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Crop Post-Harvest Research Programme Zimbabwe

*A Report on Baseline
Data available for Chivi
District, Masvingo
Province*

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A Report on Baseline Data available for Chivi District, Masvingo Province

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List of Abbreviations

AEO	Agricultural Extension Officer
AES	Agricultural Extension Supervisor
Agritex	Agricultural and Extension Services
CPHP	Crop Post-Harvest Programme
DAEO	District Agricultural Extension Officer
DR&SS	Department of Research and Specialist Services
ENDA-Zimbabwe	Environmental Development Agency-Zimbabwe
EW	Extension Worker
FSRU	Farming Systems Research Unit
GMB	Grain Marketing Board
GTZ	Deutsche Gesellschaft für Zusammenarbeit
ITDG	Intermediate Technology Development Group
ITZ	Intermediate Technology Zimbabwe
NGO	Non-Governmental Organisation
NRs	Natural Regions
VIDCo	Village Development Committee
ZFU	Zimbabwe Farmers Union
ZWP	Zvishavane Water Projects

Background

Location

Chivi District totals 3,510 km². Chivi District Service Centre is 65 km south west of Masvingo, the provincial capital, which is approximately 300 km south of Harare. The land is categorised into Small-Scale Commercial Farming (0.6%) Resettlement Areas (9.7%) and Communal Areas (89.7%). The District land is also classified into Natural Regions (NRs) IV & V in the proportions 39% and 61% respectively. Although only about 43% of the land is classified as arable, about 60% is cultivated annually.

The road from Masvingo to Zvishavane passes through the north-west end of the province and another good road is available from Mashava through Chivi and continues in a south-west direction throughout the length of the District.

Recent developments

Following the severe drought years at the beginning of the decade, there has been a focus on water related projects and programmes with several initiatives centered on soil and water conservation, small dam and borehole construction as well as replacement of livestock after the devastation of numbers in 1992/93. Emphasis has also been directed towards drought tolerant crops (small grains and cotton).

Land degradation is an important issue. The Chivi Development Plan 1996 - 2000 reports:

"human and livestock pressure on the land has been described as 'desperate for the Southern communal lands and 'extreme' for the Northern parts. Widespread depletion of the indigenous plant species has occurred, particularly in the central and northern areas which in 1956 were described as 'densely wooded'"

Population

The 1992 Census population gives a district total of 157,428 people or 13% of the Province's population, of which 46.5% are males and 53.5% are females. Nearly 50% of the population is below 15 years of age. There is a total of 27,350 households with an average size of 5.8 people per household (compared with a national average of 4.8) and a population density of 44.5 persons per km², above the national average of 26.6 persons per km². The population density is the second highest in the province. The population is mainly distributed in the rural areas with only 0.8% settled around the District Service Centre. Generally, there is high land pressure in the District. At the current growth rate, the district population is projected to rise to 186,929 giving a population density of 52.9 persons per km² by the year 2000. The literacy levels are 85% for men and 71% for women with a district level of 77% for the population aged over 15 years.

Infrastructure

The infrastructure in this district is not well developed. Apart from the roads, there are, for example, no banks in the district and no 'growth points'.

Climate

The pattern and quantity of rainfall varies widely over time and over the district. About 1,000mm can be expected in the Nyoni hills, while less than 500mm is common in the northern central areas. The mean annual rainfall at the meteorological station at Chivi Service Centre (NR V) is 545mm (mean of 75 years). However in most years, the average rainfall received is 200 - 350mm. Droughts have occurred in three years out of five.

Temperatures during the summer/rainy season (November to April) reach maximums of 27-30° C; in the rest of the year maximums are in the range 22-27° C.

Soils

The major soils consist of greyish brown, coarse grained sands and reddish brown sandy loams developed on granites and gneisses. The second most important group consists of calcimorphic soils with a higher clay content than the first group.

Institutional Environment

The District is divided into 29 wards with a total of 170 villages (and village development committees). Each ward sends one councillor to the District Council at Chivi. The three Chiefs in the area are also appointed as councillors. This council was only formed (as an amalgamation of previous arrangements) in 1993.

