and moisture. The litter should be 4–5cm deep.
Amake Lungisani	:	I think you should also talk about what I should do when the chicks arrive.

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Amake Chidyelelo:		Oh yes! When day old chicks arrive give them medicine called stress pack, this will help them to settle because they have travelled a long distance from where they are produced. You should also give them sugar solution which is not very concentrated instead of plain water.
Amake Lungisani	:	Why do you give sugar solution?
Amake Chidyelelo	:	Day old chicks should not be given food on the first day that is why we use sugar solution. This is so because we want the chicks to use their yolk which is a source of food before they hatch. If the yolk is not used, it can cause death.
Make Lungisani	:	When can I start feeding them?
Amake Chidyelelo	:	On the second day and feed must be placed on paper, cardboard or flat lid for the first 2-3 days. Feed must be near a source of heat.
Amake Lungisani	:	Why do you put feed on papers when there are feeders?
Amake Chidyelelo	:	This will prevent the chicks from eating litter especially in chicken houses where maize bran is used as litter for the floor. On the third day, feed should be placed in clean, well washed feeders.
Amake Lungisani	:	You haven't talked much about heat. How can I know that the chickens are cold or feeling hot.
Amake Chidyelelo	:	That is a very important question. The behaviour of chickens should be observed at all times especially when one has no thermometer. If the temperature in the poultry house is low, the chicks will crowd together near the source of heat. They will not be moving so they will not be eating or drinking.
Amake Lungisani	:	They behave in the same way as local ones. Local chicks usually surround the mother hen.

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Amake Chidyelelo   :   Exactly and here you have to provide an environment like a very big mother chicken. When the temperature is very high, chicks look sleepy and open their mouths and even run away from the heat source. They will not be eating.

Amake Lungisani   :   What happens when the heat is not too hot or not too cold?

Amake Chidyelelo   :   When the temperature is alright, the chicks will be scattered nicely in the poultry house. They will be very active feeding and drinking normally. I think I will stop here for today. I just came to see you because it's a long time I visited you. Oow!! It's already 12:00 hours, I have to leave you now, I have to prepare lunch for my children. Please, come and ask me where ever you are not clear when you start keeping chickens. You can also visit experts in poultry. They are the ones who taught me.

Amake Lungisani   :   Thank you very much, am very grateful. I think I will start preparing the house tomorrow. I must start as soon as possible may be in the next two weeks. Let me see you off.

Questions:
1. How do you clean a poultry house in preparation for day old chicks?
2. Apart from electricity as a source of heat what else can one use?
3. Why do you prepare everything 2–3 days before the chicks arrive especially heat sources?
4. Why is litter important in a poultry house?
5. Why do you give stress pack and sugar solutions to day old chicks?
6. Why is feed placed on paper or cardboard on the second and third day?
7. How can you tell that:
   (i) the chicks are cold?
   (ii) the chicks are feeling hot?
   (iii) the temperature is alright?
8. What type of litter is used in poultry houses?

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LESSON 7: MARKETING OF CHICKENS

It is not all the people who keep chickens for sale know how to sell them. A lot of people nowadays argue about whether keeping chickens for sale is a good business one would start. Others say that selling chickens is not a good business because there are a lot of people doing the same. Now, the question is, does it matter whether there are a lot of people doing the same or not.

Objectives:
By the end of this lesson you will be able to explain how to sell (market) the chickens.

Chiko has been keeping chickens for sale for ten years in Mpima area, off Kabwe town. He is happy he put in (invested) his pension money in this business. He has a lot of customers coming from either within or outside the area. Chitebe admires Chiko's business and so one afternoon, he made an appointment to meet Chiko at the market, where he sells his chickens.

Read the following conversation.

Chitebe	:	Hello Chiko.
Chiko	:	Hello Chitebe.
Chitebe	:	How has been the day?
Chiko	:	Not bad. How has been yours?
Chitebe	:	Good.
Chiko	:	So, what news do you have for me?
Chitebe	:	Well, it's not news as such but rather questions.
Chiko	:	No problem, just ask.
Chitebe	:	By the way, how are you getting on with your business?
Chiko	:	Am doing fine. Why don't you start one also?
Chitebe	:	In fact, I've developed interest and this is what has brought me here.

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Chiko	:	It's good to hear.
Chitebe	:	You know, I always wonder what secret you use when selling chickens because you have a lot of buyers.
Chiko	:	Mm! That has been a good observation. It's true and a lot of people tell me so.
Chitebe	:	So what is the big secret all about?
Chiko	:	Oh! We can now call it an open secret because I'll tell you about it.
Chitebe	:	Exactly.
Chiko	:	Well, before I started keeping chickens for sale, I first of all went round to find out if there'd be demand for them and when they'd be ready for sale.
Chitebe	:	How did you do that?
Chiko	:	I just went round the area to know who my customers would be and what type of chickens they would need. Was it those that lay eggs (layers) or those that do not (broilers)?
Chitebe	:	Suppose you do not know your customers and the type of chicks to keep, what happens?
Chiko	:	You as a seller will run a loss because no one will buy you chickens. And it is even worse when you wish to sell the type they do not want.
Chitebe	:	OK. I see, because some people say that layers or local type of chickens have nice meat, then those that do not lay eggs and yet for others it's vice-versa.
Chiko	:	Am glad you're able to clarify it by yourself.
Chitebe	:	Who did you find to be your customers?

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Chiko	:	I found the Chibombo Secondary school, Tuskers hotel and Mwaziona D. Restaurant. And of course, the people around Mpima area.
Chitebe	:	Mmm! Your must have kept a lot of them to supply to all these customers.
Chiko	:	Yes, in fact, knowing the buyers before, helped me to know what number and type of chickens I was to keep.
Chitebe	:	How can one who has no vehicle like me be able to transport the chickens to Chibombo?
Chiko	:	That isn't a problem because negotiation between a buyer and a seller can be made.
Chitebe	:	Now, who benefits more?
Chiko	:	Well, it is often cheaper for a buyer to collect the chickens than for a seller to deliver.
Chitebe	:	Chiko, don't be fed up as am yet to ask you another one more question.
Chiko	:	Never mind, I won't.
Chitebe	:	OK, what do customers who don't know you look into when buying chickens?
Chiko	:	They simply look into cleanliness and how big the chicken is. Clean chickens look attractive.
Chitebe	:	I believe this can even add up to the price.
Chiko	:	Sure, it does.
Chitebe	:	This has been very good of you Chiko. It has been a wonderful conversation.
Chiko	:	Yes, or can we call it a chat.

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Chitebe   :   Anyway, whichever.

Chiko   :   Can you now summarize what I've said Chitebe?

Chitebe   :   Yaa! That is a good test. Well, marketing of chickens is about knowing who your customers are, what type of chickens to keep, how much you would sell, when to sell and where they'll be sold.

Chiko   :   Exactly, that has been a good pass also.

Chitebe   :   Thank you Chiko and have a nice day.

Chiko   :   You're welcome and am looking forward to seeing you start the business.

TASK 1

In groups of fours.

1. Discuss how you sell your chickens.
2. Mention the type of customers that buy chickens in your area.
3. List the selling places for chickens that are found in your area.
4. State the common ways of selling chickens.

Questions:
1. What does one need to do before starting the business of selling chickens?
2. Why is it important to know the type of chickens to keep before starting the business?
3. What can attract the buyer of chickens?
4. Why is it important to know your target customers?
5. What does marketing of chickens involve?

Exercise:
1. A _____ is someone who is buying what is being sold.
2. _____ are chickens that lay eggs whilst _____ are do not.
3. The price of the chickens can sometimes be determined by how _____ they are.
4. Clean chickens look _____ to a buyer.

Appendix 4: CERP Modular Material - Module Three: Conservation Farming

in collaboration with

The University
of Zambia

The National Foundation
for Educational Research
of the United Kingdom

MODULE 3: Conservation Farming

Appendix 4: CERP Modular Material - Module Three: Conservation Farming

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Appendix 4: CERP Modular Material - Module Three: Conservation Farming

INTRODUCTION

This module has been written for you to meet with other members once a week to study a lesson. When you meet, you are required to do the following:

a) Choose a chairperson to direct the meeting;

b) Read silently and do activities given in the book;

c) Come together and share answers with other members of the class;

d) Where there a conversation between two or more people, you are required to do the reading in turn as a group.

The module is divided into four lessons. You are expected to do one lesson per week but where you are not able to finish one lesson, you should continue to the next week. The module has been prepared for you to study on your own or in a small group.

LESSON ONE

CONSERVATION FARMING

Introduction:

From time immemorial, farmers have used methods that involved turning of soil upside down using hoes and ploughs. It is from these limitations of conventional farming that new methods of trying to maintain soils productive have been developed. In this lesson we are going to look at conservation farming.

Picture 1: Farmer making ridges – a common practice for small-scale farmers in Zambia

Appendix 4: CERP Modular Material - Module Three: Conservation Farming

Objectives:

By the end of the lesson, you will be able to:

• Explain conservation farming;

• Explain different farming practices of conservation farming;

• State the benefits of conservation farming.

Content:

Conservation farming is the use of different types of farming practices with the view of maintaining moisture and soil fertility in the soil. It also tries to reduce labour requirement and time for land preparation. Doing this can improve and maintain high crop yields for our farmers.

Our aim in conservation farming is to keep soils as productive as possible. There are practices which suit farmers using hand hoes and those using animals. The use of animals to till the land is called Animal Drought Power.

In conservation farming, farmers practise the growing of different types of crops. Farmers are advised to divide their fields into three or four parts so that different types of crops are grown on each piece of land every year. This farming practice is called crop rotation. A good example of crop rotation is Mr. Chipo's field. Mr. Chipo has divided his field into three parts. He grows maize, cotton, and groundnuts in this order. In the first season Mr. Chipo planted maize where they were groundnuts. He grew groundnuts where there was cotton and cotton where there was maize. This is shown in the diagram below:

FIRST YEAR

COTTON	GROUNDNUTS	MAIZE

SECOND YEAR

MAIZE	COTTON	GROUNDNUTS

Mr. Chipo follows this order from year to year. Maize follows groundnuts because groundnuts leave special nutrients in the soil, which are beneficial to maize. In place of groundnuts, beans or any other legume can be grown. Cotton has also been included because it has roots that go deep down in the soil and help to break the hard pan.

Appendix 4: CERP Modular Material - Module Three: Conservation Farming

Activity 1

Now you have learnt about what conservation farming is:

a. Name two benefits of this type of farming.
b. Describe major activity Chipo does in conservation faming.

Conservation farming is also encouraging farmers to continue growing different crops in one field at the same time. Small-scale farmers in Zambia like growing maize with beans, pumpkins, and okra and sometimes with traditional cowpeas. This type of farming practice is called intercropping. Intercropping is important because it helps the soil to maintain its nutrients. Different crops utilise different types of nutrients in the field.

Picture 2: Cotton intercropped with cowpeas on the same field

Conservation farming is also encouraging the growing of trees, which have a number of benefits to the farmer and the rural community. This type of farming practice which includes trees to farming systems is called agro-forestry. In agro-forestry, we have trees, which can help restore fertility to our soils that had lost their fertility. Trees that can be used are sesbania sesban, tephrosia vogeli commonly known as 'ububa' and many others. Sesbania sesban and tephrosia vogeli, are grown on soils which have lost their fertility, for three to four years without being disturbed. Thereafter they are cut down and maize is planted on that same field. These trees restore fertility to the soil.

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Picture 3: Tephrosia planted on a field to restore soil fertility

Activity 2

Using your exercise book, answer the following questions by filling missing words in the provided spaces:

1. The practice of growing different crops on specially divided plots and changing them a year later is called_____

2. When different crops are grown together in one plot for the benefit of each other this is called_____

3. The farming practice of introducing trees to the farming system is called_____

4. Trees are introduced to the farming systems in order to increase soil_____

5. The trees that are normally introduced include_____

There are other farming systems practiced in conservation farming.

When different types of farming systems are followed in conservation farming, there are benefits, which make it a better method to use than conventional farming.

Since conservational farming does not involve the turning of topsoil upside down before planting, farmers are able to plant large areas because they concentrate on preparing planting stations. This saves money.

In conservation farming, farmers are advised to prepare their land as soon as they finish harvesting their crop. By doing this, they are able to spread their labour requirement for preparing their land. The labour is also spread into months instead of being concentrated on a specific period when it is on high demand and very expensive. When land is prepared early, planting can also be done at the onset of rains.

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Planting basins and holes in conservation farming help to concentrate the first rainfall around the seeds. This makes seeds geminate fast.

Seeds are planted in same holes every year so that the fertiliser, which was not used up in the previous season, can be used up by another crop. In this way, there is proper utilisation of unused fertiliser by the other crop.

In conservation farming, the space in between planting lines is never ploughed and weeding is done at the right time before the weeds have seeds. By weeding at the right time, the weed population is reduced.

Activity 3

Now that you have learnt more about conservation farming answer the following two questions in your book.

1. What are the two the benefits of preparing land early in conservation farming?
2. Why are farmers encouraged to plant seeds in the same holes every year?

LESSON TWO

CROP RESIDUE MANAGEMENT

Introduction:

Burning crop residues is a practice which is common after harvest or during land preparation for the next planting season. Some people burn crop residues as a way of clearing land while others burn residue as an aid to mice hunting.

Picture 4: Farmer burning crop residues in preparation for planting

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In conservation farming, farmers are encouraged not to burn crop residues. In this lesson you are going to study crop residue management.

Objectives:

By the end of the lesson, you will be able to:

- State what crop residues are;
- Describe how to manage crop residues.

Content:

Crop residues are remains of crops after harvest. Crop residues could be remains of maize, groundnuts, beans or any other crop. After harvest, crop residues give a very bad sight to the field and that is why many people burn them.

Picture 5: A well-covered field with crop residues

Leaving crop residues in the field is very important because of the benefits they add to the soil.

In the hot season, the sun is usually very hot and soil temperatures are also high. When soil temperatures are high, some nutrients from the soil are lost and some living things called living organisms in the soils die. When the field is covered with crop residues soil temperatures are reduced.

First rains in Zambia are usually very heavy and may cause soil erosion. When soils are covered with crop residues, the impact of raindrops is reduced and soil erosion is prevented from taking place.

When a field is covered with crop residues rain drops penetrate the soil slowly and effectively. This is called infiltration.

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In case of draught or dry spells, crop residues help to prevent water loss from the field. Since the soil is covered, the sun is prevented from shinning directly to the soil and in this case crops are prevented from drying.

As time passes by, termites and other living organisms work on the crop residues and mix them into the soil. This mixing maintains soil structure and organic matter.

Management of crop residues should start before harvest. The area around the field must be cleared using a hole. Some people use animals to clear this area. The cleared area should be two to three metres wide around the field. This cleared area is called a fireguard. People who have animals should make sure that fields are not cleared completely. Crop residues are also good for animals.

Questions:
1. What are crop residues?
2. Why is it important to leave crop residues in the field?
3. What happens to the soil when temperatures are high?
4. What happens when there is a drought?
5. How can you manage crop residues

Write True or False
1. Crop residues are trees and crops found in the field.
2. People burn crop residues when preparing their field while others burn them as an aid to mice hunting.
3. Crop residues are a nuisance in the field.
4. When the soil is covered with crop residues soil temperatures are reduced.
5. Crop residues cannot reduce rain drops.
6. Crop residues improve infiltration.
7. In times of drought or dry spells crop residues prevent water loss.
8. Crop residues can never be mixed with the soil.
9. Fireguards can prevent crop residues from being burnt.
10. People with animals should leave animals to feed on the crop residues.

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LESSON THREE

CONSERVATION FARMING FOR HAND HOE FARMERS

Introduction: In the last lesson, you learnt that there are different farming practices in conservation farming that can be used by farmers using hoes. In this lesson, you are going to look at one of the conservation farming practices for farmers using hand hoes. This is called pot holing.

Objectives:
By the end of the lesson, you should be able to:
- State the procedure used in pot holing;
- State the various tools used in pot holing;
- Use pot holing method in your farming system.

Picture 6: Pot holed field in readiness for planting

Content:
Pot holing is the digging of planting holes in readiness for plant seed. Pot holing should be done as early as June so that by August, planting holes are ready for planting after the first rains. To do pot holing, a farmer needs a strong hole because some soils are hard. If the soils are very hard mattocks may be used because hoes can break. The farmer also needs a teren rope specially made for pot holing. Two strong sticks called pegs are used to hold the teren rope when it is stretched to make planting holes. Two 90cm sticks are needed to make recommended spacing for the planting holes.

A teren rope is an essential tool for conservation farming because it ensures correct spacing. A teren rope is made up of 71 bottle tops attached to a rope at 70cm centres. This rope is used to mark out planting holes at the correct space. Each bottle top marks the centre of

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the hole. To make this rope, small sticks are cut and placed at 70cm spacing to mark where the bottle tops are placed on the rope.

