PROGRESS REPORT ON RESEARCH AND DEVELOPMENT ACTIVITIES IN ZVISHAVANE DISTRICT, 1986-1987.

1. Introduction

This report attempts to document the development of projects being carried out in Zvishavane District to give an idea of what has been acheived so far and what the hopes for the future are. Many people have supported research and development activities over the past two years. It is to these people that this report is directed.

The development activities that have been initiated are spin offs from research being carried out in the area. Ideas generated by discussion with local people have resulted in the starting of several small projects. These have been established by Zimbabwean members of the research team in close collaboration with government departments and Zimbabwean NGOs. The initial financial support for starting up the projects was provided by ENDA-Zimbabwe and Oxfam (Zimbabwe). This has since been added to by further support from other donors.

Since late-1985 a team of researchers (see Appendix 1) have been working in the Mazvihwa-Bungowa communal area (CA), mostly with the people of Mototi Ward. The general aim of the research effort has been to investigate in detail natural resource issues as they affect human livelihood. A number of themes have been pursued focussing on environmental stress and welfare vulnerability, the economic and ecological sustainability of livestock production, the nature and impact of woodland change and local institutions and environmental management.

The approach of the research has been to concentrate on a detailed case study; engaging local people in an ongoing discussion about their perceptions, attitudes and knowledge. It has always been local people who have determined the direction of the research effort and the type of questions that are asked. In addition to the case study a number of "rapid appraisals" have been carried out in adjacent areas in Zvishavane, Chivi and Zaka Districts in order to compare and contrast research findings.

In all encounters people have impressed on the research team the necessity for action. In all areas there were recurrent themes. Predictably in an area that suffers recurrent drought and is under increasing resource pressure these were the problems of water supply, the need to secure stable arable production (eg. through the use of wetlands), the problems of draught shortage and grazing and the problems of deforrestation.

In mid-1986 the research team employed Mr Z. Phiri, an experienced local community worker, to investigate some of the

locals' suggestions concerning water resources development. B. M. Chakavanda also continued his work on the local woodland resource with the aim of asking communities about what can be done about the problems that they had identified.

It was from this time that the research started to assist local practical inititiatives and began the process of evolving pilot projects. It was a long process of consultation and slow evolution of ideas under extreme financial stress. In retrospect the nature of the early development of the projects had a lot of advantages. Lack of funds meant we were not forced to rush into implementation under donor pressure; projects evolved at their own pace under local control. Also the research and development activities remained closely linked as the whole team was resident in Mazvihwa and we all ended up doing everything. This linkage has been maintained and is an essential component of the research/action approach; it means that research work can never divorce itself from practical considerations and extension/development work always maintains a critical, investigative and adaptive stance.

By early 1987 we had submitted a number of applications for external funding. Special mention should be made of the emergency support supplied by a group of German development workers (ex-Berlin Development Institute), ENDA-Zimbabwe and Oxfam (UK) at a critical time before full project funding was available, but when it was essential to maintain continuity and momentum of local activities and our own financial means were not standing up to the pace.

The subsequent development of the Oxfam (UK) supported Zvishavane water resources and management project and the ENDA Zimbabwe community management of woodland resources demonstration project is outlined in separate sections below.

People perceive the link between the improvement and management of woodlands and the conservation and development of water resources very clearly. Although the community workers (CWs) employed by these projects have particular skills associated with trees or water, much of the work overlaps, since these are not projects that simply offer a technical solution. The central theme is that it must be local communities that plan and decide on what is appropriate to their needs.

A central component of each project is the discussion of natural resource issues with local communities - researching and debating ideas and possibilities - and allowing communities to become empowered in the process of their own development. Local control is essential and the projects are concerned as much with institution building around womens' or farmers' groups and Village development committees (Vidco's) etc as with the building of wells and the propagation of seedlings.

It is the theme of community management of indigenous resources that has again been central to the establishment of the ENDA

seeds project in Mazvihwa (see section 4). Community management offers the possibilities for extension to other issues that people have identified as being crucial to the future development such as grazing land management. It is the hope that by allowing local people to have a say in development decisions, unobtrusively assisted by outsider assistance, that a more effective and sustainable approach to rural development in dryland Zimbabwe can be evolved.