Chivi is the District's service centre, but is not yet accorded 'growth point' status. There are six rural service centres, and 56 business centres.

Agritex is based at Chivi town and is headed by the District Agricultural Extension Officer (DAEO). He is supported by Agricultural Extension Officers (AEOs), Agricultural Extension Supervisors (AESs) and Extension Workers (EWs) in each ward. The extension strategy in providing agricultural technical support is to work with farmer groups that are generally formed through the Zimbabwe Farmers Union (ZFU) or through the Master Farmer Training Programme that is run by Agritex.

There are no Grain Marketing Board (GMB) depots, cattle sales pens or cotton collection points in the District.

There is only one Post-Office providing the services of a bank. No other financial institution is located in Chivi.

Relevant programmes, projects and their implementers

There are several non-governmental organisations (NGOs) working in the District. However, most of the work in the natural resources sector seems to be focused on water conservation/development and stock replacement. Intermediate Technology Development Group (ITDG) has been working in Ward 21 since 1991 with the communities on a food

security programme and is now expanding into Ward 4.

A Deutsche Gesellschaft für Zusammenarbeit (GTZ)/Agritex project has been operating in Chivi (Ward 25) since 1991 working on conservation tillage (Contill) with the objective of assessing the feasibility of some conservation tillage techniques under farmers' management and to adapt them to the farming systems on smallholder farmers. A problem tree was developed by farmer participants at workshops using participatory techniques and showing the 'cause-effect' relationships between the problems.

The food security project is more oriented towards extension of soil and water conservation whereas the Contill project focused more on research and development of soil and water conservation technologies. Realising that they were both applying participatory principles in their work, the organisations started collaborating using 'training for transformation' as the basis for strengthening farmers' capacities and local institutions. Training for Transformation, a course offered by Silveira House (an NGO), creates a conducive atmosphere that allows unidirectional flow of knowledge and increases social acceptability of innovations.

The Farming Systems Research Unit (FSRU) of the Department of Research and Specialist Services (DR&SS) has been operating in Chivi since 1984 and started applying participatory techniques in their research methodologies in 1992.

The Environmental Development Agency (ENDA – Zimbabwe) is involved in a seed multiplication/bulking programme where farmers are provided with seed for production and sell to ENDA - Zimbabwe. ENDA - Zimbabwe is also involved in tree planting activities in Madamombe.

Farming Systems

All the land in the District is used for agricultural purposes. Most farmers are subsistence focused and marketing is largely for consumption within the district. The main farming system in Chivi is an integrated crop (maize and small grains): livestock system. Cattle are kept largely to provide draught power and manure and are mainly owned by men whilst women keep small-stock for sale and consumption. The major constraints in the farming system as identified by FSRU are:

- shortage of land and the land tenure system
- low soil fertility
- shortage of draught power
- shortage of labour resulting in bottlenecks at critical periods (e.g., weeding)
- inadequate feed for livestock
- shortage of cash

Crops

Agricultural produce for the 1994/95 season is shown below:

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CROP	RAINFED	
	Estimated Production (mt)	Estimated value (Z\$)
maize	3,368	3,603,225
groundnuts	5,213	13,281,375
sorghum	1,157	925,800
pearl millet	1,499	899,550
sunflower	184	99,360
finger millet	889	533,400
cotton	698	3,078,400
Total		22,421,110

Source: Agritex, 1996

Land use according to crop are ranked in descending order of importance (on the basis of area planted) as follows:

Crop	Yield (kg/ha) ¹
maize	413
groundnuts	681
sorghum	367
pearl millet	300
sunflower	525
finger millet	250
cotton	563

Source: Agritex, 1996

Very little inorganic fertilizer is used (by only 6% of farmers). Few farmers practice rotations due to high land pressure.

There are 4 established irrigation schemes and six small ones. The total area under irrigation is 215 ha. The main crops grown include: green mealies, dried beans, mixed vegetables, tomatoes, onions and groundnuts, with little variation.