Picture 7: A farmer making a teren rope

After making, the teren rope should be folded as shown in picture 8.

Activity 1

Fill in the missing words in the given blank spaces

1. Pot holing should be done in the months of _____and _____
2. If soils are hard you should use a _____instead of a

    _____
3. The teren rope is _____long and has

    _____ attached to it.

Picture 8: An already made teren rope nicely folded – see the bottle tops

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Farmers using basal fertilizer need a fertilizer cup. (Please see in the picture below).

Picture 9: A fertilizer cup used to measure the right amounts of fertilizer for each hole

Those using kraal manure, you will need a coca cola can as shown in the picture below.

Picture 10: Applying the right amounts of kraal manure using the coca cola can

Marking of planting holes is done using a teren rope. The holes are 70cm apart within the line and the lines should be 90cm apart. The teren rope is stretched across the field and the two strong sticks called pegs are used to hold both ends. The bottle top marks the centre where to dig the hole. Planting holes must be rectangular in shape. When covering the holes, you should work back wards. The hole should be 35cm long, 15cm wide and 15cm deep.

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Picture 11: Correct size of a planting hole

Activity 2

Now answer the following questions in your exercise book:

1. How wide apart should holes be dug?
2. What is the use of bottle tops?
3. How long should a pothole be?
4. How wide should a pothole be?

After finishing the first line, use a 90 cm stick to mark the correct spacing for the next line before moving the teren rope. Make sure the holes in the next line are between the holes of first line. The pegs to which the teren rope is attached must be moved a bit forward about 35cm.

Illustration:

1ˢᵗ line

2ⁿᵈ line

he started from this
end going backwards

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The pattern is such that soils are in one direction of each line and the holes are between the holes of the first line. Do not mark more lines than you are prepared to dig.

Farmers planting crops requiring basal fertilizer should use a fertilizer cup to apply correct amounts. Fertilizer should be applied before the seed is planted. Apply fertilizer to the hole, cover the hole with a bit of soil and put seed on top before covering the planting hole completely. Do not heap a lot soil on the hole. If you cannot get fertilizer but have kraal manure, use a coca cola can to apply kraal manure. Apply one can of dry manure to each planting hole. This will give you better results compared to spreading kraal manure in the field.

Maize should be planted anytime from 15th November. For pot-holed seeds, four seeds should be planted. After they have germinated with three to four leaves, one plant must be removed from 4 so that 3 plants are left in one hole. This exercise is called thinning.

For cotton, five to six seeds can be planted on either end of the planting hole. For groundnuts, 8 to 10 seeds should be planted across the hole. For soya beans 10 to 12 seeds are planted across the hole.

In pot holing, weeds come out early after the first rains because it is only the planting holes which are dug while in other areas weeds remain the same. It is therefore important to start weeding as soon as the weeds emerge. This will make work easier and faster. Late weeding will increase work and may lead to low yields.

Activity 3
Answer the following questions:

1. What can you use to measure quantity of fertiliser?
2. What can you use to measure manure?
3. When should maize be planted?
4. Why should weeding be done early?

Pot holing has produced good yields even in times of dry spells because the holes collect water for the young crops. However, when holes are not covered nicely in time of heavy rains, pot holing may lead to water logging and later, yellowing of the crop.

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Picture 12: A water logged planting hole. This happens when the planting hole is not well covered

Questions

1. What is pot holing?
2. What are some of the tools used in pot holing?
3. What is a teren rope?
4. How is a teren rope made?
5. How long is the space between the planting holes within the lines?
6. How long is the space between the lines?

Write True or False

1. Pot holing is a conservation farming practice used by farmers using oxen to till their land.
2. If the soils are hard one can also use mattocks to make planting holes.
3. A teren rope is not an essential tool for conservation farming.
4. A teren rope is made up of 71 bottle tops.
5. People using basal fertilizer must use coca cola cans to measure fertilizer.
6. Potholing should start as early as June.
7. Planting holes must be round in shape.
8. When making planting holes one should work backwards.
9. When using kraal manure it is important to spread it in the field.
10. When you plant four seeds of maize, one plant will have to be removed.
11. Weeding should be done late to spread labour requirements.
12. The exercise of removing one maize plant to remain with 3 plants is called thinning.

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LESSON FOUR

EQUIPMENT FOR FARMERS USING OXEN

Introduction:

Farmers using animals or drought power can also practice conservation farming. The emphasis of leaving crop residues in the field is also important to farmers using oxen. For farmers using oxen, there are special types of equipment they are supposed to use when practising conservation farming. In this lesson you are going to look at some conservation farming equipment for farmers using oxen.

Objectives:

By the end of the lesson, you will be able to:

• Name different types of equipment used for farmers using oxen in conservation farming,

• Explain use of different types of equipment used in conservation farming.

Content:

Kabungo is a farmer in Mukonchi area. He owns a lot of cattle and he uses oxen to plough his fields. He has been trained in conservation farming using a hand hoe and now he wants to know how he can practice conservation farming using oxen. At the time when the extension worker in his area was teaching his friends conservation farming for farmers using oxen, he was attending a funeral in town. In this conversation he is talking to Chomba an Extension worker.

Chomba   :   Good afternoon Kabungo, how are you?

Kabungo   :   I am fine thank you and how are you?

Chomba   :   I am fine. You missed the training last week. Come in.

Kabungo   :   Oh yes. I went to attend a funeral in town. My uncle died.

Chomba   :   I'm sorry to hear that but we covered quite a lot

Kabungo   :   I know and in fact that's what brings me here. I want you to teach me conservation farming for farmers who are using animals. Time is running out. We will soon start preparing for the planting season.

Chomba   :   You have done well. This is the right time to know about these things so that you can start preparing yourself before the rains come.

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Kabungo   :   Will there be need to buy new equipment?

Chomba   :   Definitely you have to buy. We have equipment that can be used to break hard pans. Hard pans develop after using a plough for a long period of time.

Kabungo   :   I noticed something on one part of the field. Last time when we grew maize it was very short. I tried to uproot one of the weeds; the roots were bending instead of growing straight. It was a clear indication that there was something hard below and the root failed to penetrate. I thought may be we did not plough deep enough.

Chomba   :   No, it means there is a hard pan down. It is not that you are not ploughing deep enough. It is because of using a plough for a long time and a plough can only go to a certain depth every season. As time passes, a hard layer is develops. That layer is called a hard pan. A hard pan created by a plough, it is called a plough pan. Hard pans can cause wilting of crops because roots cannot penetrate hard pans.

Kabungo   :   What can one do to break this hard pan?

Chomba   :   Ox farmers can use an implement called a sub-soiler. It is a sharp tool.

Picture 13: A subsoiler – equipment used to break the hard layer in the soil

Kabungo   :   You have said that the sub soiler is only used for breaking hard pans. What can I use for ploughing.

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Chomba   :   In conservation farming, we do not plough. Ploughing turns the soil upside down and we are not encouraging that. You have to prepare planting lines, where seeds can be sown. We want plant roots to penetrate the pan. The ripped lines will also increase absorption of rainwater in the soil.

Kabungo   :   Why should ripping be done in the dry season?

Chomba   :   If we are to achieve maximum shattering of the soil, ripping must be done in the dry season. We also want to prepare our fields early so that as soon as the rains start we plant our seeds.

Picture 14: Ripping in the dry season using oxen

Kabungo   :   You haven't said anything about yokes. Can I continue using the 90cm yokes for my animals even in conservation farming?

Chomba   :   That's a very good question and thank you for reminding me. For ripping, an 180cm yoke is recommended if you are to achieve 90cm spacing. Animals must be trained to follow the ripped line. The chain should also be about 3.5 metres long. Look at this picture of two different yokes.

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Picture 15: Two sizes of yokes. Shorter one used for ploughing and the longer one used for ripping. The longer one is suitable for the magoye ripper and the sub soiler.

Kabungo   :   I think I will start conservation farming this season. I have to make sure that I buy the tine for breaking the hard pan and then rip before the rains come.

Chomba   :   I will really appreciate. I want two more demonstration farmers and you will be my third farmer. Farmers not practising conservation farming this year will come and learn from you.

Kabungo   :   Thank you very much Chomba. I will still come for more information.

Chomba   :   You are most welcome.

Questions
1.   What type of implement is used for breaking the hard pan?
2.   What type of implement is used for ripping?
3.   What is a furrow?
4.   When should one start ripping?
5.   Why is ripping done in the dry season?

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Fill in the blank spaces

1. A _____ is an implement which is used to break the _____pan.

2. Hard pans may cause _____ to crops during _____ spells because roots do not _____ through the pan.

3. To prepare planting lines using animals we use a _____.

4. Ripping should be done in the _____ season.

5. Ripping is done in the _____ season because we want to achieve _____ shattering of the _____.

6. For ripping we use a _____yoke in order to achieve a _____ spacing.

7. The chain should be _____.

8. The Magoye _____ was for farmers using animals to practice _____ farming.

9. A hard pan, which is created as a result of using a plough, is called a _____ pan.

10. Ripping in the _____ season will also help you to plant _____.

MODULE 4 (Draft): Vegetable Farming

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Appendix 4: CERP Modular Material - Module Four (Draft): Vegetable Farming

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UNIT

VEGETABLE (RAPE AND CABBAGE)

LESSON 1

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Site Selection

Vegetable production is just the same as crop production. Vegetables give you relish, proteins and are a source of income.

Therefore, in this lesson, you will learn the factors to be considered when selecting a vegetable garden site.

Objectives:

By the end of this lesson, you should be able to state the factors to consider when selecting a site for a vegetable garden.

Please read the following situation and the conversation.

Zulu and Phiri are two good friends who stay in Azelegute village. Zulu produces a lot of vegetables and his friend Phiri wanted to find out why he was successful in this venture. He particularly wanted to know some of the factors to be considered when selecting a vegetable garden site. So they had the following conversation:

Phiri   :   Good morning Zulu. I have not seen you for a long time.

Zulu   :   Good morning. Yes, indeed, we have not met for a long time. I have been very busy with my vegetable business. As you know this is the best time for vegetables as there is high demand for them.

Phiri   :   Yes, indeed, I can see your vegetables are doing fine. Mine never grow this well. They are always stunted. I suspect that my soil is not good. Now, please, tell me how you have been managing your vegetable garden so well. Is it because of the soil in which you grow your vegetables? What do you consider when selecting a site for a vegetable garden?

Zulu   :   Yes, Phiri, where I grow my vegetables really matters. There are many factors which need to be considered when selecting a site for a vegetable garden. I always consider the slope of the land. It must be gentle so as to give a good harvest, as you know, vegetable do

not do well in water logged areas. Also, consider the soil type. A good soil must not be too heavy like clay. I prefer sandy loams.

Phiri   :   Since you talked about soil type and the slope of the land, what else do you consider?

Zulu   :   Yes, Phiri, in addition, constant water supply is needed. Vegetables require a lot of water. So, the water supply must be within easy reach.

Phiri   :   Zulu, why did you put up this fence of sisal around your vegetable garden?

Zulu   :   Phiri, *mwana*, this is a very good question. The reason why I constructed this fence is to protect my seedlings from breaking. So, it acts as a windbreak. It also prevents thieves from stealing the vegetables and stray animals from eating the vegetables.

Phiri   :   I have learnt a lot, so, I will establish my garden where there are a lot of trees, possibly in the bush.

Zulu   :   Ah, no *mwana*. Always avoid planting your vegetables in areas which have trees within 10 meters. This is because trees steal light and nutrients from your vegetables.

Also it is very important to remember that the site for the vegetable gardenmust be near the homestead.

Phiri   :   Zulu, why have you sited a vegetable garden near your homestead?

Zulu   :   *Mwana*, the vegetable garden must be close to the home for easy management, and also for easy transportation of the vegetable to the market.

Phiri   :   Thank you very much my friend. I never considered any of those factors necessary when selecting a vegetable garden site.

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So you have read the conversation between Zulu and Phiri in which the following factors have been discussed:

- Slope of the land. The land must have a gentle slope to give good drainage.
- Soil type. A good soil possibly not heavy soils e.g. clay.
- Water supply. The water supply must be constant and within reach.
- Avoid planting vegetables in areas that have trees within 10 meters.
- Windbreak/fence. This protects seedlings from breaking and thieves from stealing and stray animals from eating your vegetables.
- The site for the vegetables garden must be near the homestead.

Now, do the following tasks:
1. Mention the factors to be considered when selecting a site for a vegetable garden.
2. Discuss the mentioned factors.

LESSON 2

LAND PREPARATION

In the previous lesson, you learnt about factors to be considered when selecting a site for a vegetable garden and now you have known where to establish your vegetable garden. So in the lesson, you will learn how to prepare land for your vegetables.

Objectives:
By the end of lesson, you should be able to explain and demonstrate how to prepare the land for vegetables.

Now for you to learn how to prepare land for vegetables, read the following situation and conversation.

Chowa is a vegetable grower who lives in Songwe village. He grows vegetables all year round. Mwaka is a farmer who stays in the next village. Mwaka wanted to start vegetable growing hence he wanted to know how to prepare land for vegetables. He went to see his friend Chowa and they had the following conversation.

Mwaka   :   Good morning, Chowa.

Chowa   :   Good morning, Mwaka.

Mwaka   :   Chowa, how is your family?

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Chowa	:	My family is alright and how about yours?

Mwaka	:	Mine is also fine.

Chowa	:	Mwaka, what brings you here?

Mwaka	:	I would like to start growing vegetables but I have no idea how to prepare the land. I know you have been doing very well in this business. So, how do you prepare land for vegetables?

Chowa	:	Well Mwaka, land preparation is the first activity you do before you think of growing vegetables. Dig your soil 30 centimeters deep with your hoe. This allows for deep root penetration. Dig a big area where you want to grow your vegetables.

Mwaka	:	After digging the land, what next?

Chowa	:	After digging the land, make beds which should be 1 meter wide and of any length. There are two types of beds and these are used during different times of the year for different reasons.

Mwaka	:	Ah Chowa, what are the names of these beds and when are they used?

Chowa	:	*Mwana* Mwaka, the first one is known as a sunken bed. This sunken bed has got some edges which hold water. It is used during the dry season of the year.
		There is also a flat bed. This bed has no edges. It allows excess rain water to run off. This bed has no edges. It allows excess rain water to run off. This bed is used during the rainy season.

Mwaka	:	Thank you for the information. I think I should prepare sunken beds for my seeds since we are in the dry season, before I forget what you have told me.

Now, for you to remember what has been discussed on land preparation, here are the points which have been discussed:
- The soil should be dug 30cm deep;
- Dig a big area;
- After digging make beds;

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- Two types of beds are made;
- The first one is called sunken bed;
- The second one is called flat bed.

Please, answer the following questions:
1. Explain how you prepare land for vegetables.
2. What are the names of the beds used during land preparation?
3. When are they made?
4. What is the difference between the sunken bed and flat bed?

LESSON 3

NURSERY ESTABLISHMENT AND MANAGEMENT

By now you have learnt how to prepare your seed beds from the previous lesson. In this lesson you will learn steps to follow when establishing a nursery for vegetables and how to manage a nursery for vegetable production.

Objective:
By the end of this lesson, you should be able to explain and demonstrate
the steps to follow when establishing a nursery and how to take care of a nursery.

Before we discuss, let us first define the terms used in this lesson.
- A nursery is a safe place where seedlings are raised;
- A nursery comprises of many seedbeds;
- A seedbed is where seedlings are raised;
- A seedling is a plant material which grows in a seedbed.

Now read the following information which outlines the steps to follow when establishing a nursery.

Step 1: Break up lumps
The lumps should be broken so as to have a fine tilth which will allow good germination of the seeds when sown.

Step 2: Make seedbeds
Once the fine tilth is obtained, make seedbeds of 1m width and of any length. You make 1m wide seedbeds for easy management especially when weeding and harvesting.

Appendix 4: CERP Modular Material - Module Four (Draft): Vegetable Farming

Step 3: Make lines

On top of the seedbeds, make lines across the seedbeds. The lines should be 15cms apart and 5 times as deep as the size of the seeds you are sowing.

Step 4: Sow seeds

Sow seeds thinly in rows of 15cms apart. After sowing, cover the fallows and make them firm with the back of a rake.

Step 5: Mulching

Put dry grass on top of the seedbeds. This is called mulching. The mulch helps to retain moisture in the seedbed. It stops the surface capping. In addition, mulch protects the seedlings from the scotching sun.

Step 6: Watering

Water seedlings well with a fine rose watering can. Water twice a day until germination. Water twice a week only (just water during severe wilting) after germination.