2.The Zvishavane water resources development and management project

The project has a number of linked aims:

* To assist local communities in the improvement of water supplies.

* The development of community based initiatives in water resource management.

* Research and development of vlei/wetland use.

2.1 Water supply

The local need

There is an urgent need for the upgrading and expansion of water supply in Mazvihwa and other nearby CAs. Most people are reliant on unprotected water sources that may be quite some distance from homes. These are generally old vlei wells in the hilly areas and wells in the river bed sand (mifuku) on the plains. Similarly stock and gardening enterprises are reliant on scarce water sources resulting in long treks for water by cattle in the dry season and an immense amount of labour invested in vegetable production. Government and donor water programmes have had some impact in the area since independence, mostly in extending the network of deep boreholes and wells. It is not surprising that people put improving water supplies at the top of their development priorities.

Mr Phiri comments in his report on the early phases of the project:

"The research has taken some time in some findings of how Mazvihwa area could be brought to the eyes of the world, so as have the area alive as other areas... the research wanted people to give their own problems in their daily life, so that people could indeed have time of bringing together their needs.

This then brought the people of Mazvihwato share their ideas together. They were able to say they need cattle, for their cattle had died during the drought. Farming land had also been a problem facing each . They had no water for cattle

and even water for drinking or watering gardens; they had no green in most part of the area due to water problems.

So with all these findings people of Mazvihwa have been able to meet and say: "we need a well, a dam, a sandy well and also gardens". It was then when in our visits I was able to be asked about water projects. I also answered I could help if there were any people who would need my help. I was asked if I could sink a well... I said "yes!". So at these meetings people started calls for wells, dams and mifuku... That was my problem to start the work."

Project approach

It has always been the intention of the project to assist with projects that communities can manage, carry out and maintain themselves. This does not necessarily result in the "ultimate" answer to rural water supplies, but aims at upgrading the existing situation and complementing other water supply programmes.

For well building the focus has been on semi-protected shallow wells which are lined with concrete rings designed by the Blair Institute (Ministry of Health) and supplied with a bucket and locally made windlass. Since they are cheap (c. Z$200 for a 5m well) and easy to construct, the project can expect to significantly increase access to high quality water in the hilly/vlei zones of the project area. In addition, with a "low-tech" approach the well is easily maintained and there are no recurrent costs.

The strategy of building shallow wells is not applicable in all the project area. In many of the plains areas the water table is deep and professionally sunk deep wells are clearly necessary. The upgrading of river bed sand-filtration wells has been a priority in this area. Here the simple device of digging a concrete ring into the sand on the river bed to be covered by a concrete slab is employed. Water seeps into the mifuku having been filtered by the sand and can be extracted with ease by a bucket. This simple innovation has greatly assisted Agritex womens group gardens along the rivers.

The building of small dams is seen as a local priority. Many sites for weirs or dams have been suggested. Small dams help to reduce the run-off from the land, trapping water for later use. Gardening projects and livestock are the major beneficiaries both reliant heavily on scarce dry season water.

Links and support

From the start the water project has worked closely with the Ministry of Health on water and sanitation issues, with Agritex and DDF on the planning and construction of dams and the Lands Inspectorate on water management and conservation issues. A visit by Julian Sturgeon and the ENDA-Zimbabwe staff in April 1987

helped in the formulation of a strategy for the water project.

With the arrival of funds from our German friends and with the continued support of Mr Phiri's work by Oxfam, the water project was really able to take off in June 1987 with material support offered to well projects in Mazvihwa. Many communities had already formed well committees and had started digging or renovating wells. With the arrival of the concrete ring moulds, cement and tools, communitieswere now able to start lining the wells, once the local contribution of $20 organised by the well committee had been made. To date 11 wells have been completed or nearly so. Dam projects have been also moving ahead. In conjunction with the DAs office, the DDF and the Dept of Social Services, Mr Phiri has been coordinating the building of 8 dams in Mazvihwa CA under the governments Public Works and Food for Work Programmes.