There are 206 functional gardens, mostly communally operated, where vegetables are

¹ Based on a mean of 4 years
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produced. The vegetables include: cabbage, rape, tomatoes, onions and sometimes carrots, spinach and lettuce.

Livestock

Only 38% of the farmers in the district own cattle and therefore have direct access to draught power. The draught power is supplemented by donkeys, which are less susceptible to the effects of drought. The 1991/92 drought killed more than half the livestock, with the exception of donkeys. There is no deliberate effort to improve the role of livestock and most sales are only incidental.

Small-stock is kept mainly to avert famine in the family. There is severe overstocking which has resulted in the depletion of the natural vegetation in many areas. Livestock grazing is communal and there are very few existing grazing schemes.

Livestock statistics:

	September 1991	August 1995	% decrease
Cattle	99,859	46,119	54
Goats	117,848	81,468	31
Sheep	7,394	2,755	63
Donkeys	8,966	9,968	11 ²
Pigs	4,854	1,885	62

Source: Agritex, 1996

Subsistence/cash cropping

Farmers rely on subsistence crop production to feed themselves with surplus being sold mainly within the District. Some cash crops are produced especially in irrigation schemes and group gardens.

Land availability and access

There is high population pressure on the land, resulting in a significant proportion of land not recommended for cultivation, being cultivated.

On-farm post harvest (storage and processing)

In most cases, grain is not stored for more than 6 months due to inadequate grain resulting from poor harvests. Most of the harvested grain is retained for consumption, local sales and assisting relative in hard times. Pearl millet and finger millet can store for up to 3 years and no storage insect pest control measures are taken whereas sorghum, especially the improved cultivars, are susceptible to the insects. Control is mostly by use of natural

² % increase in the case of donkeys
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substances.

Horticultural crops stored are onions and sweet potatoes. Vegetables (tomatoes and leafy vegetables) are stored after sun-dehydration.

Single bin structures, built directly on the ground or raised on stones, are common and several structures are found at each homestead. Because of depletion of natural resources, there is a general scarcity of construction material including thatch grass and timber.

With assistance from ENDA - Zimbabwe 3 dehullers were installed by the end of 1990 to alleviate problems associated with primary processing of small grains, usually the burden of rural women.

Groundnuts are processed into butter mainly using the traditional pestle and mortar for crushing the seeds followed by grinding between two special stones (one large, one small). A few farmers sell their butter in urban areas; otherwise it is sold locally.

Selected Wards

Two Wards (Wards 4 and 21) were selected in the District following discussion with ITDG and Agritex staff on the basis of broad criteria of 'representativeness, coverage of target NRs, accessibility and the opportunity to build on capacity and relationships already developed by ITDG. Several surveys have been undertaken in Wards 4 and 21. This provides useful background information for the Crop Post-Harvest Programme (CPHP) (Institutional Survey, Wealth Ranking, Needs Assessments), but more important is the benefit of working in collaboration with ITDG in this ward, building on the capacities developed to carry out the research programme.

ITDG has facilitated successful community organised 'seed fairs' in both Wards 4 and 21 where farmers display different cultivars of their crops; including horticultural crops from group gardens.

Ward 4 (Chigwikwi/Gomo)

Key characteristics - Population (1992 Census)

Population			Households	
Males	Females	Total	Total No.	Average
1649	1977	3626	720	5.0

Source: CSO, 1993

Total area is 9,271 ha. There are six villages with a maximum of 5 village heads

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(*sabhuku*) each, giving a total of 22 village heads in the ward. Recent studies by ITDG (1994) indicate that the households have increased to 1,200 with a total population of 8,000 people.

The people mainly depend on crops and livestock for their livelihood. Due to poor grazing and inadequate water supplies for livestock, the average number of cattle/ livestock has been reduced from 5-6 per household prior to the 1991/92 drought to 1 per household today. There are 2 seasonal dams in the Ward.