You answer the following questions:

1. Seeds should be sown in _____.
2. Seeds should be sown _____.
3. Break up the lumps before _____.
4. Lines should be made on _____.
5. _____ should be put on top of seedbeds after sowing.
6. Mulch retains _____ in the seedbeds.
7. Mulch protests the seedlings from _____.

LESSON 4

TRANSPLANTING

Now that you have known how to raise seedlings for vegetables, and how to prepare land from the previous lesson, in this lesson, you will learn how to transplant your seedlings from the seedbed into the main field.

Objective:

By the end of this lesson, you should be able to explain and demonstrate how to transplant your seedlings.

Appendix 4: CERP Modular Material - Module Four (Draft): Vegetable Farming

Read the following passage.

Transplanting is the removal of seedlings from the nursery to the main field. It is normally done 3 – 4 weeks after sowing. Before transplanting, water the nursery seeds.

In addition to this, the beds where you will transplant your vegetables should be watered.

After watering the seedbeds, remove the healthy strong and good looking seedlings first. Remove seedlings which you can transplant by a day and remove the excess soil from the seedlings. Use a stick to make planting holes which should be 35cms apart, with 45cms between rows.

After making the planting holes, put the seedlings into the planting holes holding them upright. Bury the roots of the seedlings and firm the soil. Transplanting is normally done in the afternoon.

After making the planting holes, put the seedlings into the planting holes holding them upright. Bury the roots of the seedlings and firm the soil. Transplanting is normally done in the afternoon.

After transplanting, water the seedbeds. Watering should be done twice per day until the transplants are 2 weeks old and then reduce to twice per week.

Now that you have read the above passage answer the following questions, stating whether they are true or false.

1.   Transplanting is the removal of seedlings from the nursery seedbed to the main field.
2.   Transplanting is done in the morning.
3.   Unhealthy seedlings should be transplanted together with healthy seedlings.
4.   Excess soil should not be removed from the seedlings.
5.   Transplants should not be watered after transplanting.
6.   Seedlings should not be transplanted 4 weeks after sowing.

LESSON 5

MANAGEMENT OF VEGETABLES

By now you have learnt how to establish a vegetable garden from the previous lessons. In this lesson, we are going to discuss how to take care of newly planted vegetables.

Appendix 4: CERP Modular Material - Module Four (Draft): Vegetable Farming

Objective:

By the end of this lesson, you should be able to state and demonstrate the management aspects of vegetables.

Please read the following situation and conversation.

Chola is a small scale farmer who wants to know the management aspect of vegetables. So he asked his friend Bwalya, who has been growing vegetables for 10 years. They had the following conversation.

Chola	:	I'm very happy to meet you Bwalya. How are you?
Bwalya	:	Well Chola, I'm also very happy to meet you. I'm okay and how are you?
Chola	:	I'm also fine. Bwalya, I've been told that you're very good at vegetable growing is it true?
Bwalya	:	Yes, Chola, that is true. I've been growing vegetables for ten years now. Are you also interested in this business?
Chola	:	Yes I am. So what are the crop management aspects of vegetable growing?
Bwalya	:	That's a good question, Chola. For you to have good quality vegetables you have to weed your vegetables. Weed as soon as weeds are seen. Weeds reduce the quality and quantity of vegetables. Use a small hoe to weed your vegetables. You can also use your hand.
Chola	:	But your vegetables look very healthy. What do you do in order to boost their growth rate?
Bwalya	:	For your vegetables to do well, you must fertilize them. Apply manure. The manure should be well rotten. The manure also increases the soil fertility. This helps to increase the yield and so it rewards the effort of applying manure.
Chola	:	Now, Bwalya, if you don't have manure, what else can you apply?

Appendix 4: CERP Modular Material - Module Four (Draft): Vegetable Farming

| Bwalya | : | You can apply chemical fertilizers. The application rate is 15 grams of Compound 'D' fertilizer to each square meter of the garden. You can also apply a match box-full of top dressing fertilizer per plant by hand. Please, do not broadcast the fertilizer. Also, never allow fertilizer to come into contact with the plants. After fertilizer application, water the seedbeds immediately. |

| Chola | : | What do you use that sprayer for? |

| Bwalya | : | Chola, the sprayer is used for controlling pests and diseases. During vegetable growing, you have to search for pests and if found remove them by hand. This particularly applies to cutworms. In case of aphids, caterpillars and other leaf eaters spray the crop with pesticides such as cynex and cypermethrine. |

| Chola | : | How about diseases? |

| Bwalya | : | The common diseases which attack vegetables are black rot and leaf spot. These fungal diseases are controlled by Copper Oxychride and other fungicides like dethrone M45. |

| Chola | : | Apart from what you have told me, what other management aspects do you consider? |

| Bwalya | : | Chola, harvesting is also a management aspect. Harvest the vegetables as soon as they are ready. Rape is harvested 8 weeks from transplanting and cabbage is harvested 12 weeks from transplanting. |

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

MODULE 5 (Draft): Groundnuts

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Appendix 4: *CERP Modular Material - Module Five (Draft): Groundnuts*

UNIT 2: GROUNDNUT PRODUCTION

Groundnut is a body building food which is grown locally in Zambia as a subsistence crop. This crop can also be grown as a cash crop, which can enhance the family income.

At the end of this unit, you must be able to mention the uses of groundnuts and also the varieties which are commonly grown in Zambia.

LESSON 1

GROUNDNUT GROWING

Groundnuts grow well in drained light loamy soils. Groundnuts grown in acid soils with low Calcium content have a high incidence of 'Pops' (pod without kernels or with shriveled kernels). Clay soils which form a hard crust (particularly sand clays) are not suited for groundnuts growing as 'Pegging' is hindered and harvested is extremely time consuming especially when spreading 'virginia' types like Chalimbana.

Read the conversation that follows:

Chola is a groundnut grower and he has been growing groundnuts for the past 10 years and Bwalya is a peasant farmer who wants to start growing groundnuts for the first time. So he asked his friend what groundnuts are:

Conversation.

Bwalya	:	Chola, what are groundnuts?
Chola	:	Groundnuts are annual crops from the legume family. It is the second most important crop in term of area planted in Zambia. While its importance as a food crop has always been appreciated, the liberalization of the Zambian agricultural market might make groundnuts an attractive cash crop with the little input requirement.
Bwalya	:	What are the uses of groundnuts?
Chola	:	Groundnuts are an essential part of many relishes providing both fat and protein and of course a pleasant taste.

Appendix 4: *CERP Modular Material - Module Five (Draft): Groundnuts*

Babies and children appreciate porridge to which groundnut powder has been added.

Since groundnut is a legume crop it fixes nitrogen in the soil.

Apart from common uses, cooking oil for marketing can locally be extracted from groundnuts using a ram press.

Also plant residues are a very nutritious cattle fodder and should be stored for supplementary feeding.

Bwalya   :   What are the varieties of groundnuts?

Chola   :   A number of criteria are used to describe types of groundnuts. Groundnuts with large kernel size are referred to as confectionery and those with high oil content as oil types.

Bwalya   :   Now, Chola, what are the climate requirements for groundnuts?

Chola   :   Groundnuts require rainfall and moderate temperature provided varieties of appropriate maturity are used. Also groundnuts require dry weather during ripening.

Bwalya   :   Chola, what are the input requirements for groundnuts?

Chola   :   You need one bag of unshelled nuts or 15–20kg (1 tin) shelled nuts to plant a lima.

In practice the difference between Virginia and Spanish.

Characteristic	Virginia	Spanish
Growth habit	bunch and runner	mainly bunch but also runner
Maturity	usually late	usually early
Dormancy	yes	no
Seeds per pod	usually 2 or more	usually not more than 2
Oil content	low	higher

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

The following are some of the varieties which are currently grown in Zambia.

Variety	Months of maturity	Growth habit	Kernel colour	Kernel size	Type	Average kernel yield bags/lima
Chalimbana	5–5½	Spreading	Pink	Large	Virginia-runner	2–2½
MGU 4	4½	Effect	Red	Large	Virginia bunch	3
Chipego	4	Effect	Pink	Medium	Spanish bunch	2½
MGS 2	4½–5	Spreading	Pink	Large	Virginia bunch	2½–3
Hamingo	4	Effect	Red	Large	Spanish bunch	3

Questions:

1. Mention three ways in which you can use groundnuts.
2. What types of soil are preferred for groundnuts growing?
3. Imagine you want to grow groundnuts this coming season, what variety would you prefer to grow? Give reasons for choosing that variety.

LESSON 2

LAND PREPARATION

As you may be aware, it is quite important to ensure that land is identified and well prepared before you plant groundnuts. Land preparation helps to loosen the soils for easy germination of the seeds.

Objective:
At the end of this lesson you should be able to explain the importance of land preparation.

Passage:
Early and deep ploughing (20–40cm) is important, make a good firm seedbed and ensure that there is a moderate depth of crumbly soil. If you have decided to grow your groundnuts on ridges, then the ridges should be made at or just before sowing and should be that topped. If the soil is dry when the ridges are being made, a light rolling after ridging will help make the seed-bed firm.

Ridges are commonly used in some (but not all) parts of Zambia. They can prevent water logging, improve weed control and allow farmers to water and apply nutrients more economically to the groundnuts. Groundnuts fit into a wide range of farming systems. They can be grown after any weed crop such as maize, sorghum, pear millet, cassava, sweet potatoes, sunflower etc. To reduce the incidence of pests and soil borne diseases, groundnuts should not be grown after tobacco or cotton. Groundnuts do well on virgin land or immediately following a grass ley (i.e, an area of land temporarily under grass) or a

Appendix 4: *CERP Modular Material - Module Five (Draft): Groundnuts*

well–fertilised crop such as maize. Avoid groundnut–groundnut rotation to discourage the building up of pests and diseases.

Questions:

1. How should the ridges be made before sowing groundnuts?
2. Why should groundnuts not to be grown after tobacco or cotton?
3. Explain why ridges are preferred in Zambia for groundnuts growing?

LESSON 3:

RECOMMENDATION MEASURED FOR GROUNDNUTS MANAGEMENT. DIFFERENT VARIETIES OF GROUNDNUTS SEEDS MUST BE COLLECTED AND BROUGHT TOGETHER FOR DISCUSSION.

Identify the type of groundnut seed learners have brought to class and then discuss when and where each type can be grown.

Now, here is more information on selection of the groundnut seed, planting and weed control.

Passage:

In general, early sowing improves yields and seed quality. Significant delay in sowing can reduce yields by up to 50 per cent. Early sown crops also suffer less risk of rosette disease. However, the most appropriate sowing date will depend on the maturity period of the variety to be sown. In Zambia early maturing varieties such as Chipego, Comet, Luenena and Natal Common, should be sown from early to mid December after effective rainfall. Late maturing varieties like Chalimbana, MGS–2 Makulu Red, Champion and MGV–4 should be sown immediately after the first effective rains in early to mid November.

Plant spacing:

Spacing will depend on the variety. Small seeded Spanish types are spaced at 60cm between rows and 10cm between stations. This gives an optimum plant population of 167,000 per hectare. The large seeded Virginia types are spaced at 75cm between rows and 15cm between stations, giving an optimum plant population of 89,000 per hectare. These recommendations hold, regardless of where the crop is grown in Zambia or whether it is sown on ridges or on the flat cultivated field – for example in the Southern and Western Provinces where ridges are never used.

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

Mabvuto is a farmer who has been growing groundnuts for over 10 years and he stays in Saluyabvuka village of Katete district. Bwalya is a farmer who stays in the same village with Mabvuto. Bwalya has just planted the groundnut for the first time.

He wants to know more about the field management aspect of groundnuts and he asks Mabvuto the following questions.

| Bwalya | : | Mabvuto, what are the field management of groundnuts? |

| Mabvuto | : | They are only two management aspects of groundnut and these two are weeding and pest and disease control. |

| Bwalya | : | Why and how often should I weed my groundnuts? |

| Mabvuto | : | Groundnuts are poor competitors with weeds at the start of root development. In order to harvest more groundnut the weeds should be removed as soon as possible. At least two to three weedings are necessary. |

The following schedule should be followed when weeding.

When	How
1st Weeding: 2 weeks after emergence	Use hoe between lines of ridges and hand weed between plants. Note: Ridges must be adjusted so as not to cover the seedling.
2nd Weeding: 4 weeks after emergence	Earth up lines with hoe or ridges and hand weed between plants.
3rd Weeding 6 weeks after emergence	Hand pulling of weeds only.

| Bwalya | : | How about pests? |

| Mabvuto | : | Except for termites and aphids, groundnuts have relatively few pest problems. Apart from direct damage, aphids may transmit a sporadic. |

| Bwalya | : | What diseases destroy groundnuts? |

| Mabvuto | : | They are only two common diseases which destroy our groundnuts as at now and those two are as follows: Rosette virus – this disease destroys most of the crop. It is transmitted by aphids.
Control measures: since timely control of aphids is usually not feasible on small scale farmers, early dense planting is the only option to reduce risks. You can also plant rosette virus resistant varieties. |

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

Leaf spot (early and late) – this is caused by fungi. This reduces the yield by 30 per cent. Control measures – practice crop rotation, spray with fungicides e.g Dittan M 45.

Weed control:

Groundnuts cannot compete effectively with weeds, particularly at the early stages of development (i.e. 3–6 weeks after sowing). Early removal of weeds reduces this competition. Crop rotation may reduce certain species of weeds. Pre- and post-emergence herbicides may be used to eradicate weeds, but they are too expensive for most small-scale farmers. The crop should be thoroughly weeded within the first 45 days. Once pegging begins, avoid earthing up, or keep it to a minimum, so as not to disturb the developing pods. Instead, weeds at this stage can be controlled by hand pulling.

Questions:

1. Why is crop rotation necessary?
2. What is a weed?
3. Why is late weeding not recommended for groundnuts?

LESSON 4

VARIETIES OF GROUNDNUTS

Objective:

By the end of the lesson, learners should be able to name the different varieties of groundnuts.

There are different varieties of groundnuts grown in Zambia. The passage below describes these varieties of groundnuts. Read it and then answer the questions that follow.

1. **Chalimbana (Ziwiri za zikulu – African Giant)**

Chalimbana is a Virginia runner type recommended for production in the plateau areas of Zambia. It grows better in the Eastern parts of the country and matures in 140–160 days. Chalimbana is suitable for making sweets, chocolates, cakes, pies, butter, and pastry etc.

2. **MGV–4 (ICGMS 42)**

MGV–4 is a bunch type with wide adaptation and is therefore recommended for production in all groundnut-growing areas in Zambia. It is the only variety that has shown high kernel yield potential in all three agro-ecological regions. MGV–4 matures in 120–140 days and is much easier to harvest than either chalimbana, or MGS–2 because of its bunch growth habit.

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

The kernels are red, uniform medium size, and contain 48–50 per cent oil. It is suitable for both confectionery use and oil extraction and gives kernel yields.

3. **CHIPEGO (ICGMS –5)**

Chipego was a bunch variety, can be grown for production in a range of environments –all the low lying areas in Zambia as well as on the plateau at altitudes of 400–1000m. It matures in 110–120 days. Chipego has no seed dormancy and should, therefore, be harvested as soon as it matures in order to avoid sprouting. It is drought-tolerant and gives kernels yields. The kernels are small, tan-pink in colour and contain 48 per cent oil. This variety is suitable for the confectionery market.

4. **OTHER VARIETIES**

(a)   MGS–2 (m–13) was released in Zambia in 1988.
(b)   Champion (8/8/19) was developed by the Zambia National Programme in 1988.
(c)   Natal Common: introduced from South Africa and is widely grown several
        countries.
(d)   Comet: a Spanish bunch variety that was released in 1998. Recommended for
        production in all areas of Zambia.
(e)   Luena: another Spanish bunch variety that was released in 1998. Recommended
        for production in all areas of Zambia.

Questions:

1. Which variety of groundnuts is your favourite? Why?
2. What kind of environment do groundnuts need to grow well?
3. Mention the number of days it takes for each type of groundnuts to mature.

LESSON 5

DISEASES

Objective:

By the end of the lesson, learners should be able to explain different diseases that commonly attack groundnuts.

Mention groundnuts diseases in local languages.

You know as much as we do that every crop is attacked by some kind of disease. Let us, therefore, talk about different diseases that attack groundnuts.

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

1. FOLLAR DISEASES
Early leaf spot:
This usually appears on 2–3 week old seedlings. Small chlorotic spots appear on leaflets about 10 days after infection. The spots develop into manure, sprouting, subcircular lesions. They are dark-brown on the upper leaflet surface where most sporulation occurs and a light shade of brown on the lower leaflet surface. A chlorotic halo is often present around C. but its presence and prominence is altered by the host genotype and environment factors.