In October a grant from Oxfam permitted the extension of the project to include two new community workers (J. Munatsi and R. Ndatschana) to cover Mazvihwa and Runde CAs. They are now supported by locally available tools and materials and during October many well projects were able to be properly started.

2.2 Mototi Irrigation

The highly fertile soils of Mototi Ward are ideally suited to small scale irrigation. This has long been recognised and soil and planning surveys were carried out in the area in the early 1970's. In such a drought prone area where crop production is rarely successful the only hope of ensuring food security seems to be through irrigation from the Runde river. A detailed report on the possibilities was produced by Ken Wilson in August 1986 and submitted to the DA's office and other authorities for consideration.

2.3 Water resources management

Farmers in dryland areas are fully aware that the management of water resources is vital to further development. Discussions with farmers regularly highlight the problems of gulley erosion, the necessity of catchment protection and the potentials of water harvesting. It is the intention of this aspect of the project to develop community based initiatives in these areas. It is hoped that Mr Phiri will be able to spend more time on practical experimentation with ideas developed in discussion on these issues in the next year.

The utilisation of vlei lands has been a subject that has been investigated in some detail by the water resources project during 1987. Historical research has highlighted the importance of vlei cultivation to past production systems (Wilson, 1986d). Farmers also argue the importance of vlei production and the potentials it offers for contemporary dryland production.

To investigate the issue more fully a number of farmer workshop have been held in Runde, Mazvihwa and Chivi CAs to investigate vlei functioning, use and production. The intention has been to discuss with farmer groups their local knowledge of vlei hydrology, pedology and ecology aswell as their potential uses (integrating domestic water supply, grazing and arable/gardening production). Farmers were also encouraged to exchange ideas on the type of innovations and development they have employed in vlei production and conservation.

On the basis of these appraisals a quite sophisticated understanding has been built up of the functioning of dryland sandveld vleis and their production potentials. There is clearly the local knowledge in existence which can form the basis for bringing vlei lands into productive use in a conservation oriented way. It is hoped that in conjunction with Agritex and the NRB Lands Inpectorate, vlei farmer groups can be formed who will be the focus for practical experimentation with vlei development.

3. Community management of indigenous woodland resources demonstration project

Research carried out in during 1986 by M. Chakavanda, B. Higgs, K. Wilson and others provided the basis for the demonstration project. Discussion with farmers about tree resources and some rapid appraisals of firewood use, agroforestry practices etc. highlighted a number of important points.

The studies of deforestation were really an experience of how locals did not see the process as a simple, rather hopeless, march of population pressure, to which their response should be the abandonment of reliance on indigenous woodland completely and a rush to plant exotic woodlots. They saw it is a complex pattern of of distinct ecological processes with many specific causal factors; one that was weaving new often unfortunate patterns, but not a situation that should be abandoned. On the contrary, they have the technical knowledge necessary to manipulate it. Whilst overall woodland area was obviously viewed as important, locals were more concerned with issues of composition and structure, because these can be managed by planting and cutting regimes. Indeed in many areas local management rules attempt to regulate structure and composition of the communal woodland.

The precise nature of the understanding of the problem is coloured by local circumstances: in some areas there is a definite shortage of accessible firewood, in others poles are in short supply, in other places indigenous fruit trees are on the decline. As locals pointed out each of these situations requires a different solution: woodland regeneration; exotic tree woodlots; enrichment planting; revised management practices. Just

as the problems are locally specific, so must be the solutions. The research work thus led to the discussion of acting on the ideas developed. Individuals and communities reacted to the idea of the woodland management project by saying that it was so obvious, and so clearly within their grasp and knowledge that they wondered why they were not doing it already!