According to the needs assessment and village planning meetings facilitated by ITDG in 1991 the following are the priority problems identified by both farmers clubs and garden groups:

- shortage of draught power (livestock and implements)
- inadequate water for dryland cropping, irrigation, human & animal use
- seed varieties (accessibility, suitability to area, diversity & storage quality)
- poor pest management mainly due to mono-cropping in gardens
- poor fencing methods
- limited marketing opportunities - garden groups growing the same crop varieties at the same time
- poor planning resulting in late acquisition of seed and late planting
- increasing landlessness mainly affecting young families
- poor leadership skills - dominance by a few people
- lack of co-operation among families or communities
- poor community mobilisation - concentration on field crops at the expense of garden crops
- meetings or discussions dominated by males
- deforestation
- poor soil conditions

Institutional linkages

Contill (GTZ/Agritex) and Food Security Projects (ITDG) analysed the functions and capacities of different local institutions operating in Ward 21. Venn diagrams of the relationships between the farmer and institutions in relation to natural resources were developed with farmer input at workshops. The kraalhead (*sabhuku*) was found to be the most strongly involved institution with some power in natural resource management.

Institutions working in Ward 4 after 1994 (as indicated by farmers) include:

- Traditional leaders
- Agritex
- DR&SS
- ITDG
- ZWP
- councillors and ViDCos
- Silveira House

- Government through food-for-work and food aid programmes

Ward 21 (Chomuruvati/Musvovi)

Key characteristics - Population (1992 Census)

Population			Households	
Males	Females	Total	Total No.	Average
3052	3554	6606	1128	5.9

No dams functioning.

ITDG have been working with all the ViDCos in this Ward since 1991. Their project has focused on developing the capacity of community groups to identify and solve their own problems in the area of food security, with solutions based largely on strategies using their own resources. Other aims of the ITDG project have been to identify new (local) technologies with farmers and to influence agricultural policies in the District. They have been working with ZFU farmer clubs and 'garden' groups. By 1994, 34 farmer clubs and 37 garden groups were involved. The groups are composed of more women than men. The ZFU area committee assists farmers in acquiring inputs and in marketing their produce; with a consequent reduction in production costs for individual farmers. However, the criteria used for qualification to receive assistance are prohibitive for resource-poor farmers (e.g.. meals) resulting in reduced participation and contributing to low club membership.

According to the needs assessment and village planning meetings facilitated by ITDG in 1991 the following are the priority problems identified by both farmers clubs and garden groups:

Farmers

1. insufficient water
2. insufficient draught power
3. lack of suitable seed varieties
4. lack of co-operation
5. lack of farming knowledge and skills
6. increasing landlessness

Gardeners

1. insufficient water
2. pest management
3. fencing for the gardens
4. poor crop diversity
5. lack of farming knowledge and skills
6. lack of co-operation
7. poor access to inputs

Work to address some of these priorities was initiated in 1991.

Institutional linkages

Institutions working in Ward 21 after 1991 (as indicated by farmers) include:

1. ZFU
2. AGRITEX
3. DR & SS
4. ITDG
5. GTZ
6. ZWP
7. Silveira House
8. Government

One of the major impacts of ITDG has been to increase the range of partners working with farmers and to facilitate farmer contact with the partners. An evaluation of the ITDG Project (1996) showed an increase in institutional capacity among farmer groups in Wards 21 and 4 through:

1. increased confidence and the ability to utilise local services, notably AGRITEX.
2. increased network of contacts facilitated by ITDG now being used by farmers independently of ITDG
3. better cohesion of groups with resultant increased capacity to plan, to seek solutions to problems and to manage change.

Contacts

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Mr. Mapepā, Extension Worker, Ward 21

Ms Gewi, Extension Worker, Ward 4 (not met in Oct. 96 visit)

