



**Institute of
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**MINISTRY OF LANDS
AGRICULTURE AND
WATER DEVELOPMENT**

ZIMBABWE

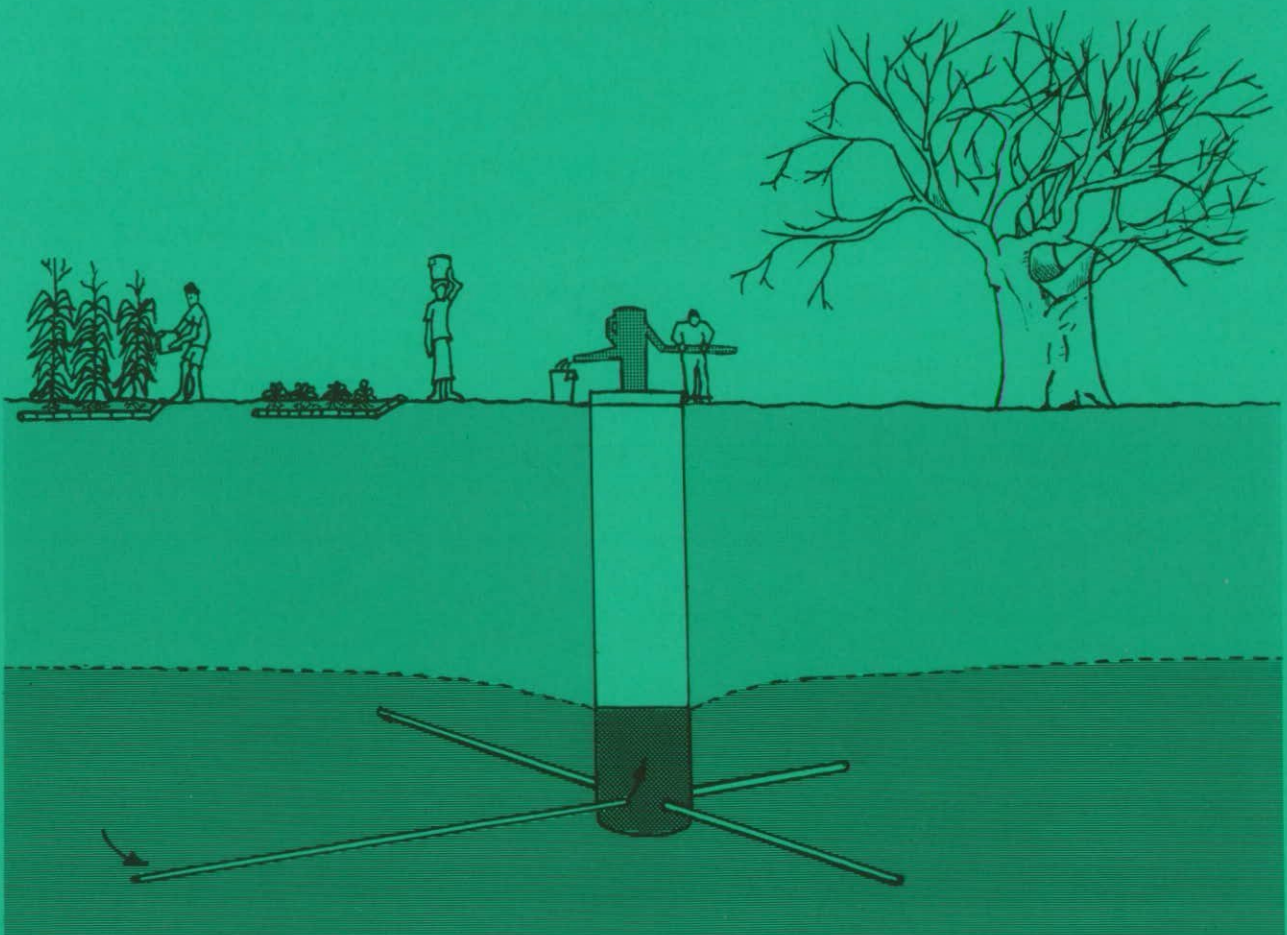
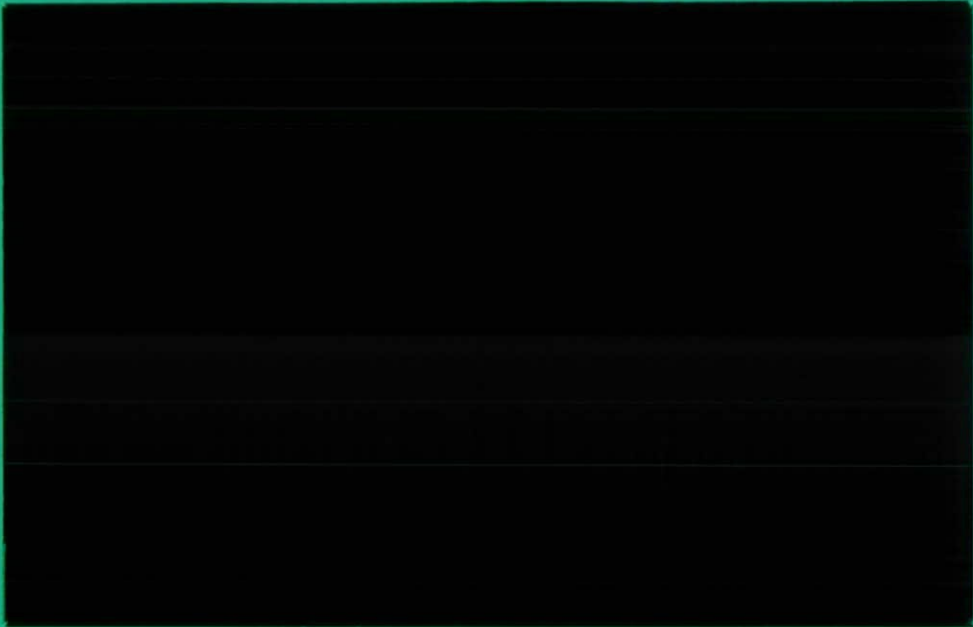
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**British
Geological
Survey**