Late leaf spot:
Usually occurs on 3 month old crops and severity is generally low to moderate. Lesions caused by late leaf spot are usually smaller, more nearly circular, and darker in colour than those of early leaf spot. On the upper and lower surfaces, where most of sporulation occurs, the lesions are black with a slightly rough appearance. The two leaf spots can reduce kernel yield by 32–68 per cent. Early leaf spot is more damaging than late leaf spot under Zambian growing conditions.

2. RUST
Generally occurs sporadically and at low severity, but can cause a crop loss up to 40 per cent when an epidemic occurs. Pathogen can survive on volunteer groundnut plants. Long-distance of the disease can occur through airborne, spores, spores contaminating the surface of pods/seeds, or infected crop debris. The cultural practices and fungicidal control measures recommended for leaf spots are also applicable to rust, but crop rotation may not be effective.

3. ROSETTE
Groundnut rosette is a virus disease transmitted by the aphid. It is widely prevented in Zambia. It is a complex disease involving three casual agents: groundnuts rosette assistor virus (GRAU), groundnut Rosette virus (GRN) and its Satellite RNA (sat RNA). 'Chlorotic' rosette is predominant throughout Zambia, but 'Green' rosette is uncommon.

Early sowing at optimum plant population will give complete soil cover as quickly as possible. This will restrict the movement of aphids, thereby controlling the spread of rosette disease. The use of rosette-resistant cultivars will also prevent crop losses ICGV-SM 90704, a rosette-resistant long-season cultivar, is in the pre-release stage. Two resistant short-season cultivars are also advanced stages of lasting.

4. AFLATOXIN
Aflatoxin contamination and Aflaroot. Fungi of the Asperfillus group can invade groundnut tissues, producing toxic compounds known as aflatoxins. Contaminated produce can be poisonous to people and livestock and cannot be exported. Aflatoxin contamination and the related aflaroot disease also affect groundnut seed, leading to low germination percentage

Appendix 4: *CERP Modular Material - Module Five (Draft): Groundnuts*

and poor seeding establishment. Aflatoxin contamination can occur before harvest during field drying and caring and in storage. Pre-harvest contamination is influenced by soil moisture and temperature and is likely to be most serious under drought conditions. Postharvest aflatoxin contamination occurs if the groundnuts become moist and/or damaged. It can occur at harvest or later.

Various methods are used in Zambia to control aflatoxin. They include the following:
- Avoid mechanical damage to pods or kernels during weeding, harvest and storage;
- Proper curing or drying, until moisture content is reduced to 6-8 per cent, will help avoid aspergillus infection and consequent aflatoxin contamination. Normally this can be achieved by drying the pods in the sun for 6–7 days, taking care to cover them if it rains;
- Store groundnuts in the shell, at low temperature, under moisture-free conditions.

Questions:
1. Name three basic common diseases of groundnuts.
2. List three various methods used in post-harvest aflatoxin to avoid contamination to occur.
3. What is groundnut rosette?

LESSON 6

HARVESTING AND POST HARVESTING HANDLING

Objective:
By the end of the lesson, learners should be able to identify methods of harvesting and storing groundnuts.

Tasks:
Learners to bring harvested unshelled groundnuts.

Unshell the groundnuts and compare the seeds and discuss.
Have you grown groundnuts before? Do you know the methods used in harvesting and storing groundnuts? Read the passage below for more information.

HARVEST
It is important to harvest groundnuts at the right time, i.e. when the crop is mature. Groundnuts are mature when 70 per cent of the inside of the shells have dark markings and the kernels are plump with the colour characteristic of that variety. If harvested prematurely, the kernels will shrink upon drying, resulting in decreased shelling percentage, poor seed

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

quality, and lower oil content. If harvested late, non-dormant varieties (e.g. Luena, Chipego) will sprout in the field, resulting in yield losses.

DRYING

The primary objective of curing or drying is to achieve rapid but steady drying of the pods, in order to avoid aflatoxin contamination. Harvested plants should be stacked in the field for a few days to allow them to dry in the sun and air, before stripping the pods. The drying should continue until the moisture content is reduced to 6–8 per cent. Normally this can be achieved by drying the pods in the sun for 6–7 days, taking care to cover them if it rains. But remember that if pods are exposed to the sun for too long, both kernel quality and seed germination will be affected.

STORAGE

Groundnut is best stored unshelled in cool, dry conditions, protected from rain and birds as well as animals (particularly rats and mice). Bagged groundnuts – whether shelled or unshelled – should not be placed directly on a concrete floor due to the risk of dampness that may cause would to develop. Before bagging, dust the pods with Actellic super to protect them from storage pests.

Questions:

1. How do you know that groundnuts are now mature?
2. What is the primary objective of curing or drying?
3. What happens when the pods are over exposed to the sun?

Tipilile is the Chairlady of Makwesa learners' club. The learners who grow groundnuts always meet on Fridays at 14.00 hours. When they had a group meeting they had the following discussion on harvesting and post harvest practices:

Tiyanjane	:	When are our groundnuts suppose to be harvested?
Tipilile	:	Groundnuts should be harvested when most of the pods are ripe. Also yellowing of the foliage is a sign of ripening, but has to be confirmed by oldest harvesting at several places inside the field. The seed should fill the pods completely while showing the typical colour for the variety and the pods should expose dark markings in the inside. If lifted too soon the kernels will shrivel when drying.
Tiyanjane	:	How do you harvest groundnuts?

Appendix 4: CERP Modular Material - Module Five (Draft): Groundnuts

Tipilile   :   Groundnuts should be harvested by cutting the roots with a hoe 10–15 cm below the ground level. Do not pull the plant out. Drying of the pods is very important to avoid fungi infection of the produce. Whole plants can be turned up side down heaped in small heaps in the field for about a week.

                         Do not leave groundnuts longer in the sun as this will cause sunburn of the kernel.

                         Do not dry excessively on iron sheet roof if you intend to use groundnuts for seed, as heat will reduce germination of seeds.

Tiyanjane   :   How do you keep the harvested groundnuts?

Tipilile   :   The harvested groundnut should always be stored unshelled in a cool and dry place. Pack your groundnuts in bags or in storage bin until used for consumption or sale.

Appendix 4: CERP Modular Material - Module Six (Draft): Sunflower

MODULE 6 (Draft): Sunflower

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Appendix 4: CERP Modular Material - Module Six (Draft): Sunflower

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UNIT: 1

SUNFLOWER

LESSON 1

LAND PREPARATION

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Introduction:

Sunflower is a cash crop that is suited to a wide range of growing conditions. Sunflower can be a source of income for your family. It can also be a source of cooking oil and the sunflower cake which remains as a residue after extracting the oil is given to animals. Therefore, in this lesson you learn the following:

Land preparation:

Land preparation in sunflower production is not difficult. This is because of it's suitability to a wide range of growing conditions. In any case, for better yields, study and follow what is in this lesson.

Objectives:

At the end of this lesson you should be able to explain how to prepare land for sunflower production.

Read the following situation and conversation between Mapalo and Mandalitso.

Mapulo and Mandalitso are sunflower growers who live in Umozi village in Katete. Now what has been interesting is that Mapalo has always had better yields than Mandalitso. The comparison was made on the basis of same size of land. Because of that, Mandalitso was forced to ask Mapalo. Their discussion they started like this.

Mandalitso	:	Hello, Mapalo.
Mapalo	:	Hello, Mandalitso.
Mandalitso	:	How are things?
Mapalo	:	Not bad, and you?
Mandalitso	:	Also not bad except for one thing.
Mapalo	:	What's that?

Appendix 4: *CERP Modular Material - Module Six (Draft): Sunflower*

Mandalitso	:	I don't know what to tell you, and I have been a sunflower grower. Unfortunately, your yields are always better than mine. We buy the same type of seed; you weed, I also weed, except you plant in December while I plant in January or February. So, I don't see any difference, but, why do you get better yields than me?
Mapalo	:	Thank you for your question. But before I answer you, why do you plant in January or February?
Mandalitso	:	Because that's when I prepare my land and sometimes, I don't even plough, I just plant.
Mapalo	:	Okay, fine. Now I want to listen very carefully and because of time, I will only talk about land preparation. You should prepare your land as early as November or early December because this will give you enough time to plant early. When you do this you give the crop enough growing time. In fact, by 10th December all land preparation should be completed.
Mandalitso	:	Is that all?
Mapalo	:	No. I'm still talking. Prepare the land by loosening the soil with a hoe or by ploughing with oxen. Alternately you can make ridges or, if you want you loosen the soil so that roots don't find it difficult to penetrate. If you prefer ridges that's good.
Mandalitso	:	What is so special about loosening the soil or making ridges because even when you just plant on undisturbed land sunflower still germinates.
Mapalo	:	Germinating here is not an issue, Mandalitso. Moreover even when you put sunflower seed on paper, you fold and moisten it the seeds will still germinate. But the issue is why should you loosen the soil or make ridges? To answer that, you loosen the soil so as to allow easy root penetration or if you talk of ridging, it enhances drainage where drainage is a problem. On the other hand, ridges hold water and reduce soil erosion more especially on hill sides.
Mandalitso	:	This sounds good. What else?

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Mapalo : I think the other thing is to avoid water logged areas and heavy soils; go for light and well drained soils.

Mandalitso : Thank you very much Mapalo for your advice. I thought may be you are a witch. Now I can see what has made the difference. I will come next week so that I learn more.

Mapalo : Feel free, you are most welcome.

Questions:
1. From the conversation what do you think led Mandalitso to be planting sunflower late?
2. Why is it important to prepare land for sunflower as early as November or early December?
3. What did Mapalo say was the reason why you should loosen the land or make ridges when preparing land?

Exercise:
Answer True/False
1. Water logging areas are good for sunflower growing.-------------------
2. Heavy soils are recommended for sunflower growing as long as there is a lot of rain.--------------------
3. Light and well drained soils are bad for sunflower production.-----------------
4. Land preparation can be done at any time as long as you have got ready.----------

LESSON 2

A. PLANTING

Objective:
At the end of this lesson you should be able to
- Explain the right planting procedure.
- Explain how to plant sunflower.

Read the passage:
Planting sunflower should be handled with care because when you plant too deeply it may not germinate and when you plant on the surface birds may pick the seeds. So it is always important to know how to plant and when to plant.

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Therefore if you want to have healthy sunflower which will give you high yields, follow the steps below:

Step 1:

Make sure your field is ready for planting by 10th December. Plant around this time, latest Christmas time.

Step 2:

Dig small planting holes 3–5cm deep. You should use a stick or any appropriate tool to make the holes as you can see in the picture.

When you are planting, whether on flat land or ridges 75–90cm between rows and 25–30 cm between stations.

Step 3:

Plant 4–5 seeds per station and then, after germination, one to two per station as shown in the picture below. You throw 4–5 seeds per station so that when some die, there is an assurance that some can germinate.

Questions:

1. When should sunflower be planted?
2. Why do you think sunflower should be planted at the time you have mentioned in question one?
3. How many seeds should be thrown on each hole and why?
4. How should the spacing of sunflower be?
5. How should sunflower be planted?

B. FERTILIZATION

Objective:

At the end of this lesson, you should be able to explain the concept of fertilization.

Read the passage:

Fertilization in sunflower is not an obvious activity, more especially if you are rotating your crops. However, fertilization has proved helpful and because of that, the following recommendations should be used.

Dig a hole at the planting station, apply manure using a coca cola can or any appropriate container. The number of manure cans depends on the fertility of the soil or availability of manure. This method can also be used even in planting furrows in cases where you are

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using oxen. But the point to note when you use this method is that it should be done before planting.

In both instances, bury the after applying chemical can be used as well. The recommendation are one bag of compound D for basal and ½ to ¼ bag of urea as top per lima. For basal, apply using the standards for maize and for top using something smaller like a teaspoon.

Question:

1. Write a story about fertilization.

LESSON 3

WEEDING

Objective:

By the end of this lesson you should be able to explain the importance of weeding.

From the pictures answer the following questions:

1. Why did Yosefe in picture 2 start weeding when weeds were just emerging?
2. Was there anything wrong for Aliki to start weeding when grass had overgrown?
3. What led to the differences in pictures 1 (e) and 2 (e)?
4. According to the pictures Yosefe weeded twice, to you think it was necessary?

Summary

Sunflower like any other crop suffers from weed competition. Early shallow weeding should be done as soon as the weeds emerge – because weeds are thieves.

• They steal water;
• They steal light;
• They steal nutrients;
• They steal kwacha;
• Please remove them.

Appendix 4: CERP Modular Material - Module Six (Draft): Sunflower

LESSON 4

HARVEST AND POST HARVESTING

Objectives:
By the end of this lesson you should be able to.
- State when sunflower is ready for harvesting.
- Explain the importance of post harvest.

Read the story below:
Harvesting is an activity which is also important in sunflower production. Sunflower is ready for harvest when the flower head bend over and turn yellow, and the leaves turn brown.

If harvest is delayed, seeds will fall off the head and birds also can be a problem. To prevent bird damage, bend the stalks at an angle (above the waist of a big person) above the ground and spike the heads on the stalks.

After collection of sunflower heads, post harvesting can follow. You thresh sunflower by packing the head in an empty bag (Polythene) tie at the top and beat the bag with a strong stick. After that winnow the sunflower and pack in 90kg sacks. This should weigh approximately 50kg.

If sunflower is packed in sacks and sewn on top it's ready for market If you want to store it, storage can be done as follows.

Sunflower does not need chemical treatment. Rats and Mice can be a problem so bags should be put on a raised platform of poles as shown in the picture above. Make sure the sunflower is dry before bagging to avoid rotting and fungus attack.

Exercise:
Fill in the blanks

1. Sunflower is ready for harvest when head -_____ over and _____
    _____ and the leaves _____   _____.
2. If harvesting is delayed _____ will _____ _____
    the head and _____ eat the seeds.
3. To prevent _____ damage cut the stalks at an angle.

Question:
1. Explain what should be done after harvesting sunflower.

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Unit Summary

1. Prepare the land as early as November – December 10th.
2. Plant by December 15th to Christmas time.
3. Weed early and continuously.
4. Spike the heads upside down when they turn yellow.
5. Do not expect good yields from acid soils.
6. Do not plant in areas that become waterlogged
7. Do not plant in sunflower in heavy soils.

Appendix 4: CERP Modular Material - Module Seven (Draft):
Soil Erosion and its Control

MODULE 7 (Draft): Soil Erosion and its Control

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UNIT: CONSERVATION FARMING

LESSON 4: SOIL AND MOISTURE CONSERVATION

Soil conservation is the application of biological and mechanical measures aimed at minimizing deterioration of soil structure and soil fertility. The process involves identifying the types of erosion, the causes of soil erosion and the effects of soil erosion. At the end of this conversation you should be able to define soil erosion.

One rainy afternoon, Mwatitha and Tizione went to the river side to wash some clothes. Below is what they discussed:

Tizione   :   Today, it has been raining since morning. I don't know
                              whether our clothes will dry up after washing.

Mwatitha   :   You also, even the wind can dry our clothes. It's not only the
                              sun's heat which is needed. By the way, do you know, Tizione, why
                              we have a lot of small rivers in and around our village?

Tizione   :   I think it is because of soil erosion which is very high in our
                              area.

Mwatitha   :   You see, Tizione, I don't understand these terms of soil erosion,
                              what is soil erosion and how many types of erosion are there?

Tizione   :   Oh! Mwatitha! Soil erosion is the removal of good top soil by
                              wind or rain. So far, I know of two types of erosion.

Mwatitha   :   Can you, please, highlight more on the two types of erosion.

Tizione   :   Well, I'm not an expert to explain in detail as a scientist would.

Mwatitha   :   But you tell me the little you know about erosion; you seem to
                              have a better idea than me.

Tizione   :   The two types of soil erosion that I am familiar with are:
                              natural erosion whereby there is a gradual removal of soils by
                              rain or wind, while the other one is called accelerated erosion,
                              which is a faster removal of soils than natural conditions and
                              this process is normally caused by man.

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Mwatitha : I have now known that the only difference between the two types of erosion is that accelerated erosion is done at a faster rate than natural erosion and that the former is caused mainly by man, while natural erosion is caused by natural conditions.

Tizione : But you can learn more from an Agricultural Extension Officer who can teach you more on the causes and effects of soil erosion.

Questions:
1. Where were Mwatitha and Tizione going that afternoon?
2. Mention the difference between natural and accelerated soil erosion?
3. In simple words define soil erosion.

LESSON 5: CAUSES AND EFFECTS OF SOIL EROSION

It has been observed that soil erosion is caused by quite a number of factors as we will see in the passage below.

Mr. Haatombwe has over 1000 cattle in Kasamu village of Namwala District. Every morning, he takes his cattle for grazing along the Kafue river. Because of the large number of cattle, there is now no more grass (pasture) for cattle. Hence the cattle are always grazing within the same place. As a result of this, the cattle hooves have caused a lot of gullies (digging done by animal feet) which result in soil loosening, eventually wind and rain water wash away the top loose soil causing accelerated soil erosion. This village was earlier on given the name Kasamu because it had a lot of trees (vegetation) but heavy charcoal burning has left the Kasamu area bare (deforestation). Because the village of Kasamu is situated uphill, the loose soil is easily washed away during the rainy season.