3.1 The community nursery

One of the first tasks was to see if the planting of indigenous trees was feasible. Although locals had some knowledge about germination/regeneration properties of local species there remained some scepticism about whether this would be possible in a nursery. With the help of the Forestry Commission we decided to try. There was virtually no information on the propagation of indigenous trees, so practical trial and error has been the only way. A nursery was established at M. Chakavanda's home in April 1987. Mathou attended training courses in nursery management run by Forestry Commission and Agritex during the year. Since June four nurseries have been established in Mazvihwa CA on a pilot basis and the Marozve nursery run by Mathou and Davie Chakavanda has been highly successful.

Mathou reports that in October the following species had germinated in Marozve nursery:

Indigenous tree seedlings: Mukamba, Mitobwe, Munyambo, Munyii, Mubhondo, Musumha, Mutechani, Mupani, Musasa, Mupanda, Mutsviri, Mutondho, Mushuku, Mupfuti, Muchecheni.

Exotics: Guava, Orange, Mango, Avacado, Paw-paw, eucalyptus.

The total output of successfully germinated seedlings from the nursery this year is expected to be c. 5000. In addition, a number of truncheons (especially Mupfura) are being propagated and a seed store has been established of species suitable for seed scattering.

3.2 Community based planning

A series of Ward level workshops were held to work out a community based planning strategy so that communities could evolve a "solution" suited to their own needs. Between March and June 5 ward workshops were held in Mazvihwa and Runde CAs attended by between 25 and 90 people. The excitement generated was electric: some meetings went on all day.

It was decided that planning should be based at the Vidco level (c. 100 households) to allow for the strengthening of locally specific communal land planning and management abilities, aswell as providing a suitable focus for providing extension advice to individual farmers.

Mathou has evolved a "method" for the community planning exercise

that takes about a week for each Vidco. The week starts with an introduction to the appropriate authorities; most will already be aware of the project from the Ward level workshops held earlier in the dry season. The introductions are followed by a "rapid appraisal" of woodland resources, attitudes to tree planting, existence of management rules, local priorities etc on the basis of a series of semi-structured interviews with people and some observations of woodland status. By the end of the week the CW has a good impression of the local situation. This is when a meeting is held with the specific aim of devising a Vidco planting plan and deciding upon a set of rules for woodland management. The results of the appraisal and the group meeting are then written up as a brief report. Thios contains the information necessary to devise the planting requirements of the local nursery aswell as forming the basis for CW follow-up and monitoring.

Discussions at the Ward and Vidco level farmer workshops are guided through a number of topics to decide upon:

* The trees needed in the communal grazing areas (for firewood, browse, timber etc.).

* The trees needed in fields (for fruit, improving soils and crops etc.).

* The trees people want to plant at home (for shade, windbreaks, fruit etc.).

* The management practices people employ in their grazing area (cutting practices, replanting, protection of species) and the "rules" the local community /Vidco want to adopt or reinforce.

* How an indigenous woodland project can be organised locally.

3.3 Research and the trees project

There is much to be learnt from the ENDA demonstration project and all aspects are to be closely monitored. A number of research projects have been planned that are allied to the projects. Already a series of reports have been produced which document in detail the evaluation of tree resources and local knowledge carried out in 1986/7 (Appendix 2).

A research project carried out in Feb/Mar 1987 by Ken Wilson and Tekla Shoko with the support of ENDA-Zimbabwe and the Dept. of Biological Sciences, UZ was concerned with the investigation of local agroforestry practices.

A series of farmer workshops highlighted the depth and sophistication of farmer knowledge about the effects of trees in fields on crops. A number of indigenous species (eg. Ficus spp., Parinaria curatellifolia) are preferentially left in the fields (despite the extension services urging farmers to remove them),

as they are perceived to improve crop yields by increasing nutrient availability and soil moisture.

It was decided to test this and, although the results are not yet fully processed, it appears that the farmers' observations have been borne out. It is hoped that this work will be continued in conjunction with UZ researchers and Agritex in the future. It is expected that a proposed research and training exercise on agroforestry planned for early 1988 by the Commonwealth Science Council will have some connnection with the project.