**OVERSEAS DEVELOPMENT
ADMINISTRATION**



**SMALL SCALE IRRIGATION
USING COLLECTOR WELLS:
PILOT PROJECT - ZIMBABWE**

**Collector Well Garden Performance
1995 Winter Season**

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Executive summary

The "Small-scale Irrigation Using Collector Wells Pilot Project" began in October 1992 and involves collaboration between the Department of Research and Specialist Services, Agritex, Department of Water Development, the British Institute of Hydrology and the British Geological Survey. One of the main objectives of this pilot project is an appraisal of the technical, socio-economic, financial and institutional viability of groundwater-based community gardens in south-east Zimbabwe. Evaluation of the financial performance of the gardens is based primarily on records kept by the garden members and, in particular, by garden secretaries. Evaluation of the social dynamics and day to day problems of operating the gardens is based both on records and discussion with garden members

This report presents data that were collected during the 1995 Winter season for the six ODA TC-funded collector well gardens and the Romwe Collector Well Garden. The 1995 Winter season is taken to be the period April 1995 to August/September 1995. Average gross margin per hectare was Z\$ 67,433 and average gross margin per labour day was Z\$ 10.67. This latter figure is comparable to wages that can be achieved by labourers that are able to find employment on sugar estates in the area.

Although leadership problems were reported for all but one of the gardens, the general trend was for improved financial performance during the 1995 Winter season. The only garden to have had a very poor season was the Romwe Garden. The main reason for this appears to have been the combination of poor leadership and a series of pump failures. It seems that leadership problems rarely have a catastrophic influence on garden performance unless they are combined with pump breakdowns or other difficulties requiring collective action.

Recommendations are made for monitoring of the gardens to continue after the 1995/96 summer season when funding is scheduled to cease.

Contents

	Page
EXECUTIVE SUMMARY	
1. INTRODUCTION	1
2. MUZONDIDYA COLLECTOR WELL GARDEN	2
2.1 Introduction and Cropping Pattern	2
2.2 Financial Performance of the Garden	2
2.3 Social Dynamics and day to day problems	3
2.4 Conclusions	4
3. GOKOTA COLLECTOR WELL GARDEN	5
3.1 Introduction and Cropping Pattern	5
3.2 Financial Performance of the Garden	5
3.3 Social Dynamics and day to day problems	6
3.4 Conclusions	7
4. DEKEZA COLLECTOR WELL GARDEN	8
4.1 Introduction and Cropping Pattern	8
4.2 Financial Performance of the Garden	8
4.3 Social Dynamics and day to day problems	9
4.4 Conclusions	10
5. NEMAUKA COLLECTOR WELL GARDEN	11
5.1 Introduction and Cropping Pattern	11
5.2 Financial Performance of the Garden	11
5.3 Social Dynamics and day to day problems	12
5.4 Conclusions	13
6. MAWADZE COLLECTOR WELL GARDEN	14
6.1 Introduction and Cropping Pattern	14
6.2 Financial Performance of the Garden	14
6.3 Social Dynamics and day to day problems	15
6.4 Conclusions	16
7. MATEDZE COLLECTOR WELL GARDEN	17
7.1 Introduction and Cropping Pattern	17
7.2 Financial Performance of the Garden	17
7.3 Social Dynamics and day to day problems	18
7.4 Conclusions	18