Passage:
Masula has a 24 hectare land which he acquired from the land resettlement department. However, his yield is not good enough every year Masula goes to see the Agricultural Extension Officer to seek advice on his low productivity. Below is the discussion.

Masula : I've been cultivating more than 20 hectares of land, but I get less yield than Thokozani who cultivates only 10 hectares.

Officer : Your land, Masula, has been affected by soil erosion.

Masula : What happens when the soil has been affected by erosion?

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Officer : There's low productivity of the soil because the land area is reduced by erosion and there are usually big deposits of fertile soil where it is not required in the field, as a result there is an accessibility problem and siltation of dams and streams.

Masula : So, what should I do to have the same soil become productive again?

Officer : Practise soil conservation methods.

Masula : What is the main purpose of practising soil conservation?

Officer : In order for land to maintain sustainable productivity.

Masula : Are there any different types of soil erosion?

(Activity: Class to watch a video show on soil degradation).

Officer : Yes, there are several types of soil erosion namely:

- Sheet Erosion
- Rile Erosion
- Gully Erosion
- Wind Erosion

Soil erosion is also carried in the following processes:

1. Detachment. This takes place in processes such as
   - Rain Splashes
   - Wind
   - Tillage Operations
   - Running Water

2. Transportation. This happens with agents like:
   - Surface runoff
   - Wind
   - Tillage operations
   - Gravity
   - Rain Splashes

Appendix 4: CERP Modular Material - Module Seven (Draft): Soil Erosion and its Control

Masula   :   How can one control the types of erosion mentioned above?

Officer   :   There are many of ways controlling each type of
                           erosion. For example, Agronomic Measures: These are
                           also called cultural measures or part of biological
                           conservation measures.

They are related to soil management which is part of normal farming cultural operations. These operations are not only done for conservation but they give other benefits.

They devise their conservation mainly from control of rain splash and improvement of soil structure and soil fertility.

Questions:
1. Mention four types of erosion.
2. Why should a farmer conserve soil in the field?
3. What is soil erosion?
4. List two processes of soil erosion.

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UNIT: SOIL EROSION AND ITS CONTROL (LAND MANAGEMENT)

LESSON 1: SOIL EROSION CONTROL BY CROP COVER

Soil erosion, as you may be aware, is the washing away of the top soil either by water or by wind. You will notice that in many fields, the soils are washed away every year, especially during the rain season. Most people will watch helplessly while their soils are being washed away. Therefore, in this lesson, we will look at the different types of soil erosion control so that our soils will not be washed away at a fast rate. It is important to reduce soil erosion so that you can have a good yields.

Objectives:
In this lesson, you will be able to describe the use of crop cover in the field to control soil erosion.

Now to help us understand the erosion control through crop cover, look at the two pictures below showing two fields.

Almost bare land and there is so much erosion in this field.

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Land with more crops and there is less run off water.

One picture has scattered crops while the other picture has well spaced crops. When you look carefully, you will see that in the field with crops, the erosion is reduced while in the other picture, the erosion is so much because of very few crops.
We have seen in the picture that soil erosion can be controlled.

When you plant any crop, it is important to follow the recommended or correct spacing. Here we are talking about the space between the plants in one line and the space between the planted lines should be correct. When the spacing is correct, it means the crop leaves will be near each other and the leaves will be able to cover the ground.

Apart from the correct spacing, good seed should planted. Good seed will germinate and there would be no gaps after planting. There will be uniform germination and then the crop will cover the ground.

It is also important to feed your plants using manure or chemical fertilizer. When the crops are well fed, they grow very fast, and they are able to cover the ground quickly.

When you have enough ground cover, the soil is not exposed. It will be difficult for rain water to drop directly on the ground. Instead, it will fall on the crop. When the rain falls on the ground, the soil is moved by the water and then washed away.

In conclusion, we can say that it is good to have a good ground cover to reduce soil erosion.

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Put an X under a word which will complete the meaning of the statement below. The first has been done for you.

STATEMENT	ALWAYS	SOMETIMES	NEVER
Soil erosion control by crop cover is important.	X		
Leave the ground bare in the field without planting crops.			
Space your crops correctly.			
Use bad seed for planting.			
Apply manure to your field for fast crop growth.			

Answer the following True or False:

1. Crop cover is a form of soil erosion.
2. Soil erosion can be controlled by good crop cover.
3. Apply manure for the crop fast growing so that it quickly cover the ground in the field.
4. Use good seed so that you can have good crop cover.
5. You can use any spacing of crops you like when planting your crops.
6. When there is good ground cover, the rainy water will not fall on the ground.
7. The soil can be washed away by drops of rain falling on bare ground.

LESSON 2: CROP ROTATION

Objective:

At the end of this lesson you should be able to state the use of crop rotation in soil erosion control.

In the following conversation, we will find out how Josina, a farmer, solved her soil erosion problem. She went to visit the Extension worker Moddie to get advice. She told the Extension worker how, of late, her field was washed away and that she does not get enough harvest.

Moddie : Hallo my farmer, Josina! How are you?

Josina : I'm fine, except I'm worried about my field.

Moddie : What about your field my dear, Josina?

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Josina : I've been growing maize in my field for 15 years, but, it has now stopped giving me the great harvest it used to. The land is now bare, and all the top soil is washed away. I think I've been bewitched.

Moddie : Josina, you are supposed to rotate crops in a field to maintain the soil. This is called crop rotation; it is the practice of growing of different crops in succession on the same piece of land, with the inclusion of rest periods or fallows. Normally, the land available is divided into a number of plots, equivalent to the number of different crops in the rotation. This will allow different crops to be grown on each plot which is at a different stage in the rotation sequence.

The different crop characteristics help in preventing erosion. For example, some crops are deep rooted and others are shallow, this helps to hold the soil particles together. The crops also use better the soil nutrients. The crops mainly prevent soil erosion through crop cover.

Josina : Which crops, then, should I plant in succession?

Moddie : The recommended ones are maize, groundnuts, cotton. This means that where you grew maize, the following year, you grow groundnuts and the following year again, you grow cotton. And you can grow your maize the following year.

Josina : But then, Moddie, where will I grow my maize because I need it every year?

Moddie : Remember your piece of land can be divided into three; each year you grow one crop on each plot but the following year you change to different plots, on the same area. In this way your land will maintain the soils goodness and nutrients, and you will get good yields. Then you will find out that there is no problem at all.

Josina : I've really learnt a lot and I am going to do what you have taught me. Thank you very much, Moddie, for your advice.

Complete the following sentences:

1. Crop rotation is the practice of growing different _____ in succession on the same piece of land.

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2. Crops in rotation help to hold the _____ together.

3. The crops mainly prevent _____ _____ through crop cover.

4. When you practice crop rotation, you will maintain the soils goodness and nutrients and you will get good _____.

5. Maize, _____, _____ can be rotated on a piece of land.

LESSON 3: TIMELINESS OF PLANTING INTERCROPPING, KRAAL AND GREEN MANURE IN SOIL EROSION CONTROL
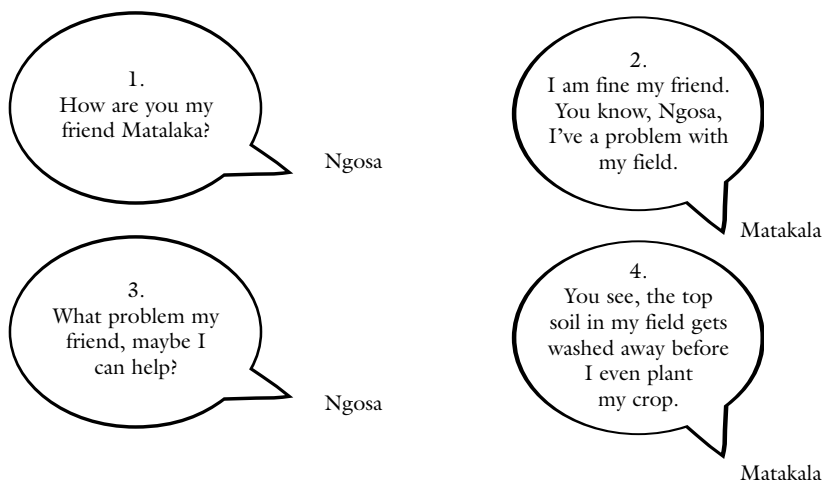
Objectives:
In this lesson, you will be able to:
• Explain the importance of timeliness in crop practices;
• Explain the importance of kraal and green manure in soil erosion control.;
• Explain the importance of intercropping in the control of soil erosion.

In the last lesson, you saw that there are so many ways of controlling erosion. Now you will look at other methods used in soil erosion control. To help you understand, read the following illustration below.

Two farmers were talking to each other. They looked at their fields and what they could do to control soil erosion. One of the farmers had some knowledge of soil erosion control because he attended an agricultural meeting in his village.

1.
How are you my
friend Matalaka?

Ngosa

2.
I am fine my friend.
You know, Ngosa,
I've a problem with
my field.

Matakala

3.
What problem my
friend, maybe I
can help?

Ngosa

4.
You see, the top
soil in my field gets
washed away before
I even plant
my crop.

Matakala

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5.
Oh! Matakala, you should have planted by now. This is christmas, what have you been doing? You should plant on time so that your crop will grow quickly and cover the ground.

Ngosa

6.
What does that have to do with the washing of top soil in my field?

Matakala

7.
When you plant in good time, you will control soil erosion and this is the washing away of top soil. The crop will cover the ground. If the ground is not covered, the rain water will fall on the ground and disturb the soil. The disturbedsoil will then bewashed away.

Ngosa

8.
But, Ngosa, does it mean that planting is the only way to control soil erosion?

Matakala

9.
No, No, my friend, I think you should start attending agricultural meetings so that you can learn more. Anyway, there are many ways of controlling soil erosion.

Ngosa

10.
Tell me, what are these methods?

Matakala

11.
One way is intercropping.

Ngosa

12.
What is intercropping?

Matakala

13.
Intercropping is the growing of two or more crops together at the same time on the same piece of land.

Ngosa

14.
How, then, will this intercropping help in the control of soil erosion?

Matakala

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15.
Intercropping helps control erosion due to improved crop cover through out the growing season.

Ngosa

16.
You see, when you intercrop you look at which crops can be grown together without problems.

Ngosa

17.
What else can I do to reduce this erosion?

Matakala

18.
These agricultural people have a lot of ways of controlling soil erosion. The officer also talked about applying manure.

The manure is in two ways. These are the manure from animals and also from the green plants.

Ngosa

19.
Green manure? I've never heard of green manure before.

Matakala

20.
The green plants, when they are ploughed into the soil, are called green manure. Usually there are special plants like sunhemp which are planted and then when they give flowers, the plant is ploughed back into the soil.

Ngosa

21.
You see these manures make the soil so strong that it is not easy for water to carry the soil away.
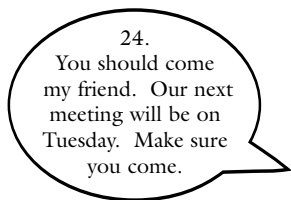
Ngosa

22.
All these ways we've talked about, my friend, they help to reduce soil erosion in our fields. They also help to keep the soil from drying up quickly. There is also another way called pegging which can be done by agricultural officers.
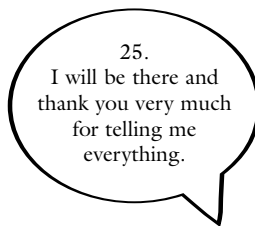
Ngosa

23.
You know, I've learnt a lot from what we have talked about. I'm going to be attending meetings from today onwards.

Matakala

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24.
You should come my friend. Our next meeting will be on Tuesday. Make sure you come.

Ngosa

25.
I will be there and thank you very much for telling me everything.

Matakala

Answer the following questions:

1. What is intercropping?
2. Why is it important to plant early?
3. What is the importance of intercropping?
4. How is intercropping done?
5. What is green manure?

LESSON 4: PROTECTING LOSS OF MOISTURE FROM THE SOIL

Protecting our soils from being washed away is very important, but it is also important to protect our soils from losing water especially in the dry season or in times of drought. When water enters the soil, it is no longer called water but moisture. In this lesson, we going to look at how we can protect the soil from losing moisture.

Objectives:

At the end of this lesson, you should be able to explain:

- How to protect the soil from losing moisture;
- The importance of protecting the soil from losing moisture.

Prevention of loss of moisture is very important because all plants depend on moisture which is found in the soil.

Now read the following conversation between Musadabwe and Nchobeni who think their friend Nzala is not doing the right thing in his field.

Musadabwe   :   Hello Nchobeni, How are you?

Nchobeni   :   I am fine thank you. It's only the weeding which is giving me problems. Have you finished weeding already.

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| Musadabwe | : | Oh yes, my wife and I did a good job. I planted a very big portion of maize this year. Bigger than last year's. My wife has been weeding and it is very clean. |

| Nchobeni | : | I am also doing the same my dear. There has been a dry spell, so I am making sure that I remove all the grass so that they can dry in the sun. This will reduce weeds but I have noticed one thing, wherever I have weeded the maize is showing signs of drying. |

| Musadabwe | : | It's because of the dry spell I am also experiencing the same and my field is very clean. I don't want my field to be like Nzala's. Have you seen what he has done to his field? |

| Nchobeni | : | Yes, I have seen him putting dry grass in his field. I think he needs help. Suppose somebody threw fire in that field, it can burn the whole crop in the field. |

| Musadabwe | : | You are very right, he can lose the crop. Let's go and see him, he has a problem, I am sure we will find him in the field covering the ground with grass. |

| Ncobeni | : | You are right, that is madness. I have never seen such a thing in my life. |

The two men walk to Nzala's field and they find him busy covering his field with dry grass.

| Nzala | : | How are you my friends? Have you already knocked off from the fields? |

| Nchobeni | : | We are very fine, thank you. |

| Musadabwe | : | We have knocked off because there are no rains and its hot to work this time. Why are you putting dry grass in the field? You are making it dirty and in case somebody put fire there the, whole crop will be burnt? |

| Nzala | : | Oh no. This is the advice I got from the extension worker last week. |

| Nchobeni | : | That you should cover your fields with dry grass? |

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Nzala	:	Yes. We learnt a lot. He said it is the only way we can protect our crop from drying up in this dry spell we are experiencing. The grass I am covering is protecting the soil from losing moisture. Come, I remove some grass so that you can see for yourself.

The three farmers remove some of the dry grass.

Nchobeni	:	Ahh, here the soil is still a little bit wet. That is why your maize is not showing any signs of drying?
Nzala	:	You are right. Instead of the sun heating the soil, it is heating the grass as a result the moisture is not lost.
Musadabwe	:	I see, but why is it important to protect moisture in the soil?
Nzala	:	Moisture in the soil is very important if you are to have a good yield. Even the fertilizers we apply, they need to dissolve in moisture which is found in the soil. Without moisture in the soil, the crop cannot utilise the fertilizers.
Nchobeni	:	I think you are doing the right thing. I will also do the same.
Musadabwe	:	Does it mean this only applies to maize fields and only in the rainy season?
Nzala	:	No, you can also use this method on vegetables as well in the dry season. We call it mulching. I was almost forgetting the most important thing. You don't cover your fields in the rain season when you are experiencing a lot of rains.
Nchobeni	:	Why?
Nzala	:	If you cover your fields when there is a lot of rains, there will be a lot of moisture in the soil and the crop will fail to utilize it all. So you will see the crop turning yellow.
Musadabwe	:	I will do the same to my field as well because we don't know how long this spell is going to take.
Nzala	:	That's good but you should remember that when the rains become normal, we will have to remove this grass from the field.

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Nchobeni   :   Again, I thought it was going to rot in there as manure?

Nzala   :   No, you might have the problem of too much moisture.

Nchobeni   :   I think I remember you mentioning that point earlier.

Nzala   :   Yes, you must start attending agricultural meetings. You will learn a lot.

Musadabwe   :   You are very right, when is the next meeting?

Nzala   :   On Thursday in the afternoon.

Nchobeni   :   We will come. Thank you very much.

Musadabwe   :   Yes, we are very thankful.

Nzala   :   You're welcome, and good bye. See you on Thursday afternoon.

Questions:
1. What is mulching?
2. Why is it important to protect the soil from losing moisture?
3. When should mulching be done?
4. Why is it not advisable to mulch in the rainy season when you are receiving good rainfall?

Write True or False on each of the sentences below:
1. Mulching is the covering of grass in the field below the crop to protect loss of moisture.
2. Mulching is only done for maize.
3. Protecting moisture from the soil is only done in the rain season.
4. Use dry grass to mulch your crop.