Bibliography/Reference Material

- Adrielle Bloemendaal, Fembe Rijken, Universitit Utrecht, Ruimtelijke Wetenschappen, Vakgroep SGO, *'A woman's workload'*.
- Chivi District Strategic Development Plan: 1996-2000*, Chivi District Development Committee, January 1996.
- Central Statistical Office (CSO) (1993), *Census 1992. Provincial file: Masvingo*. Government Printers. Harare, Zimbabwe.
- Chivi District Development Committee (1996). *Chivi District Strategic Development Plan: 1996 - 2000*. Prepared on behalf of Chivi Rural District Council. 116pp.
- Chuma E. (1996). *Evaluation of on-farm adaptive trials: Experiences from the development of conservation tillage systems in Southern Zimbabwe*. In: Generation of appropriate agricultural technologies for the smallholder farming sector. Proceedings of a workshop to review participatory research methodologies. 13 to 16 May 1996. Department of Research and Specialist Services, Farming Systems Research Unit. Harare, Zimbabwe.
- Donaldson T. J., Marange T, Mutikani V. Mvumi B., Nenguwo N. Scarborough V. and Turner A. D. (1996). *Household food security study: study rural appraisal of villages in three communal lands of Zimbabwe*. NRI Report, iv + 65 pp.
- Feasibility study of the District/Ward
- Hagmann J., (1991). *Preliminary report of adaptive on-farm tillage trials in Zaka and Chivi Districts*. AGRITEX/GTZ Conservation tillage for sustainable crop production systems. Masvingo, Zimbabwe.
- Hagmann J., Chuma E. and Gundani O. (1992). *Report on two workshops with farmers participating in adaptive on-farm trials in Gutu, Zaka and Chivi Communal Lands*. AGRITEX/GTZ Conservation tillage for sustainable crop production systems. Masvingo, Zimbabwe. Workshops held at Alvord Training Center on 21 to 26 September 1992.
- Hagmann J. and Murwira K. (1994). *Indigenous soil and water conservation in Southern Zimbabwe: a study on techniques, historical changes and recent developments under participatory reseasrch and extension*. AGRITEX/GTZ Conservation tillage for sustainable crop production systems. Research report No. 13. 28 pp.
- IT - Zimbabwe (1996). *A day to remember in Chivi. Appropriate initiatives* 3, 2, 4.
- Jackson C. (1995). *From conjugal contracts to environmental relations: some thoughts on labour and technology*. *IDS Bulletin* 26, 1, 33-399
- Life Strategies in Chivi*, ITDG

FINAL DRAFT REPORT

Mombeshora B. G., (1988). *Practical applications of farming systems research in Chivi Communal Area*. In: *Cropping in the semi-arid areas of Zimbabwe* Vol. 1. Proceedings of a workshop held in Harare, Zimbabwe on 24-28 August 1987. Organised by AGRITEX and DR & SS; sponsored by GTZ.

Mudhara M., Chibudu C., Mombeshora B. G. and Chikura S., (1996). *A survey of farmers' experience and perceptions of participatory research in three communal areas of Zimbabwe (Chivi, Murewa and Mutoko)*. In: Generation of appropriate agricultural technologies for the smallholder farming sector. Proceedings of a workshop to review participatory research methodologies. 13 to 16 May 1996. Department of Research and Specialist Services, Farming systems Research Unit. Harare, Zimbabwe.

Murwira K., (1996). *Case study: The experiences of the Chivi Food Security Project - "Project acting as a facilitator"*. In: The role of professionals in people's empowerment. Coopibo African Exchange Seminar held in Moshi, Tanzania; 19 - 27 March 1996.

Reports from ENDA

Reports from DR&SS (Baseline survey circa 1988, Risk Aversion book)

Scoones I. and Hakutangwi M., (1996). *Evaluation of the Chivi Food Security Project*. Report prepared for ITDG - Zimbabwe with assistance from Mavadzenge B., Mudziwo C. and Murimbarimba F.

Several ITZ reports (Institutional analysis, wealth ranking, needs assessments, agricultural constraints, seed varieties and selection and draught power)

Vella M., (1994). *Needs assessment study for Ward 4: Chivi District, Masvingo Province, Zimbabwe*. ITDG Project Report. 4 - 10 November 1994.

Vella M., Bingu C. and Makaza A., (1994). *Institutions study report for Ward 4: Chivi District, Masvingo Province, Zimbabwe*. ITDG/AGRITEX/Ministry of National Affairs and Employment Creation and Co-operatives Report. 31 May - 10 June 1994.