3.4 Links and support.

Support funding made available by ENDA-Zimbabwe has allowed the pilot project and background research to continue in Mazvihwa during 1987. By October 1987 full project funding had been made available by the Ford Foundation and the Zvishavane demonstration project is now run by ENDA-Zimbabwe under the direction of D. Gumbo (Environmental projects, ENDA) and B. Mukamuri (Project coordinator).

The evolution of the trees project has benefitted from discussion with and visits from many individuals. J. Clarke (Forestry Commision) and Brian Williams (carpenter, Harare) provided much early encouragement as have Mr Mudhondo and Mr Mkwananzi of the NRB. We have tried to develop a close relationship with the Rural Afforestation Division of the Forestry Commissionand have benefited from several visits from their Head Office and Provincial staff. This contact will continue as the ENDA demonstration project has a parallel that will be developed within the Forestry Commission. It is hoped that the experiences of the Zvishavane project will be able to contribute to the policy development process within the fc. Ideas about appropriate rural afforestation strategies for Zimbabwe generated by the project's early experience were communicated to a World Bank mission during October 1987.

In June 1987 M. Chakavanda and Ian Scoones attended the NGO workshop on agroforestry held in Inyanga. They presented a paper which was well received. The meeting was also attended by representatives from other countries (notably Kenya) and it was useful for the project to learn of the many initiatives in social forestry successfully operating in eastern and southern Africa.

Between July and October 1987 the pilot project became fully established in two wards of Mazvihwa CA (Mototi an Murowa) with a network of support nurseries. The community planning exercise with each Vidco (13) had been completed. The project is now ready to move into the full project phase with the extension of activites into three new areas in Chivi and Runde CAs of four wards each planned for December 1987.

4. The ENDA indigenous seeds project

The ENDA seeds project aims to collect and distribute indigenous grain varieties and test them in exchange programmes and screening trials with local farmers in many parts of Zimbabwe.

The erosion of indigenous genetic resources through the impact of hybrid varieties, drought etc. has serious impacts on food security. Research in a broad area of southern Zimbabwe has identified the importance of indigenous small grain varieties to production to food security. (see Appendix 2)

Farmers are keen experimenters with new varieties and with the help of the Seeds project a number of millet and sorghum varieties have been distibuted to and exchanged with farmers in the Mazvihwa area during the 86/7 and 87/8 seasons.

During 1988 a seed multiplication plot will be established in Mototi Ward, Mazvihwa under the control of the Mupani Group Garden. The seed exchange programme can then be extended in the area. Farmers are very enthusiastic, as the project offers the possibilities of increasing returns from dryland production.

The importance of small grains for dryland areas is often stressed, but the labour involved in processing and the losses incurred during storage are a problem. This is why ENDA is working on improved storage structures and introducing the "dehuller". The research team carried out a survey of local grinding mills and interviewed users to evaluate the possible impact of the dehuller. Women users of mills were excited about the prospect and the taste trials of dehulled mhunga brought widespread approval. One entrepreneur has already installed a dehuller at Mukwakwe in Mazvihwa.

The Seeds project remains at an early stage of development in the Zvishavane area, but there is plenty of scope for extension and lots of local enthusiasm. The seeds distributed during the 87/88 season to 65 farmers will be monitored by a research team member, A. Mawere, to assess their suitability and guage farmers' responses. It is hoped that an effort will be made to locate and screen the extant indigenous varieties identified in the research team survey . In the future this can be extended to the evaluation of the "domestication potential" of indigenous gathered vegetables.

5. Training and educational activities

The research and extension approaches used by both the water resources and trees projects have been the focus for a number of training sessions during 1987. Particularly the importance of farmer participatory research, rapid rural appraisal and working with farmers' groups in the workshop context has been emphasised.

* During 1986/7 University of Zimbabwe vacations local undergraduate students have worked on short projects supported and supervised by the Zvishavane research team (see Appendix 1).

* In January 1987 a group of 6 ecologists from the Dept. of Biological Sciences, UZ visited Mazvihwa when the research team introduced the research being carried out in the area.

* In January 1987 K. Wilson and M. Chakavanda acted as resource persons for the ICRAF (International Centre for Agroforestry) appraisal exercise in Chivi CA.