	Page
8. ROMWE COLLECTOR WELL GARDEN	19
8.1 Introduction and Cropping Pattern	19
8.2 Financial Performance of the Garden	19
8.3 Social Dynamics and day to day problems	20
8.4 Conclusions	22
9. GENERAL CONCLUSIONS AND RECOMMENDATIONS	23
ACKNOWLEDGEMENTS	24
REFERENCES	25

1. Introduction

Projects related to developing groundwater resources for community gardening have been in progress in south-east Zimbabwe since 1988. More details of these projects and, in particular, the "Small-scale Irrigation Using Collector Wells Pilot Project" can be found in a series of interim and progress reports (Batchelor *et al.*, 1990; Lovell *et al.*, 1990; Lovell *et al.*, 1992; Lovell, 1993; Lovell *et al.*, 1993, 1994a, 1994b, 1995a and 1995b; Murata *et al.*, 1995). More details of the economic performance of the collector well gardens can be found in Waughray *et al.* (1995).

This report provides information on the financial performance of the six collector well gardens that have been implemented as part of the "Small-scale Irrigation Using Collector Wells Pilot Project". This report also provides information on the Romwe Collector Well Garden (originally referred to as the Tamwa/Sihambe/Dhobani Garden) which was implemented using ODA Engineering Division funds in 1990.

2. MUZONDIDYA Collector Well Garden

2.1 INTRODUCTION AND CROPPING PATTERN

Muzondidya had a very disorganised start to the winter season due to some leadership problems. The first garden nursery of rape sown in mid-February was washed away by a heavy storm on 17/2/95 and had to be resown. A significant number of members had to get seedlings from private sources because time was running out. Membership remained at 134, however, at the end of the season, 5 members left the scheme (3 for personal reasons and 2 because of translocation) but were replaced by 5 members who paid \$5/bed.

2.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	2794kg @ \$2.00/kg	5588
Sweet cabbage	3933kg @ \$2.00/kg	7866
Tomatoes	2648kg @ \$2.00/kg	5296
Total value of output		18750

Variable (cash) input costs

Seed:	Rape 75g	16
	Sweet cabbage (private sources)	15
	Tomatoes	15
	Total seed cost	31

Chemicals : None

Total Variable Cost 31

Gross Margin 18719

Average Gross Margin per hectare 38804

Average Gross Margin per Member 140

Average estimated labour inputs/member household "man"-hours

Land preparation & Transplanting	16
Nursery Operations	1
Irrigation (including pumping) and weeding	
4.5 hrs/week by 4 wks	18
7.5 hrs/week by 4 wks	30
10.5 hrs/week by 12 wks	126

Extra watering during weeks of transplanting	20
Harvesting and marketing; (no records)	
Total labour input per member household	211
Average Gross Margin return to labour (\$/labour day)	5.30

The gross margin and gross margin return to labour for this scheme represent a significant increase on the previous winter season. The site has continued to have under-reporting despite great efforts by the project staff to emphasize the need for good record keeping. The AEW said that judging from his eye the garden performed as well as Gokota. He however resolved to periodically request for the books and check on the entries.

2.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

Muzondidya had problems of leadership. The very first committee misappropriated funds. The chairperson on the second committee had a lot of other things to do. She is the Village Health Worker. So, due to more conflicting commitments, she resigned chairing the garden committee and devoted her time to duties of VCW. The treasurer to her committee also misappropriated funds. The third committee was forced out of office by the VIDCO chairman and other kraal heads because they alleged that nobody had voted them into office, although these leaders are outside the projects. The fourth and current committee is composed of non-members and members who were elected by non-members, mainly kraal heads and VIDCO chairman. Members have yet to challenge this. Improvement in leadership is critical for Muzondidya. There are many power hungry individuals who are causing these rapid changes in the committees, hindering any serious progress. The current committee comprises of the following people:

Chairman	Mr. D. Chauke
V.Chairman	Mr C. Chando (former committee member)
Secretary	Mrs C. Mavuvu (retained her post through all the reshuffles)
Vice Secretary	Mrs N Masiyavito
Treasurer	Mr H Dzoro Semende
Committee members	
Caretaker	Mr Isaac Chemai Mr Makuba Chakanyika

Pest control has not been uniform. Some members have been doing their own pest control and it was not clear what chemicals they were using and what amounts.

A pump maintenance team of three was elected for Muzondidya but they did not have serious breakdowns.

Table 1 shows a record of pump maintenance activities.

Table 1 *Record of Pump Maintenance Activities*

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
Mid April	30/5/95	Rod	DDF & Members	\$25	Threading the Rods	Cement from Project	Domestic
29/9/95	29/9/95	Loose nuts	Members	Nil	Tightening nuts	Nil	Garden

Table 2 provides indicators of performance and some brief explanatory notes since the inception of the garden.

Table 2 *Present and Past Performance of Muzondidya Collector Well Garden*

Season	Cropped Area ha	Gross Margin \$/ha	Returns to labour \$/day	Notes
Winter 94	0.48	27673	4.52	
Winter 95	0.48	38804	5.30	

2.4 CONCLUSIONS

Despite recurring leadership problems, the garden produced good returns during the 1995 season.