Appendix 5: *CERP Modular Material - Exemplars in Three Regional Languages: Bemba*

ISAMBILILO NTANSHI

Ishiwi lya Ntanshi:

Ukufuma kale na kale abalimi babomfya inshila yakupilibula umushili mu milimine yaabo ukubomfya inkasu nangu amapulao. Ni mukupelebelwa kwa bulimi bwa musango uyu e mwafuma inshila shipya ishakusungilamo umufuundo mu mushili. Muli ili isambililo twalalolesha pa bulimi bwa kusunga umushili uwafunda.

Icikope ca Ntanshi: Umulimi aleelima imputa - ii milimine yaaseeka ku balimi banoono mu Zambia

Ifyakufikilisha:

Pakuti ili isambililo lipwe mulingile:

- ukulondolola ubulimi bwa kusunga umushili,
- ukulondolola imilimine yalekalekana iyakusungilamo umushili,
- ukulanda ubusuma bwaaba mu bulimi bwa kusunga umushili.

Ifilimo:

Mu bulimi bwa kusunga umushili mwaaba ukubomfya imilimine iyalekanalekana pakusunga umutonshi no mufuundo mu mushily. Ii nshila ya kuliminamo yesha ukuceefyako imilimo ne ingapooswa pa kulima. Ukucita ifi kuti cakusha ubusomboshi bwa balimi beesu.

Ico tuloleshapo mu bulimi bwa kusunga umushili, kuusunga umushili bwino pakuti wakonkanyapo ukutupeela ifilimwa ifyafunda. Kwaaliba imilimine iyaliinga abalimi balebomfya inkasu nangu abalimi balebabomfya amapulao. Ukubomfya inama mukulima kwiitwa mu Chisungu *Animal Drought Power* ekutiila Amaka Yakutiinta Aya Nama.

Mu bulimi bwakusunga umushili abalimi balima ifilimwa ifyalekanalekana. Abalimi beebwa ukwaakanya amabala yaabo mu fiputulwa fitatu nangu fine pakuti icilimwa icaibeela

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Bemba

cingalimwa muli cila ciputulwa cila mwaka. Ii milimine mu Chisungu iitwa *Crop Rotation*, mu Cibemba kuti atuti Ukushingulusha Ifilimwa. Icilangililo icisuma ica ii milimine kuti twacisanga mu ibala lyaaba Chipo. Ba Chipo baalyakanya ibala lyaabo mu fiputulwa fitatu. Balima inyanje, ubutonge na imbalala muli uyu musango fikonkaniinemo. Mu mwaka wakubalilapo ukubomfya ii milimine ba Chipo baalimine inyanje apaali imbalala. Baalimine imbalala apaali ubutonge, elyo ubutonge apaali inyanje nga ifi caalangililwa panshi.

Umwaka wa kubalilapo

Ubutonge	Imbalala	Inyanje

Umwaka wakonkapo

Inyanje	Ubutonge	Imbalala

Ba Chipo bacita ifi cila mwaka. Inyanje shiya umwaali imbalala pantu imbalala shilasha ifyakulya fyafilimwa mu mushili ifingaba fyabunonshi ku nyanje. Mu cifulo ca mbalala, cilemba nangu icilimwa cimbi ica muli ulu lupwa lwiitwa mu Chisungu *legume* kuti lwaalimwa. Ubutonge naabubikwapo pantu bwaalikwata imishila iingila saana panshi pakwafwilisha ukutoba ulya mushili wakosa panshi.

Ifyakucita 1:
Nomba naamusambilila pa bulimi bwa kusunga umushili:
a. Lumbuleeni ifisuma fibili ifingafuma muli ubu bulimi.
b. Londololeeni ifi fintu ifikankaala ifyo ba Chipo bacita muli ii milimine ya kusunga umushili.

Mu bulimi bwa kusunga umushili, abalimi balakoseleshiwa ukukonkanyapo ukulima ifyalekanalekana mu ibala limo liine pa nshita imo iine. Abalimi banoono abengi mu Zambia baatemwa ukulima inyanje na cilemba, ifipushi, culungu ntanda (okra) elyo limolimo na ilaanda mu ibala limo liine pa nshita imo iine. Ii milimine mu Chisungu iitwa Intercropping. Ubu bulimi buukankaala pantu bwaafwilisha umushili ukusunga ififwaikwa ku filimwa. Ifilimwa ifyalekanalekana fibomfya ififwaikwa pa kukula ifyapusanapusana.

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Icikope ca cibili: Ubutonge na ilanda mwibala limo

Ubulimi bwa kusunga umushili kabili bulakoselesha abalimi ukulima imiti iyakwata ubunonshi ku balimi ba ku ncende sha mu mishi. Ii milimine yakulima imiti iitwa mu Chisungu *agro-forestry*. Muli ii milimine mwaaba imiti iingafwilisha ukubwesesha umufuundo mu mushili uwafumwike. Imiti ingabomfiwa ni *Sesbania sesban na tephrosia Vogeli* uwiitwa ubuuba mu Cibemba na imiti imbi. Ii miti ibili ilimwa mulya umwakuti umushili walifumuka (walipwa umufuundo) pa myaka itatu nangu ine ukwabula ukulimamo. Panuma ilatemwa elyo inyanje shaalimwa mwi bala liine lilya. Ii miti ibweesesha umufuundo mu mushili.

Icikope ca citatu: Tephrosia pa ibala ilyafumuka

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Nyanja

PHUNZIRO LOYAMBA

ULIMI WOTETEZA NTHAKA

Kalambulabwalo:

Kucokera kale-kale alimi akhala ali kugwiritsa nchito njira zambiri zosandulitsira nthaka pogwiritsa nchito makasu ndi mageje. Ndikucokera panjira zimenezi zosatsatiridwa bwino pomwe panazera kupeza njira zatsopano zoti nthaka isasukuluke ndiponso ikhale yaphindu. M'phunziro ili tizaona pa ulimi woteteza nthaka.

CHITHUNZI 1: Mlimi akupanga mizere- ici ndi cizolowezi ca alimi ang'ono-ang'ono mu Zambia

Malingaliro:

Pothera pa phunziro muyenera kukwanitsa izi:

(a) Kufotokoza ulimi woteteza nthaka.

(b) Kufotokoza njira zosiyana-siyana za ulimi woteteza nthaka.

(c) Kufotokoza phindu lace la ulimi woteteza nthaka.

Zamkati:

Ulimi woteteza nthaka ndi malimidwe ogwiritsa nchito njira za ulimi zosiyana-siyana ndi lingo losunga cinyontho ndi manyowa m'nthaka. Ndiponso umayesetsa kucepetsa nchito ndi nthawi yokonza munda. Kucita zimenezi kutha kupititsa patsogolo ndi kuculukitsa zokolola za alimi athu.

Lingo lathu mu ulimi woteteza nthaka ndi kuyesetsa kuti nthaka ikhale yaphindu zedi. Pali zocita zomwe zimayenera alimi ogwiritsa nchito makhasu ndi aja ogwiritsa nchito zifuyo mwina titi ziweto. Kugwiritsa nchito ziweto kumachedwa kuti mphamvu yocokera kuziweto.

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Nyanja

Mu ulimi woteteza nthaka alimi amabyala mbeu zosiyana-siyana. Alimi amauzidwa kugawa minda yawo muzigawo zitatu pena zinai kotero kuti athe kubyala mbeu zosiyana-siyana pacigawo ciriconse caka ndi caka. Ulimi wotere umachedwa, 'kubyala mbeu mwakasintha-sintha.' Citsanzo cabwino cakubyala mbeu mwakasintha-sintha ndi munda wa bambo Chipo. Bambowa agawa munda wao mzigawo zitatu. Alima cimanga, thonje ndi mteza motere. Nthawi yoyamba bambo Chipo anabyala cimanga pomwe panali mteza. Analima mteza pomwe panali thonje ndipo analima thonje pamene panali cimanga. Izi zaonetsedwa mu cisonyezo ciri munsimu.

CAKA COYAMBA

Thonje	Mteza	Cimanga

CAKA CACIWIRI

Cimanga	Thonje	Mteza

Bambo Chipo amalondola mndandanda uyu caka ndi caka. Cimanga cimasatira mteza cifukwa mteza umasiya manyowa m'nthaka amene ali aphindu kucimanga. M'malo mwa mteza, kayera kapena mbeu ili yonse yomwe ili mgulu yazimenezi ingabyalidwe. Thonje yaikidwapo cifukwa ili ndi mizyu imene ipita patali mnthaka ndipo ithandiza kuswa nthaka yolimba.

COCITA COYAMBA:

Tsopano mwaphunzira zakuti ulimi woteteza nthaka ndi ciyani:

(a) Chulani zinthu ziwiri zomwe ziri za phindu ya ulimi umenewu.

(b) Fotokozani zocita zikulu-zikulu mu ulimi woteteza nthaka zomwe bambo Chipo acita.

Ulimi woteteza nthaka ulimbikitsa alimi kuti azibyala mbeu zosiyana-siyana m'munda umodzi mu nyengo imodzinso. Alimi ang'ono-ang'ono mu Zambia amakonda kubyala cimanga ndi kayera, maungu ndi therere ndipo nthawi zina amabyala ndi nyemba. Mtundu wa ulimi umenewu umachedwa 'ulimi wosanganiza mbeu.' Ulimi wosakaniza mbeu ndi wofunika kwambiri cifukwa umathandiza kubwezera manyowa m'nthaka. Mbeu zosiyana-siyana zimagwiritsa nchito manyowa osiyananso m'munda.

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CITHUNZI 2: Kubyala pamodzi thonje ndi nyemba m'munda umodzi.

Ulimi woteteza nthaka umalimbikitsanso kubyala mitengo imene ili ndi phindu kumlimi ndi anthu ozungulira. Ulimi wa mtundu umenewu umachedwa 'ulimi wa mitengo'. Mu ulimi wamitengo, muli mitengo yomwe imathandiza kubwezera manyowa kunthaka yathu imene inasukuluka. Mitengo yomwe ingagwiritsidwe nchito mu ulimi umenewu ndi sesibaniya-sesibani, tefuloziya-vojeri nthawi zina amuthana kuti 'ububa' ndi mitengo ina. Mitengo imeneyi imabyalidwa m'malo momwe nthaka inasukuluka, kwa zaka zitatu kosaisokoneza. Patapita nthawiyo mitengo imeneyi imadulidwa ndipo cimanga cimabyalidwa pamalo amanewa. Mitengo imeneyi imabwezera manyowa m'nthaka.

CITHUNZI 3: Tefuloziya-vojeri yabyalidwa pamunda kuti ibwezere manyowa m'nthaka.

COCITA 2:
Mogwiritsa nchito mabuku anu yankhani mafunso osatirawa poika mau m'malo momwe mwasiidwa.

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1. Cizolowezi cobyala mbeu m'malo yomwe yagawidwa ndipo kusintha caka cotsatira kumachedwa _____.

2. Pamene mbeu zosiyana-siyana zibyalidwa m'munda umodzi kuti ziphindulirane, cimeneci cimachedwa _____.

3. Cizolowezi cobyala mitengo m'munda cichedwa _____.

4. Mitengo imabyalidwa m'munda kuti tiwonjezere _____.

5. Mitengo imene imabyalidwa ndi _____.

Pali mitundu ina yamalimidwe mu ulimi woteteza nthaka.

Pamene njira zaulimi zosiyana-siyana zitsatiridwa mu ulimi woteteza nthaka, phindu lake limakhala lopambana ulimi wacimulimira woti poti makolo athu ankalima tere mmenemu. Pokhala kuti ulimi umenewu sulira usanduliza nthaka tisanabyale mbeu, alimi amakhala ndi danga yobyala mbeu malo aakulu cifukwa amaika nzeru kukonzekera malo obyalapo mbeu. Ici, cimacepetsa kuononga ndalama ndi nthawi.

Mu ulimi woteteza nthaka alimi amauzidwa kukonza munda atangosiriza kukolola mbeu zawo. Pocita zimenezi amakhala ndi mpata wogwira bwino nchito yokonza minda yawo. Nchitoyi imagawidwa mu miyezi m'malo moicita nthawi imodzi pamene ili yofunikira kwambiri ndiponso yamtengo kwambiri. Ngati munda wakonzedwa msanga mbeu zimabyalidwa pomwe mvula iyamba kugwa.

Malo pena maenje obyalapo mbeu mu ulimi woteteza nthaka zimathandiza kusunga madzi pamalo amodzi. Ici cimazetsa kuti mbeu zimere msanga.

Mbeu zimabyalidwa mmaenje amodzi-modzi kuti feteleza yomwe sinagwiritsidwe nchito nyengo yathayo ingagwiritsidwe nchito ndi mbeu imene yabzalidwa tsopano. Kutero feteleza imagwiritsidwa nchito moyenera ndi mbeu zina.

Mu ulimi woteteza nthaka, malo omwe ali pakati pamizere, nthaka siigaulidwa. Ndiponso kupalira kumacitika pa nthawi yace pamene udzu usanakhale ndi njere. Popalira pa nthawi yace unyinji waudzu umacepetsedwa.

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ZOCITA 3:

Tsono pokhala kuti mwaphunzira zambiri za ulimi woteteza nthaka, yankhani mafunso awiri osatira m'mabuku anu.

1. Kodi phindu lopezeka mu ulimi woteteza nthaka ndi lotani?
2. Cifukwa ninji alimi amakakamizidwa kubyala mbeu zawo m'malo amodzi caka ndi caka?

PHUNZIRO LACIWIRI

KASAMALIDWE KAZOKHALIRA M'MUNDA MUTAKOLOLA
Kalambulabwalo:

Kutentha zokhalira zambeu mutatha kukolola kapena pososa munda muli pafupi kubyala mbeu zina, ndi cizolowezi ca alimi. Anthu ena amatentha zokhalira zimenezi cifukwa cakuti afuna kuti m'munda muyere pamene ena atero cifukwa afuna kuti akumbe ndi kupha mbewa mosabvuta.

CITHUNZI 4: Mlimi ali kutentha zokhalira zambeu kukonzekera kubyala zina
Mu ulimi woteteza nthaka alimi amakakamizidwa kusatentha zosala zambeu. Mphunziro ili mudzaphunzira kasamalidwe kazosala zambeu.

Malingaliro:

pomaliza paphunziroli, muyenera;

(1) Kufotokoza kuti zosalira zambeu ndi ciyani.
(2) Kufotokoza momwe mungasamalire zokhalira zambeu.

Zamkati:

Zokhalira zambeu ndi zija zomwe zimakhalira ngati mwasiriza kukolola. Zimenezi zingakhale mapesi yacimanga, zicenchere za nshawa, kayera ndi zina zotere. Mutamaliza kukolola zokhalira zambeu zimapanga munda kusaoneka bwino. Ici ndi cifukwa cace anthu ambiri amazitentha.

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CITHUNZI 5: Munda wozala ndi zokhalira zambeu

Kusiya kwa zokhalira zambeu mmunda ndi kofunikira kwambiri cifukwa caphindu lomwe zimaonjezera kunthaka. Nthawi ya cirimwe kapena titi yadzuwa, kumatentha kwambiri ndiponso nthaka imapsya ndi kuuma kwambiri. Ngati nthaka yapsya ndi kuuma kwambiri, conde cimaonongeka ndiponso tizirombo tina tofunikira m'nthaka timafa. Ngati munda uli ndi zokhalira zambeu, kutentha kwa nthaka kumacepekera.

Mvula yoyamba mu Zambia kawiri-kawiri imakhala yamphamvu kwambiri kotero kuti nthawi zina nthaka imakokoloka. Koma ngati nthaka ndi yotetezedwa ndi zokhalira za mbeu mphamvu yamvula imacepa ndipo kukokoloka kwa nthaka kumakhala kulibe.

Pamene munda uli ndi zokhalira zambeu, mvula imalowa m'nthaka monyakamira ndiponso mosaononga.

Mwina ngati kuli cilala pena ng'amba zosalira zambeu zimathandiza kuti madzi asacoke m'nthaka. Pokhala kuti nthaka ndi yotetezedwa, mphamvu yadzuwa imacinjirizidwa kulowa m'nthaka. M'njira imeneyi, mbeu zimatetezedwa kukuuma.

Popita nthawi, ciswe ndi tizirombo tina timadya kapena kuoletsa zokhalirazo ndi kuzisakaniza kuti nthaka ikhale yabwino ndi manyowa.

Kasamalidwe kazosalira zambeu kayenera kuyamba nthawi yokolola isanafike. Malo ozungulira munda alimidwe bwino ndi khasu. Anthu ena amagwiritsa nchito ziweto kuseula malowa. Malo oseulidwa akhale malipande awiri mwina atatu muufupi kuzungulira munda. Malo amenewa amachedwa 'cizimya moto'. Anthu amene ali ndi ziweto sayenera kusiliziratu kusosa minda yawo. Zokhalira m'munda ndi zabwinonso ku ziweto.