* In April 1987 Ken Wilson and Ian Scoones prepared a consultancy report : "Participation in research and development" for ENDA. It was presented to the ENDA staff at a workshop in Harare.

* In May 1987 participants from the International Course for Development Oriented research in Agriculture (ICRA) attended a farmer workshop on vleis in Runde and then came to Mazvihwa to discuss further research and development approaches. Billy Mukamuri and Ian Scoones later worked with some of the ICRA team in Chivi on group approaches to research.

* In June 1987 the monitoring and evaluation team of the Rural Afforestaion Division, Forestry Commission and the Dept. of Natural Resources research ecologist, Masvingo Province, attended two farmer workshops where communities defined local priorities for the development of the trees project in their areas.

* In September 1987 a team of 10 Dept. of Natural resources ecologists (from all Provinces of the country) attended a three day workshop in Mazvihwa on rapid rural appraisal (RRA) and agroecosystems analysis. Background material had been supplied both on research approaches and on the Mazvihwa farming system, but is was the intention of the workshop to let the participants explore the possibilities of RRA and participatory approaches for their province based research work by attempting a focussed RRA in practice. The potentials of vlei utilisation and extension guidelines for river bank gardening were the issues chosen in consultation with NRB officers. The group was split into two; each were given an issue to investigate. The workshop concluded with an informative discussion on research approaches aswell as presenting the conclusions of the appraisals.

The CWs are obviously continuously involved in training of local people in skills associated with their projects. For instance, instruction in the making of concrete rings or the establishment of tree nurseries. The education/training component of the projects has also included:

* Contribution by Mathou Chakavanda and Billy Mukamuri to the Agritex training course on agroforestry in Domboshawa.

* Talks given to schools in Mazvihwa on indigenous trees and nursery establishment.

* Radio programmes on ZBC in Shona and SiNdebele by Z. Phiri on the trees project and the potential of indigenous trees.

* Training on indigenous trees and nursery establishment given to the Association of Womens Clubs' course in Zvishavane.

It is hoped that the training and educational activities of the projects will be expanded in 1988. The trees project aims to develop non-formal education materials based on the project's experience.

6. Concluding comments

The development activities described here have grown out of research work initiated by K. Wilson and I. Scoones. The pressure of the problems, together with the dynamism of the communities and local government officers has enabled so much to get started. The support of Government Ministries at District and Provincial level and two Zimbabwean NGOs - Oxfam and ENDA - has also been critical. We are happy that local people (with Government and NGO support) are now responsible for the running of the projects with the communities themselves responible for most management decisions.

We would like to acknowledge:

* the many communities in Mazvihwa, Runde and Chivi CAs that have contibuted to the research and the development of the projects.

* the Provincial Administrator (Mr Chakaipa) the District Administrator (Mr Gumbo and Matanga), the LGPOs, the councillors (particularly Mr Bwoni and Pisirai of Mototi and Murowa Wards) and the Vidco officials for their support.

* the many representatives of Agritex, Dept of Natural Resources, Forestry Commission, Ministry of Health and District Development Fund who have assisted the projects.

* the donors who have supported our efforts: Oxfam(UK), ENDA-Zimbabwe, Ford Foundation and the "Berlin ex-students".

Ian Scoones

Ken Wilson.

(November 1987)

Appendix 1

People

Below is a list of people who have been formally associated with the project. Many others have assisted in various capacities. The Mukamuri family have been the generous hosts of all of us at some stage at their home in Mazvihwa.

The resident research and development team (1986-1987).

Knowledge Bwoni - temporary research assistant.

Mathou Chakavanda - research assistant investigating woodland resource use; CW for ENDA indigenous trees pilot project.

Tavengwa Chifamba - Livestock behaviour; vegetation study; seed collection.

Johnson Madyakuseni - research assistant: ecological aspects of livestock production.

Abraham Mawere - research assistant following the sample of households in Mototi Ward looking at welfare processes, household economics, livestock and arable production.

Oliver Moyo - research assistant investigating woodland resources.

Joshua Munatsi - Mazvihwa CW for water resources project.