3. GOKOTA Collector Well Garden

3.1 INTRODUCTION AND CROPPING PATTERN

This time, unlike in the past when all seedlings were collected from the garden nursery, seedlings have been sourced from private nurseries because the garden nursery ran out. Membership is standing at 110 but only 109 members had crops on the ground this winter. Each of the 109 members had 1 bed of rape, 1 bed of tomato and 2 beds of sweet cabbage.

3.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	6856kg @ \$1.00/kg	6856
Sweet cabbage	11683kg @ \$1.00/kg	11683
Tomatoes	6309kg @ \$1.50/kg	9464
Total value of output		28003

Variable (cash) input costs

Seed:	Rape 30g	4
	Sweet cabbage 250g	23
	Tomato 40g	45
	Total seed cost	72
Chemicals :	Dimethoate	0
Total Variable Cost		72
Gross Margin		27931
Average Gross Margin per hectare		85416
Average Gross Margin per Member		256

Average estimated labour inputs/member household "man"-hours

Digging,	3
Nursery Operations	1
Transplanting	2
6 hrs/week by 4 wks	24
9 hrs/week by 4 wks	36
10.5 hrs/week by 8 wks	84
12 hrs/week by 8 wks	96
18 hrs/week by 5 wks	90

Extra watering during weeks of transplanting	20
Harvesting and marketing; (no records)	
Total labour input per member household	356
Average Gross Margin return to labour (\$/labour day)	5.76

Average Gross margin and gross margin return to labour went up as had been predicted last winter. Given the fact that Gokota did not have a substantive chairman for a while and the shortage in nursery material, these figure are quite impressive.

3.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

Earlier in the season, the chairman Mr Luke Chikwera went to look for employment in Chiredzi and there was no substantive chairman. Because decisions which needed to be made promptly were not made, shortage of seed resulted. Mr. Luke Chikwera later resigned and nobody was active and no meetings were called for a while. When the secretary called for meetings few people turned up. On the 19th of July, a new committee was elected and is as below.

Chairman	Mrs V. Chikwera
Vice Chairmen	Mrs J. Kunyadza
Treasurer	Mr T. Chipato
Secretary	Mr P. Mufushwa
Committee Members	Mr Samuel Chipato
	Mrs Chiminya
	Mrs T. Chipato

Other problems that were present this season were pest and diseases. Aphids, bugrada bugs and other bacterial diseases affected rape and cabbage. Since there were no chemicals bought pest control was not effectively done. Some dimethoate donated by a garden member who is a cotton farmer was the only chemical that was applied.

The collector well is also running short of water (or at least being pumped to its limit) and people have to queue and wait for water.

Gokota did not experience any serious pump breakdowns.

Table 1 shows a record of minor pump repair and maintenance activities conducted at the site.

Table 1 *Record of Pump Maintenance Activities*

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
9/9/95	15/9/95	Rod	DDF helped by locals	\$8	Threading the rod	Nil	Garden
28/9/95	29/9/95	loose pipes	DDF & locals Trained members were not around	\$40	Tighten the pipe	Nil	Garden

Table 2 provides indicators of performance and some brief explanatory notes since the inception of the garden.

Table 2 *Present and Past Performance of Gokota Collector Well Garden*

Season	Cropped Area ha	Gross Margin \$/ha	Returns to labour \$/day	Notes
Winter 94	0.43	35348	3.42	Leadership problems, slow start
Winter 95	0.43	85416	5.76	Responded to leadership problem rather late

3.4 CONCLUSIONS

Gokota's case of slow response to a leadership crisis is not a unique case. It seems that if one member, particularly the chairman, is not there everything comes to a halt. There is a need for investment in leadership and followership training. The running out of water in the well also points out the need to introduce water saving practices to Gokota. Gokota might soon benefit from a Kellogg Fellowship on Leadership won by Mr. Mazhangara. He intends to work with the community through some of the listed problems. His work is not only going to benefit Gokota but other schemes as well.

4. DEKEZA Collector Well Garden

4.1 INTRODUCTION AND CROPPING PATTERN

Of the 50 members, 46 had 4 beds each of sweet cabbage, 3 beds of rape, 3 beds of drumhead cabbage and 6 of tomatoes, the moneymaker variety. The remaining 4 members, the extension worker, headman, councillor and former headman Mamutse, have 2 beds each of the crops listed above.