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Nyaja

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Tonga

CIIYO 1

BULIMI BWA KUKWABILILA MBOLEZI
MATALISYO:

Kuzwa kaindi-a kaindi balimi babelesya maamba aa maanza aa maamba aa hombe kupindamuna bulongo ciindi no balima.   Bulimi bwa ku pindamuna bulongo mbubwakaletelezya mizeezo ya kuyandaula nzila ya kuti busani antela mbolezi mubulongo kabuta zwisyigwi. Muciiyo eeci tulaiya mbotukonzya kukwabilila busani mubulongo.

Cifwanikiso 1:Mulimi ubamba mibundu – bulimi bucitwa kapati abalimi basyoonto syoonto mu Zambia.

Mbaakani:

Mwamana kwiiya ciiyo eeci, mulakonzya:

- Kupandulula bulimi bwa kukwabilila mbolezi;
- Kupandulula nzila zyaandeene zikwabilizya busani mubulongo;
- Kupandulula bubotu bwa kukwabilila busani mubulongo.

Zyilimoomu:

Bulimi bwa kukwabilila mbolezi ninzila zinji zibelesyegwa mubulimi zya bukwabilizi buubya-ubya bulimi a kucesya milimo yakulima. Bulimi bwa bukwabilizi buletela mpindu mpati kapati ku balimi.

Mbaakani mu bulimi bwa bukwabilizi njaku kwabilila bulongo kutegwa kabupa butebuzi bunji bupati. Kuli nzila zyabulimi zyeelela bantu balimya maamba aamaanza a zyeelela balimya banyama. Kubelesya banyama mubulimi kwiitwa kuti kulimya Banyama.

Mubulimi bwa bu kwabilizi, balimi balalima zisyango zyaandeene andeene.   Balimi balalaigwa kuti kaba cimbula myuunda yabo muzibeela zikwana zyotatwe antela zyone

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Tonga

kutegwa zisyango zyaandeene andeene kazisyangwa a cibeela cili coonse amwaka- amwaka. Bulimi bwa musyobo oyu bwiitwa kuti cisiyanizyo ca mbuto. Mukozyanyo mubotu wa cisiyanizyo ca mbuto ujanika mu muunda wa Ba Chipo. Ba Chipo bakawaabanya muunda wabo muzibeela zyotatwe. Balalima mapopwe, buluba a nyemu mu kutobelezya oobu. Mumwaka wakusaanguna bakalima mapopwe mwakalimidwe nyemu mumwaka ookainda. Omuya mwakalimidwe buluba bakalima nyemu kakuli muya mwakalimidwe mapopwe bakalima buluba. Bulimi bwa cisiyanizyo-mbuto bulatondezegwa ansi aawa.

Mwaka wa ku saanguna

Buluba	Nyemu	Mapopwe

Mapopwe	Buluba	Nyemu

Ba Chipo balaitobelezya nzila ya bulimi eeyi amwaka-amwaka. Mapopwe a tobelezya nyemu a kaambo kakuti nyemu zisiya busani buli kabotu mubulongo bwalo bwaakomezya kabotu Mapopwe. Kuti ka kunyina nyemu, nyabo nokuba cisyango cili coonse cibikka mbolezi kuzyila kumiyanda cilakonzya kusyangwa. Buluba abwalo bwabikkwa muzisyango eezi a kaambo kakuti bulaa miyanda yuunka ansi kapati, yalo igwasilizya kwaandaula nyika njumu ili ansi.

Cakucita 1:

Ono waiya bulimi bwa kukwabilila mbolezi nco caamba:

a   Lemba zintu zyobilo zya bubotu bwa bulimi oobu.

b   Pandulula mulimo mupati Chipo ngwa cita mu bulimi bwa kukwabilila mbolezi.

Bulimi bwa kukwabilila mbolezi alimwi bulakulwaizya ba limi kuti kabalima zisyango zyaandeene-andeene mu muunda omwe a ciindi comwe. Balimi ba syoonto-syoonto mu Zambia balayandisisya kapati kuvwelenganya mapopwe a cileemba, zitende, a muteezi wa bana alimwi aabona a bunyangu. Bulimi bwa musyobo ooyu bwiitwa kuti civwele-mbuto. Civwele-mbuto ncibotu kapati nkaambo cigwasilizya kuti bulongo kabuli a busani ciindi coonse. Zisyango zyaandeene-andeene zibelesya busani bwaandeene-andeene mu muunda.

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Cifwanikiso 2: Buluba a nyabo zilimidwe antoomwe.

Bulimi bwa kukwabilila mbolezi alimwi bulakulwaizya kusyanga zisamu zyalo zilaampindu zinjaanji kumulimi a kubantu boonse ba kumunzi. Bulimi bwamusyobo ooyu busyangwa a zisamu bwiitwa kuti mbuto-masamu. Mu mbuto-Masamu, muli zisamu zimwi zyalo zikonzya kubikka busani mu bulongo ibwaka sampuka. Zisamu zikonzya kubelesegwa munzila eyi kuli sesbania sesban, tephrosia vogeli walo uvwula kwiitwa kuti "ububa" a zisamu zimwi. Sesbania sesban a tephrosia vogeli zilasyangwa mubulongo bwaka sampuka kwa myaka yotatwe antela yone kaita gonkwi pe. Yainda myaka eyi, zisamu ezi zilagonkwa a kusyanga mapopwe mu muunda nguwena ooyu. Zisamu ezi zyaambwa waawa zilajosya busani mubulongo.

Cifwanikiso 3: Tephrosia usyangidwe mu muunda kuti ujosye busani.

Appendix 5: CERP Modular Material - Exemplars in Three Regional Languages: Tonga

Cakucita 2:

Ingula mibuzyo ili ansi awa kwiinda mukubikka bbala litako mucibaka.

1. Bulimi bwa kusyanga zisyango zyaandeene-andeene a mwaka-amwaka muzibaka zyakaabanizigwa mu muunda bwiitwa kuti _____.

2. Bulimi bwa kusyanga zisyango zyaandeene-andeene antoomwe mu muunda bwiitwa kuti _____.

3. Bulimi bwa kusyangilizya a zisamu bwiitwa kuti _____.

4. Zisamu zilasyangilizigwa kutegwa zibekke _____ mu bulongo.

5. Akati ka zisamu zivwula kusyangilisigwa kuli _____.

Kuli bulimi bunjaanji bucitwa mu bulimi bwa kukwabilila mbolezi. Bulimi busiyene siyene bucitwa mu bulimi bwa bu kwabilizi bulijisi mpindu inji kapati, aboobo ncenci ceeco ili kabotu kwiinda bulimi bwamazuba oonse bwa kupindamuna bulongo.

Akaambo kakuti mubulimi bwa bukwabilizi taku-pindamunwi bulongo mu muunda woonse nemutaninga syanga, balimi balakonzya kusyanga zibeela zipati kapati a kaambo kakuti basya buyo tukomba musyangwa. Eeci cipa kuta sofwaazya mali.

Mu bulimi bwa kukwabilila, balimi bala kulaizigwa kuti kabatalika kubamba myuunda yabo mboba maniinzyila buyo kutebula. Kulibambila kuli kabotu nkaambo ciindi ncilamfu cakubamba- bamba muunda. Uutalikizya kulibambila ula beleka myezi minjaanji milimo yakwe ku muunda kwiindana a yuulya utalika muciindi milimo neifwaankene a kudula. Kuti naa kumuunda kwabambwa ca kufwambaana, akwalo kusyanga kulakonzya kucitwa mboya tangila buyo mvwula.

Muzikomba musyangwa mu bulimi bwa kukwabilila mbolezi mupa kuti maanzi aa mvwula yakusaanguna kaa kkalikila aali mbuto. Eci cipa kuti mbuto imene, antela izwe cakufwambaana.

Amwaka amwaka muzikomba zyoonya momusyangwa mbuto kutegwa camutunzya, ulya walo wataka-maninina kubelesegwa a mbuto ya katebulwa, a belesegwe a mbuto mpya. Kusyanga kwa boobu kuli kabotu nkaambo camutunzya watakabeleka ulabelesegwa a mbuto mpya.

Mu bulimi bwa kukwabilila, busena buli akati a mindando ya mbuto tabulimwa pe alimwi kulimina kulacitwa lusyanga kalutaninga zyala nseke. A kaambo kakuti kulimina kulacitwa muciindi cibotu, lusyanga mu muunda lulaceya.

Appendix 6: Report of the CERP Dissemination Conference - 3rd September 2002 (Lilayi Lodge, Lusaka)

1. **Conference Programme**

- Opening Remarks: Lucy Kolala
- Objectives of the Conference: Dickson Mwansa
- Objectives of the CERP Project: Richard Siaciwena and David Pye
- Overview of implementation process.
- Experiences from the Field: Panel 1 (Writers)
                                       Panel 2 (Instructors)
                                       Panel 3 (Learners)
- Observations from the NFER: Joan Stephenson
- The Way Forward: Group Discussion.
- Closing Remarks   Richard Siaciwena and David Pye

2. **Delegate list**

Prisca Simukwanya	Central Province Community Development Officer
Denny Maluti	CERP Operations Manager-Kabwe Centre
Saul Zulu	Lecturer, UNZA
Chemist Tembo	Learner, Katete
David Pye	CERP UK Director, NFER
Joan Stephenson	CERP UK Consultant, NFER
Vitalicy Chifwepa	Senior Lecturer, UNZA
Margaret Mtonga	Learner, Katete
Ester Phiri	Learner, Katete
Astridah Z. Ngoma	Acting Eastern Province Community Development Officer
Margaret Mwanza	CERP Operations Manager, Katete
Getrude Muwimi	CERP Operations Manager, Monze
Bray Malambo	Module Deliverer, Monze
Lucy Kolala	Acting Assistant Director, Ministry of Community Development
E.M. Katowezhi	Deputy Director, National Agricultural Information Service (NAIS)
Eunice Lungu	Module Deliverer, Kabwe.
Nanyanwe Emelda	District Livestock Officer & CERP Material Developer
Mukonde S Mweemba	NAIS Radio Producer, Central Province
Abram Banda	Material Developer
Sitolo Sakala	Learner, Katete
Fred G. Libindo	Continuing Education Officer
Lackson Sakala	Material Deliverer, Katete
Dickson Mwansa	Dean, School of Education, UNZA
Richard Siaciwena	CERP Zambian Director, UNZA

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Alexander Museshyo	4th Year Student, School of Education, UNZA
Mwaka Sikombe	4th Year Student, School of Education, UNZA

3. **Conference Introduction**

The conference began at 9.50am and was chaired by Professor Siaciwena who welcomed participants to the conference and introduced UK CERP team members, Joan Stephenson and David Pye. The chair also introduced Lucy Kolala who was representing the Permanent Secretary of the Ministry of Community Development and Social Services (Republic of Zambia). Participants were later given the opportunity to introduce themselves.

4. **Opening Remarks**

Lucy Kolala gave the opening remarks on behalf of the Permanent Secretary. She thanked all conference participants and stated that the Ministry was very grateful for their efforts in the CERP project. She described how the CERP Project had enhanced the efforts of the Ministry (under its adult literacy programme), which began in 1970. She added that she was hopeful that CERP module material would enhance the educational and living standards of rural people in the three regional centres (Kabwe, Katete and Monze).

5. **Conference Objectives**

Dickson Mwansa outlined the objectives of the conference. These were:

• To share the experiences of the CERP Project.
• To present preliminary information on the implementation of CERP.
• To decide on the way forward of CERP.

6. **CERP context and background**

Richard Siaciwena and David Pye outlined the background and objectives of the CERP project.

Prof. Siacewena stated that CERP was a research and development project which was designed partly to apply and extend the findings of the DFID research project: *Case Studies of Non-formal Education by Distance and Open Learning*. He stated that the University of Zambia, (partner in the CERP Project) contributed to this study in 1998/99.

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A key finding of the report of the DfID research project was that there was low use of high-tech Information and Communication Technologies (ICTs) in non-formal education and that radio was the principal *'affordable technology'*.

The development and testing of new cost-effective educational strategies for rural communities, using different forms of ICT in areas where access is becoming available, provided the context for CERP. The intention was to enable poorer rural communities to benefit from a wide range of technology. This would enable communities to leapfrog what might previously have been seen to be necessary stages in development of educational provision and the development of a body of knowledge in a community.

This project sought to test out and extend the use of ICT in non-formal educational by building on the Commonwealth of Learning Literacy (COLLIT) Project in which UNZA was involved, in collaboration with the Ministry of Community Development and Social Services.

7. **CERP objectives**

The key objectives of the project were:

- To develop two educational modules (covering basic education but taught through the context of health education and farming practices) which would be delivered by audio/ radio, and web-based means.
- To evaluate these modules in terms of delivery for community based learning and highlighting a range of broad education outcomes for participants.
- To induct younger colleagues into research and development activities.

The key research questions are:

- To what extent and in what ways can lower-tech educational modules identified in the case studies be combined with and extended appropriately using more advanced technology?
- Can higher-tech contribute cost-effectively to sustainable capacity building in local communities through supporting new approaches to learning and building on provision for formal education?
- What personal outcomes are there for individuals involved in the communities taking part in the project e.g. desire for further education, improved of life change, improved productivity?

David Pye gave some background information on the NFER and how the CERP Project linked to earlier research that had been completed by the Foundation. He stated that

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research carried out in the UK focusing on the use of new technologies, suggested that ICT use could support learning and develop individual capacity but that it could also raise a series of issues and challenges.

8. **Overview of the implementation of CERP**

Dickson Mwansa gave a brief overview of the development of CERP. He stated that the major essence of this project was capacity building and training, and that this was completed in a number of ways, including:

- Training of young people.
- Needs Assessment.
- Material production – materials were developed as part of the CERP Project. Development activity involved writing, editing, content analysis, inclusion of illustrations, and translations. From all these activities, seven modules were developed (two of which are in their final versions and five are in draft form).
- Distribution of materials – this involved sending of completed modules to the centres. Electronic transfer of these modules was not successful because centres had problems of connectivity and it generally took a lot of time to download the documents even where connectivity was not a problem. This implied that centre managers had to physically collect the documents from Lusaka.
- Training of CERP officers from the three regional centres.
- Training of module deliverers by module developers (CERP Field Officers).

Prof. Mwansa stated that the major issue for CERP was the distribution of the materials.
Vitalicy Chifwepa demonstrated how new technology was used in the CERP Project, and discussed issues relating to this use. He described how there was a CERP listserv that was hosted by yahoo. Another aspect in the ICT component was a website that was created: http://www.unza.zm/apina-copy(1)/index.html/. This site contained background information, project resources and had a section including materials translated into local languages. Vitalicy Chifwepa, Mwaka Sikombe and Alex Museshyo maintained the site. A CD-ROM of CERP modular material was also created.

Other ICT related activity included training module developers and deliverers on the use of the ICTs that were developed as part of CERP. It was felt that the whole process of developing the use of ICTs in the CERP context had provided a series of issues and challenges, especially with regard to the translation of modules from English to the three local languages.

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Mr. Katowezhi outlined how the National Agricultural Information Service (NAIS) was involved in the CERP project. He had acted as a content analyst for the agriculture modules. He stated that the modules were developed in a short period and that perhaps more time was needed to perfect these modules. Mr. Katowezhi appealed to sponsors to consider stating that the project had recently started and that there was need to see the longer-term impact of CERP modules in the field (especially in agriculture). He added that the CERP materials should have been developed incrementally, and not attempted all at once.

Prisca Simukwanya (Provincial Community Development Officer) stated that the demand for the CERP Agriculture related modules was overwhelming in Kabwe, and she described how 170 copies of the Conservation Farming Module had been distributed through District Agricultural Coordinators (DACOs) in Central province. The module has also been distributed to the Programme Against Malnutrition (PAM) officers, and an NGO has incorporated CERP material into its activity programmes.

9. **Experiences from the Field**

9.1 **Panel 1 – Writers (Module Developers)**
Mukondo Mweebe, Nanyanwe Emalda, Margaret Mwanza and Eunice Lungu, (CERP module developers from Kabwe and Katete) all agreed that the writing of materials was a very challenging task. This activity needed a lot of time, especially when developing materials for those learners who could not read at all. The writers described how there was a need to continue to assess the impact of the CERP materials. This was felt to be especially important, in terms of the farmers who are using the modules for the first time, this farming season. They asked David Pye and Joan Stephenson for further web funding to continue CERP activity.

They stated that time was a limiting factor in material writing. The other limiting factor was that some stakeholders (such as the Ministry of Health) were challenging to work with.