Maureen Ncube - research assistant

Richard Ndatschana - Runde CW for water resources project.

Vengesai Ndhlovu - Livestock resource use; vegetaion studies; seed collection.

Philemon Ndumo - firewood use.

Zaphania Phiri - project coordinator Zvishavane water resources development and management project.

Ian Scoones (University of Zimbabwe and London) - research on livestock.

Florence Shumba - research assistant following household sample

Ken Wilson (University of Zimbabwe and London) - research on welfare and arable production.

University undergraduate research projects.

Bryn Higgs (Oxford University) - research on ecological dynamics of woodland change in Mototi Ward.

Peter Holland (Cambridge University) - Famine responses in colonial Zimbabwe: 1912 - 1947.

M. Mahobele - Mwenezi comparability study (livestock).

F. Maposa - Rural - urban links: a study in Zvishavane town.

A. Masanga - Local attidues to health and disease.

F Mathose - Zaka comparability study: environmental history; indigenous varieties; gathered foods.

B. B. Mukamuri - Karanga religious/political institutions and the environment; environmental history of Mazvihwa; comparability studies: Chivi and Runde.

P. Shoko - Local knowledge about the ecology of weeds.

T. Shoko - Trees in fields study.

G. Sibanda - Local knowledge about soils.

S. Siziba - Case study of drought vulnerability and coping strategies; assessment of the impact of the dehuller; Zaka comparability study: indigenous varieties and gathered foods.

Appendix 2

Reports and seminars

Wilson, K. B.

(1986a) History, ecology and conservation in southern Zimbabwe. Unpublished seminar to Dept. Sociology, University of Manchester, 12th February.

(1986b) The Human ecology of Zvishavane District. Unpublished papers nos. 1 - 6 on rainfall, woodland and veld, soils, agronomy, hunting, gathering and fishing and health and nutrition.

(1986c) Indigenous perceptions and theories of ecological conservation and degradation. Unpublished seminar paper to Dept. of Sociology, University of Zim, 27th June.

(1986d) Aspects of the history of vlei cultivation in southern Zim. Unpublished paper presented to the workshop on "The use of dambos in Zimbabwe's communal areas" Dept of Engineering,

University of Zimbabwe.

(1987a) Experiences with community based research into agroforestry. Unpublished seminar to Dept. Biological Sciences, UZ. 23rd April

(1987b) The changing structure of the production process in southern Zimbabwe, 1850 - 1950: the role of oral history and ecological approaches. Unpublished seminar to Dept. of History, UZ. 24th April.

(1987c) Environmental stress and welfare vulnerability. Unpublished seminar to Dept of Sociology, UZ. 21st April.

(1987d) Prospects for sustainable development in Southern Zimbabwe. Unpublished seminar to Faculty of Agriculture, UZ. 22nd April.

(1987e) Research on trees in Mazvihwa and surrounding areas. A report prepared for ENDA-Zimbabwe. June 1987

(1987f) Gathered plants used for food in Southern Zimbabwe. A report prepared for ENDA-Zimbabwe. July 1987.

(1987g) The indigenos genetic resources of the Karanga crop production system. A report prepared for ENDA-Zimbabwe. June 1987.

(1987h) A resource inventory of edible insects in Southern Zimbabwe. (unpublished)

Scoones, I. C.

(1987a) Economic and ecological carrying capacity: implications for livestock development in the dryland communal areas of Zimbabwe. Paper presented to seminar in Dept. Biological Sciences, UZ. 24th September.

(1987b) Key properties of dryland farming systems in Zimbabwe's communal areas: issues for research and development. Unpublished seminar to Dept of Agricultural Economics and Extension, UZ. 23rd September.

...and Chakavanda, M. (1987) Community based management of indigenous resources: experiences from an agroforestry/woodland pilot project in Zvishavane District. Paper presented to NGO workshop on agroforestry. Chitepo Training Centre, Inyanga. 7-12 June.

....and Wilson, K. B. (1987) Participation in research and development. A report to ENDA-Zimbabwe. April 1987