4.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	2883kg @ \$1.50/kg	4325
Sweet cabbage	3902kg @ \$1.50/kg	5853
Drumhead cabbage	2292kg @ \$2.50/kg	5730
Tomatoes	4731kg @ \$2.00/kg	9462
Total value of output		25370

Variable (cash) input costs

Seed:	Rape 150g	28
	Sweet cabbage 100g	33
	Drumhead cabbage 100g	36
	Tomato	41
	Total seed cost	138

Chemicals :	Dimethoate	29
	Total chemical cost	29

Others :	2 U-Bolts	34
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Total Variable Cost	201
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Gross Margin	25169
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Average Gross Margin per hectare	62423
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Average Gross Margin per Member	503
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Average estimated labour inputs/member household "man"-hours

Digging, Manuring & bed preparation	70
Nursery Operations	1
12 hrs/week by 9 wks	108
15 hrs/week by 8 wks	120

18 hrs/week by 5 wks	90
Extra watering during weeks of transplanting	40
Harvesting and marketing; (no records)	
Total labour input per member household	429
Average Gross Margin return to labour (\$/labour day)	9.39

The gross margins for Dekeza Collector well community garden rose from last year's \$18789 to 25169 this season. This is an impressive 34% increase that can be attributed to positive use of experiences gained last season and the enthusiasm that exists within the garden community. The average gross margin return to labour of \$9.39 per labour days is an impressive gain from the first season.

4.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

The problem of alleged misuse of \$361 out of the gift of \$861 given to the garden members by the Deputy High Commissioner at the opening ceremony finally got resolved by the chairman, Mr. S. Mahiya. A general meeting was held where it was established that the money used in the private party was not just a partying spree but it was in honour of the top local leadership, the headmasters of primary and secondary schools, the headman, the local councillor, garden chairman and other committee members and the general meeting endorsed it. A second issue was an alleged misuse of \$300 from the fund to pay for the chairman's daughter's school fees. The general meeting also agreed that Mr. Mahiya should not have stolen the money so it was booked as a misconduct for which he should be reprimanded and asked to resign the chairmanship. A case was pleaded for him to be forgiven since it was a first time offense and also his dedication and hard work. The members then endorsed his remaining as chairman. To safeguard against these events occurring in the future, a finance subcommittee of three members and the chairman was formed to handle all finance matters. These resolutions did not go well with the local AEW who wanted Mahiya dethroned. He vowed never to give advice to the garden members unless his wishes were fulfilled.

Dekeza was poised to win a wheelbarrow in the garden competition, however, the local AEW manipulated the judges into awarding another garden and not any ODA-Funded garden projects. He is alleged to have told the judges not to put Dekeza garden in any position from 1 to 10 so that they get a consolation prize. The extension worker is also said to have issued seed earmarked for the garden to other people and not the garden committee. These issues were reported to the supervisor who then came and held a meeting to see what disciplinary measures can be taken against the AEW.

Members who were asked to give their willingness to sell their beds indicated a range from \$500 to \$11,000. Fifty people have approached the chairperson seeking to join the scheme.

Another problem faced by the scheme is that of non-members, who are forcing the committee not to lock the gate so that they can have free access to domestic water, are not careful enough to close the gate. Animals have gone in and destroyed vegetables on several occasions. The committee and members are now thinking of fencing out the collector well.

At present there seems to be no leadership problems since the one on embezzlement of funds has been resolved. The existing leadership is as follows:

Garden committee -

Chairman	Solomon Mahiya
Vice chairman	Solomon Mushava
Secretary	Jeremiah Gono
V. Secretary	Jeremiah S. Maringire
Treasurer	Lydia Sendama Munjanja
Members:	Alice Chirindo
	Susan Chanduka

Finance subcommittee -

Chairman	Solomon Mahiya
Auditors	Mrs. Mubhimi Tamai
	Mrs Sekina Maringire
	Mr Jeremia Gomo

A few pump problems occurred at Dekeza but they were easily rectified.

Table 1 Record of Pump Maintenance Activities

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
21/9/95	21/9/95	Loose pipes	DDF	\$70	Tightening	Nil	Domestic
22/9/95	22/9/95	Loose pipes	The members	Nil	Tighten pipes	Nil	Domestic

Table 2 provides indicators of performance and some brief explanatory notes since the inception of the garden.

Table 2 Present and Past Performance of Dekeza Collector Well Garden

Season	Cropped Area ha	Gross Margin \$/ha	Returns to labour \$/day	Notes
Winter 94	0.4032	47459	5.90	
Winter 95	0.4032	62423	9.80	Increases due to good experience and cohesiveness.

4.4 CONCLUSIONS

Good returns were achieved during this season and disputes have been resolved satisfactorily.

5. NEMAUKA Collector Well Garden

5.1 INTRODUCTION AND CROPPING PATTERN

Each of the 85 members had 1 bed each of rape, tomato and sweet cabbage.