The writers also appealed for some certification for the work that they were involved in. Prof. Mwansa said that he would consider this and that it was not too late and some form of certificate could be designed and distributed.

9.2 **Panel 2 – Instructors (Module Deliverers)**
Instructors involved were Bray Malambo, Sitolo Sakala and Denny Maluti. The instructors stated that, from their experience in the field, the CERP materials were easy to use for both learners and deliverers. They added that they have been working with Agriculture Extension Officers in this area to conduct classes using the CERP Conservation Farming material. They also mentioned that the demand for this material was very high in their areas.

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David Pye asked the module deliverers what they thought was the most appropriate method of teaching learners. They responded was that it was printed media that seemed most appealing to learners. A video was shown demonstrating how classes were conducted in Katete.

Joan Stephenson observed that the objectives of the CERP Modules were not explicit – were they to teach learners how to read and write or to teach them the information contained in the modules? The response to this from module deliverers was that the modules were being used for both purposes, as in teaching learners how to read as well as teaching them to understand and apply information contained in the modules.

9.3   **Panel 3 – Learners**
This panel comprised of Stolo Phiri, Chemist Tembo, Ester Phiri and Margaret Mtonga. Mr. Phiri stated that CERP material was very valuable to the local people who were involved. Mr. Tembo (a farmer in Katete) stated that he had learnt a lot from CERP material, particularly the Conservation Farming Module. He did observe, however, that illustrations in the modules were not very clear, as they were blurred. He appealed for continued funding of this project, stating that the farmers had just stated using the modules and therefore their was need to see the results after they have planted their crops.

Ms. Phiri informed delegates that she and other people involved in the project had learnt much from CERP material. She stated that both young and older learners were now not only able to read and write, but that they were also able learning about HIV/AIDS from the Health Education Module.

The learners concluded by noting that the translations (from English to their local language) were not very well done. They suggested that translations should be redone to make them more user-friendly and meaningful to local people. The concern was that some of the language used was that of the urban community or the material translators rather than that used in rural communities.

The learners were asked which of the media they found easy to use. Mr. and Mrs. Phiri stated that they found it easier to learn using a computer while Mr. Tembo and Ms. Mtonga stated that printed materials were better for them.

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10.   **Future Development of CERP**

This was a plenary session and participants were divided into three groups to discuss:

- Sustainability of CERP Project activity;
- Linkage with other organisations;
- Key lessons learnt from CERP.

The groups came up with a series of recommendations (see below).

10.1 **Sustainability**

The groups suggested the following relating to encouraging the sustainability of CERP activity:

- To seek government assistance and support through HIPC funds;
- To seek external assistance from various agencies such as DfID;
- To lobby for support from NGOs and Commercial Banks;
- To seek assistance from organisations that are involved in poverty reduction such as Zambia Social Investment Fund (ZAMSIF) and Micro-Finance;
- To encourage regional centres to continue to develop income generating activities such as marketing materials to other organisations and stakeholders, such as the Programme Against Malnutrition (PAM) and other organisations involved in community development.

10.2 **Linkage with other organizations**

It was agreed that regional centres should link with organisation such as World Vision, PAM, the Ministry of Health, Ministry of Education (through continuing education) and Children In Distress (CINDI), which provides literacy education. The groups also agreed that there was need for centres to work with Agricultural Extension Officers, Programme for Urban Self Help (PUSH) representatives and with the Conservation League of the United States of America (CLUSA).

It was also suggested and agreed that all these linkages should be coordinated by a committee based in one of the regional centres.

10.3 **Key lessons learnt from CERP**

It was agreed that the CERP project was too ambitious because it tackled too many activities in a short period and that the use of new technologies, such as computers, was a challenge in itself. It was suggested that:

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- There was need to have detailed and phased programmes with reviews and deadlines;
- There was need to have resources in place for each phase;
- Everyone involved in the project must be present from the beginning and at all stages;
- Activities should be manageable and that training people for an activity must be done when resources are available;
- Learners should have the opportunity to put into practice what they have learnt, immediately;
- There was a need to have detailed criteria for the selection of staff at a regional level;
- There should be regular monitoring of development by project directors;
- There is a need for improved on-line support from the centre;
- An administrative assistant should be employed to support project management activity.

11. **Observations from NFER**

Joan Stephenson and David Pye thanked all the delegates for their contributions to the project. They noted that they would present their final report of the CERP project to their government. They observed that the process of implementing the project was slower than they had expected.

Ms. Stephenson also stated that ICTs were a good component of the project, but owing to problems such as lack of electricity and difficulties in connectivity, the project could have been over ambitious in this respect.

12. **Closing Remarks**

David Pye thanked everyone for their effort in the project and stated that there was a real need for delegates to give serious consideration to the sustainability of CERP related activity. Richard Siaciwena also thanked everyone for their efforts, especially colleagues from the UK, and stated that currently, CERP activity could be sustained, using the COLLIT infrastructure to support this. This development could begin before David Pye and Joan Stephenson had completed their report and submitted it to the sponsor.

The conference was officially closed at 4.50pm.

Appendix 7: Report on the visit of Vitalicy Chifwepa to the United Kingdom (July 2002)

1.   **Introduction**

A visit to the United Kingdom was organised for Vitalicy Chifwepa. This visit had a number of outcomes including:

1. Practical experience of the development of interactive CD-ROM and web materials;
2. Meetings with leading experts in the filed involved in work similar in scope to CERP activity. This is important for continuity and consultation both during and after the CERP project;
3. The development of ideas and approaches to training that will support the cascading of skills gained during the UK visit to other members of the CERP ICT team (in Zambia).

David Pye and Joan Stephenson made all the arrangements for the visit.

Meetings took place with the following people:

1. Dominic Newbould, The Open University.
2. Dr Tom Power (The Learning Schools Programme), The Open University.
3. Moses Makgato (a PhD Student on teacher education from South Africa who was visiting the Learning Schools Programme at the Open University).
4. Andrea Raiker of De Montfort University, Bedford.
5. Mr. A Puilputt of De Montfort University, Bedford.
6. Eddie McCall of Claverham Community College, East Sussex.
7. Tim Denning, Keele University.

2.   **The visits**

2.1   **The Open University**

Discussion at the Open University focused on the international dimension of distance learning, as well as the development of interactive CD-ROMS (used in the Learning Schools Programme). In this programme Curricula and CD-ROMS have been developed to integrate the use Information Technology into teaching. Various curricula and CD-ROMS were demonstrated, in a wide variety of subjects. Of particular interest was the process of development of content and the process of writing the CD-ROMS themselves. This highlighted the need for extensive teamworking between content developers and the technology specialists. These teamwork approaches to material development and production are very important as they ensure that the end product (the CD-ROMS) are created with the appropriate pedagogical issues having been considered and discussed.

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The Open University is involved in a similar project to CERP in South Africa and Egypt. This project is focused on natural resource management, and texts have been produced to aid the teaching of this subject. Though different in subject matter and scope to the CERP project, the ways in which the materials have been produced (the use of text and pictures for example) do have resonance with those materials coming from the CERP Project.

The meeting with Moses Makgato of Technikon Northern Gauteng, South Africa, was helpful. I shared some experiences in the use of Information technology for distance and adult learners.

2.2   De Montfort University

Like the Open University, De Montfort University is involved in the production of media for literacy and language teachers. There was a demonstration of the use of some software for that purpose. The key issue here was what could be done using new technologies and how to integrate these new technologies into teaching and learning activity. The people that I met were very supportive of the CERP Project, and they shared copies of the software that they use (Textease and Progression) in phonics material development. This software will prove very useful in the further development of CERP materials.

2.3   Claverham Community College

At Claverham, I met the Principal and a number of teachers who discussed their views on the integration of ICT in teaching. Though some departments have integrated IT in teaching (The Art Department for example), some had reservations as to the extent to which new technologies were making an impact on the learning of pupils. A real concern was that the use of ICT could hide a lack of knowledge on the part of learners, by for example, enabling pupils to produce material that looked good but had little substance. The key issue in this context was the need to be wary of how far ICT could be used in the promotion of learning. Other staff added that it was difficult for some people to appreciate the impact that new technologies could have as they had not used them in their learning experiences. For these people, it was felt that it would take some time to convince them of the important role that ICT had to play in teaching and learning.

2.4   Keele University

At Keele, I met Tim Denning, who is an expert in the use and production of teaching media. He emphasised that ICT has been simplified to such an extent that the most important issue was not the production of the material but the pedagogic approaches taken to its delivery. He demonstrated some of the work he had produced and how to use some of the software to produce them. Within less than five minutes, I was able to understand how to produce simple lessons using animations and integrating images and sound clips. Although I would need to purchase the software to do this in Zambia, this was a good final visit as it brought together everything I had seen over the last week or so. The visit concluded on a note of

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'how it could be done' with a practical demonstration. Tim Denning provided me with the contacts of suppliers from which the relevant software could be purchased.

3.   **Conclusion**

My visit to the United Kingdom was very educative. I was able to see various uses of ICT and the production of CD-ROMS. Though I was not able to see the actual production of the CD-ROMS I did visit institutions that produced them and was able to discuss the principles behind their production and use.

The ideas and knowledge that I gained enabled me to introduce some interaction in the CD-ROM versions of the CERP Modules, and these have been posted onto the CERP website. With the relevant software, I could produce more interactive material, that could include animation and illustration. However, the quality of these materials would depend on the cooperation between content producers (Module Developers) and the ICT team, as was emphasised at both Keele and The Open Universities.

I would like to thank David Pye and Joan Stephenson (together with their partners) for their kindness and hospitality. They made my visit very enjoyable and educative, and made very good choices of the places I visited.

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Appendix 8: Exemplar of Module Guidance Material Provided by the UK CERP Consultant/Team Member Joan Stephenson

1. **Guidelines for the production of distance learning materials (Bagwandeen *et al*)**

1.1 **Appointment of Writers**

Suggestions for the appointment of writers are:

- Appointment of advisory committee for each subject or each course for selection of writers.
- This committee could also evaluate the requisite course material.
- Writers should have to satisfy appropriate criteria such as:

i)   Academic qualifications;
ii) Teaching and writing experience;
iii) Reliability and efficiency;
iv) Availability for the programme.

1.2 **Planning and Developing the Course Structure**

- The following stages, inter alia, are relevant:

i)   Collection of background information;
ii) Preparation of draft outline;
iii) Determination of assessment;
iv) Suggestions for amendments;
v)   Revision of the outline;
vi) Approval of the outline;
vii) Commencement of writing.

- A subject specialist could be involved in developing the outline with a writer or course team. In preparing the outline the following are critical:

i)   Choice of subject matter;
ii) Order of subject material;
iii) Generating of ideas;
iv) Organization of material into an outline;
v)   Determination whether the study guide will be the ground – up, stand – alone or integrated model; wrap-around or extra – textual model; research or independent model;
vi) Assessment of outline;
vii) Consideration of practical implications.

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1.3   **Constitution of a Unit of Study**

Students learn best when information is presented in small quantities. The content of the subject for which the study guide is being developed should be divided into what may be described as units of study. The concept unit of study is used to describe a portion of the Distance Education (DE) study guide that is distinct from other portions. Units can be separated by:

i)   Topic;

ii) Time;

iii) A combination of both.

•   Characteristics of units of study:

i)   Self-contained and brief;

ii) Precise orientation with respect to: Content;

Explanations;

Assessment criteria;

Pacing;

Evaluation and integration of contents;

Closure and progress determined by student;

Identification of student problems.

Synthesis of content in terms of introduction, summaries and evaluation.

•   Units must have:

i)   Introduction, e.g – statement of aims and objectives, orientation, etc;

ii) Body e.g. – particular perspectives of various sections, activities, guidance;

iii) Conclusion, e.g. – recapitulation of main concepts, tests or assignments.

1.4   **Presenting the Subject Matter in Easily Understandable Writing**

Once the writers are satisfied with the basic structure of a unit of the study guide, writing begins. Complicated language should be avoided in order to make the text intelligible for the learner.

1.5   **General Considerations**

General considerations for quality DE would include:

i)   Conceptualization;

ii) Concept load;

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iii) Density of information;

iv) Appropriate style of writing.

1.6   Technical Requirements

Where references are being made to other sources such as references to text or a quotation, writers should comply with the international, accepted standard of their discipline. Generally, the Harvard model is recommended.

1.7   Learner Interaction with the Text for Active Learning

Reading the study guide on its own will not guarantee learning. For the study guide to be deemed to provide quality DE and to be an effective tool for DE there must be interaction between the learners and the text of the study guide. The learners in this way become totally involved in the learning process.

The purpose for such an objective include:

i)   Pacing for learners motivation and thought – provoking debate learning is gradual;

ii)   Reinforcement of learning dialogue between writers and learner monitoring progress ensuring feedback.

1.8   Intentions of Writers of Study Guides

These must be made quite clear to the learner. This can be achieved by:

i)   Stating clearly the specific outcomes;

ii)   Providing advance organisers which categorically indicate the subject developments;

iii) Bridges and links which carry learners from one topic to the next.

1.9   Instructional Devices and Assessment Activities

Writers of DE guides should use different categories of instructional devices. With respect to activities for learners, the following may contribute to assuring quality in the DE study guide:

i)   Self -assessment activities such as: In-text questions;

Quick checks;

Review or thinking exercises;

Summaries;

Situational questions;

Crosswords and number puzzles;

Completion tables;

Multiple-choice questions;

Written assignments assessed by tutors or markers.

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1.10 Developing a Format for Writing

In order to develop a format for writing the study guide there are numerous aspects that writers need to consider with respect to the layout of the printed materials. The following are noteworthy:

i) Layout should be simple and easy for learners to follow learners must be able to see at a glance what they are supposed to do at a particular part of the unit of study illustrations capitalisation, spelling and use of acronyms and abbreviations.

1.11 Use of Visual Material in the DE Study Guide

Illustrations or visuals constitute an important aspect of all educational materials. Communication is generally achieved through words, symbols and visuals. Consequently, the quality of DE study guides would be most positively enhanced by illustrations for conveying concrete ideas. They would also be instrumental in consolidating knowledge and providing support when teaching concepts. Some types of visuals which could be eminently juxtaposed with the written text in the study guide are:

i) Maps;
ii) Diagrams and graphs;
iii) Symbols or graphic expressions to represent or typify an object, idea, or process.

1.12 The Editorial Process

The Faculty or Department will have to appoint an editor or an editorial committee to ensure that the study guide is effective and appropriate. An outside expert could also be used as an adviser. The functions of the editor or editorial committee will include:

i) Finding, briefing and training writers;
ii) Controlling the process of course development;
iii) Ensuring that the study guide is relevant in terms of the existing curriculum and with respect to curriculum changes;
iv) Working with writers to improve the quality of their materials by ensuring that they teach well and the language and instructions in the study guide are lucid;
v) Checking that the material is clearly linked with other course components;
vi) Structuring the text and checking details so that it is ready for printing.

1.13 Some Aspects of Pre-testing the DE Study Guide to Assure Quality

Pre-testing of the study guides before they are sent out to learners is considered integral to any DE study guide and study materials production programme. It provides useful information on what should be improved, amended or omitted so that the written materials

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may meet the objectives for which they were developed. The need for pre-testing study guides and tutorial study materials for DE, apart from ensuring that quality is maintained, can be summarised as follows:

i)   Suitability to meet the requirements of learners;
ii) Course outcomes, aims and objectives are in accordance with the requirements of the subject;
iii) Usefulness of the study guide in the context of the course or offer;
iv) Determination of current and accurate information;
v)   Evaluating and analysing the extent to which the study/guide is thought-provoking, interesting and learner motivated.

•   The aspects of the study guide which need to be pre-tested are:

i)   Visual elements such as illustrations, table of contents, headings, and topics, activities, symbols, highlighting, length, attractiveness, pagination, cover and so on;
ii) Verbal elements such as language, content, sequential development of arguments and so forth.

•   The sources of feedback for pre-testing are manifold. However, the sources could be grouped as follows:

i)   Experts with respect to the specific discipline apropos subject content, accuracy of the subject matter and relevance to current development in the knowledge appropriate to the subject;
ii) DE experts who could comment critically on the quality and appropriateness of the study guide for DE;
iii) Peer group evaluation for comments on language level, relevance of examples, difficulty of concepts and general presentation of materials;
iv) Learners as consumers and the clientele of the study materials for DE.

•   The strategy for pre-testing could involve, inter alia:

i)   Interviews;
ii) Questionnaires;
iii) Tests;
iv) Workshops, seminars, colloquia or discussion groups.

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2. **References**

Paper presented at first national NADEOSA Conference, August 1999.

BAGWANDEEN, D.R., BOJUWOYE, O., LEBETA, T.V. and LETSIE, L.E., Matobako S.T.P., University of the North (Qwa-Qwa Campus) 'Assuring quality through study materials in distance education (DE) in South Africa.'

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