5.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	6470kg @ \$1.50/kg	9705
Sweet cabbage	6150kg @ \$1.50/kg	9225
Tomato	3690kg @ \$2.00/kg	7380
Total value of output		26310

Variable (cash) input costs

Seed:	Rape 75g	4
	Sweet cabbage 75g	10
	Tomatoes (private nurseries)	
	Total seed cost	14

Chemicals : None

Total Variable Cost 14

Gross Margin 26296

Average Gross Margin per hectare 66910

Average Gross Margin per Member 309

Average estimated labour inputs/member household "man"-hours

Land preparation & Transplanting	28
Nursery Operations	1
Irrigation (including pumping) and weeding	
6 hrs/week by 4 wks	24
8 hrs/week by 8 wks	64
10.5 hrs/week by 8 wks	84
Extra watering during weeks of transplanting	8
Harvesting and marketing; (no records)	
Total labour input per member household	209
Average Gross Margin return to labour (\$/labour day)	11.84

Both indicators of economic performance of the garden increased significantly from last winter season. A gross margin return to labour of \$11.84/LD is quite competitive and comparable to what casual labourers get in the estates. This compared to the communal area winter where opportunity cost is near zero is a remarkable productivity.

5.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

Nemauka remains seriously affected by leadership problems. The chairperson is always away and never calls for any meeting. The secretary took over at some point and tried to convene a meeting but nobody came. The treasurer does not come to meetings. Effort by the extension worker has not changed the situation for the better.

In terms of membership, two have resigned because Mr. Muvavi, the kraal head, is challenging the members telling them that the garden and well belongs to him since he donated the piece of land. Four members have lent their beds to non-members for \$30 to \$40 per person hoping to come back after things have settled down.

The pumps have broken down frequently, similar to the Romwe site. Pump maintenance was poor because the tool kit was taken by force from the caretaker by Mr. Muvavi. Their crop had periods of stress due to pump problems. The project staff took a number of initiatives to get the pumps repaired and also tried to address the leadership problems. Garden records were not collected regularly and as a result under reporting occurred although project members spent sometime emphasizing the need for proper record keeping. Table 1 shows a record of pump maintenance activities.

Current leadership is as follows:

Chairperson	Mrs Esnath Mashanyare
Vice chairperson	Mr Bvumo Makwindi
Secretary	Mr Clemence Chinounya
Vice Secretary	Mrs Eunice Muvavi
Treasurer	Mr S. Manatsa
Committee members	Mrs Chitunhi
	Mrs Makwiriti
	Mr Nehemia Nhubu (Caretaker)

Table 1 *Record of Pump Maintenance Activities*

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
25/3/95	19/4/95	Screen	Members & Mtetwa Dube Mawadze	Nil	Retrieve the cylinder and change the screen with a new one	Screen \$100	Domestic
24/4/95	10/5/95	Cylinder and rods fell in the well	Members	Nil	Retrieve the rods & cylinder and tighten them	Nil	Domestic
29/5/95	10/6/95	Rods loose	Members	Nil	Tighten the loose rods	Nil	Domestic
24/6/95	31/8/95	Rods & pipe loose	Lovell L.Dube T.Dube	Nil	Fit new screen and tighten loose pipe & rods	Nil	Both
August	4/9/95	Holder loose	Members & Dube Mtetwa	Nil	Put concrete to hold the holder strong		

Table 2 provides indicators of performance and some brief explanatory notes since the inception of the garden.

Table 2 *Present and Past Performance of Nemauka Collector Well Garden*

Season	Cropped Area ha	Gross Margin \$/ha	Returns to labour \$/day	Notes
Winter 94	0.39	2221	0.42	
Winter 95	0.39	66910	11.84	

5.4 CONCLUSIONS

Another garden where leadership difficulties have been a recurring problem, but where production and returns have increased to impressive levels.

6. MAWADZE Collector Well Garden

6.1 INTRODUCTION AND CROPPING PATTERN

Mawadze members grew rape, tomatoes and sweet cabbage this winter.

6.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	757kg @ \$1.00/kg	7576
Sweet cabbage	6570kg @ \$1.00/kg	6570
Tomato	4363 kg @ \$2.00/kg	8726
Total value of output		22872
Variable (cash) input costs		
Seed:		
Rape		27
Sweet cabbage		46
Tomatoes 40g		64
Total seed cost		137
Chemicals :	None	
Total Variable Cost		137
Gross Margin		22735
Average Gross Margin per hectare		52264
Average Gross Margin per Member		455

Average estimated labour inputs/member household "man"-hours

Land preparation & Transplanting		19
Nursery Operations		2
Irrigation (including pumping) and weeding		
6 hrs/week by 4 wks		24
7 hrs/week by 4 wks		28
7 hrs/week by 12 wks	84	
12 hrs/week by 4 wks		48
Extra watering during weeks of transplanting		10
Harvesting and marketing; (no records)		
Total labour input per member household		215
Average Gross Margin return to labour (\$/labour day)		16.92

The gross margins for Mawadze increased significantly from last season's. The return to labour more than quadrupled in this season. This was inevitable given the hard work excellent leadership and the dedication of the garden community to its success.

6.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

Right from the start, the community at Mawadze showed a very good cohesiveness. This has continued into this season. Mawadze has outperformed all the other sites in this regard. This year, the site has received visitors from far and wide. Among those recorded are visitors from South Africa, ODA Shadow Minister, British High Commissioners's 1st and 2nd Secretaries, Agritex PAEO (Technical) and NGOs from Lesotho and South Africa and school children from Mkwesine.

The meter on the garden pump was stolen on 3/3/96. A replacement was provided by the project. The garden leadership had several meetings with the project staff on the importance of accurate record collection, leadership and repairs. In one meeting chaired by the chairman, Mr. J. Mawadze, it was agreed that school teachers from Vhudzi Primary School pay \$60 each toward pump repairs and maintenance.

The garden experienced a nasty leadership problem at the end of the winter season. Mr. Josiah Mawadze who is no longer the garden chairman but just a committee member, is reported to be taking over chairmanship by force since he is a brother to the kraal head. On the 31st of September, the current chairperson, Mr. Mujeke, was beaten by Josiah and one of his arms broke. Josiah was charged \$500 or 3 months in prison in Zaka court. He paid the fine and now he is refusing to hand over the garden's spanners to repair the borehole. The leadership has managed to raise a substantial amount of money for pump repairs. They recently bought \$427.00s' worth of spare from Stewart and Lloyds in Masvingo. The current committee is structured as follows:

Chairman	Mr Mica Mujeke
Vice chairman	Betty Mawadze
Secretary	Mrs Mutakwa
Vice Secretary	Mr Genefas Ndanga
Treasurer	Mr Nheya Mawadze
Other committee members	
	Mr Peter Mhino
	Mr Josiah Mawadze

The pumps at Mawadze have been maintained well without major hiccups.

Table 1 shows a record of pump maintenance activities.

Table 1 *Record of Pump Maintenance Activities*

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
19/6/95	19/6/95	Loose nuts & bolts	J. Mawadze	Nil	Tighten nuts & bolts	Nil	Domestic
29/9/95	30/9/95	Loose nuts & bolts	J. Mawadze Sinyoro Muyeke	Nil	Tighten nuts & bolts	Nil	Domestic

Table 2 provides indicators of performance and some brief explanatory notes since the inception of the garden.

Table 2 *Present and Past Performance of Mawadze Collector Well Garden*

Season	Cropped Area ha	Gross Margin \$/ha	Returns to labour \$/day	Notes
Winter 94	0.35	11183	4.18	Great social cohesion and good management
Winter 95	0.44	52264	16.92	Leadership problems at end of season did not affect season outcome. Needs to be checked immediately

6.4 CONCLUSIONS

The performance of this garden was excellent during the 1995 winter season. It remains to be seen whether the recent leadership dispute has an impact on garden performance during the 1995/96 summer season.

7. MATEDZE Collector Well Garden

7.1 INTRODUCTION AND CROPPING PATTERN

Membership grew from 74 to 87 as 13 new members joined the scheme. Each of the 87 members had 3 beds each of rape and sweet cabbage and 1 bed of tomatoes. Each bed measures 1 x 3 metres. This was the first cropping season after the interim measure of letting the 25 men who dug the well break the ground with a maize summer crop.

7.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	11029 kg @ \$1.00/kg	11029
Sweet cabbage	8964kg @ \$1.00/kg	8964
Tomato	.12299 kg @ \$2.00/kg	24598
Total value of output		44591

Variable (cash) input costs

Seed:	Rape 325g	82
	Sweet cabbage 35g	25
	Total seed cost	107
Chemicals :	Bexadust	12
	Total chemical cost	12
Others :	Lock & key	10
Total Variable Cost		129
Gross Margin		44462
Average Gross Margin per hectare		162270
Average Gross Margin per Member		500

Average estimated labour inputs/member household "man"-hours

Pegging	7
Digging, Manuring & bed preparation	25
Nursery Operations	1
4 hrs/week by 4 wks	16
5 hrs/week by 4 wks	20
8 hrs/week by 12 wks	96

There was no extra watering during weeks of transplanting because of drizzles which fell

Harvesting and marketing; (no records)

Total labour input per member household 165

Average Gross Margin return to labour (\$/labour day) 24.78

Matedze achieved exceptionally high gross margin and gross margin return to labour. The return to labour of \$24.78 is more than double the casual wage rate in agriculture. It suggests that it pays for those community members to stay gardening in winter rather than working on agricultural estates. This could be an anomalous result and mean returns may be lower.

7.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

The site did not register any leadership problems or pump breakdowns. The minor problems experienced this winter were plain wire which was stolen from the garden and one piezometer next to the collector well which was blocked by stones. Table 1 shows a record of pump maintenance activities.

Table 1 Record of Pump Maintenance Activities

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
24/9/95	26/9/95	Loose nuts & bolts	Members	Nil	Tighten loose bolts & nuts	Nil	Both

The current leadership is composed of the following:

Chairperson	Jan Bomero
V. Chairperson	Claudius Muchini
Secretary	Never Guyo
V. "	Sam Mshuku
Treasurer	Rovai Mashora
Other members	Mr. Makonese Chikosi & Jacob Baradze.

7.4 CONCLUSIONS

Despite being a very new garden, the gross margin was the highest achieved by any of the gardens being monitored by the project. Returns to labour day were also impressively high.

8. ROMWE Collector Well Garden

8.1 INTRODUCTION AND CROPPING PATTERN

Each member had only three beds of rape.

8.2 FINANCIAL PERFORMANCE OF THE GARDEN

Gross Margin analysis (whole garden)

Output	Z\$	Z\$
Rape (fresh leaves)	368 kg	736
Total value of output		736
Variable (cash) input costs		
Seed:	Rape	7
	Total seed cost	71
Chemicals :	Carbaryl dust	84
	Dimethoate	25
	Total chemical cost	109
Others :	4 Ball point pens	5
Total Variable Cost		121
Gross Margin		615
Average Gross Margin per hectare		3946
Average Gross Margin per Member		12

Average estimated labour inputs/member household "man"-hours

Clearing out old crops	2
Digging; 3 beds at 1 hour/bed 2 members/family	6
Nursery Operations	23
Transplanting; 3 beds by 2 hours/bed	6
Irrigation (including pumping) and weeding 3 hrs/week by 7 wks	21
7.5 hrs/week by 4 wks	30
9 hrs/week by 4 wks	36
Extra watering of new transplants; 4 beds by 1 hour by six days	24
Harvesting and marketing; (no records)	

Total labour input per member household 148
Average Gross Margin return to labour (\$/labour day) 0.67

The gross value was calculated on "garden gate" price of \$2.00 per kilogram. Gross margin return to labour hit the lowest mark for the scheme since its inception. This low productivity is a result of poor irrigation caused by pumps failures which persisted throughout the season. The members only utilized less than a quarter of the land because of this problem.

8.3 SOCIAL DYNAMICS AND DAY TO DAY PROBLEMS

The poor performance of the scheme is mainly a result of poor leadership. At the start of the winter season, the first nursery made failed because of negligence. The ordinary garden members selected to man the nursery were not organised and the committee did not notice it early enough to rectify it. They later formed a nursery sub-committee but it was not in time to save the nursery. The garden committee was not cohesive during the winter season. No meetings were called for a very lengthy period and members did not seem to be bothered. An attempt was once made by the project staff to call for a meeting to solve the crisis but both the chairman, Mr. D. Tamwa and the vice chairperson, Miss Mhlanga, did not attend. When the pumps broke down, no initiatives were taken to get them repaired until project staff got involved. The pipe which delivers water to the tank was reported blocked and the tank cracked in early April but was only repaired first week of May. Table 1 shows a record of pump maintenance activities.

To rectify the problem of pump breakdown nine members were selected and re-trained on pump maintenance. It was agreed in a general meeting that both members and non-members pay \$10.00 to be used in buying spares for pump maintenance. Members have not subscribed in time. On the 6th of September, the vice-chairperson took an initiative to organise the members into four groups which will compete against each other for best crops in a bid to revive the enthusiasm for the scheme. Each of the sub-groups has a subcommittee composed of a chairperson, vice chairperson, secretary, vice secretary, treasurer and caretaker. The four sub-committees have been tasked to look at subscriptions, maintenance and watering for their subgroups. Initially the subgroups were to be divided according to villages, Sihambe, Dhobani and Tamwa but was later made to cut across villages so as not to be separatist. This move is a good indication that the leadership has now put their act together. Hopefully, things will improve for the better. Membership still remains at fifty.

Table 1 *Record of Pump Maintenance Activities*

Date Broken	Date Repaired	Part Broken	Who Repaired	Cost	Job Done	Part Bought and Price	Pump Attended
April	1/5/95	Garden tank cracked	Members	Nil	Repair cracks	Cement from Project	-
	28/6/95	Meters	Mietwa T.Dube Mhlanga	Nil	Cleaning the meters	Nil	Both
23/6/95	26/9/95	Rod bend	Mhlanga Mhlanga Siwawa, Ncube	Nil	Straighten	Nil	Domestic
30/8/95	26/9/95	Casing slided down. Clamps broken	Mhlanga Mhlanga Siwawa Ncube	Nil	Put concrete on casing. Repair clamps	Nil	Domestic

Table 2 provides indicators of performance and some brief explanatory notes since the inception of the garden.

Table 2 *Present and Past Performance of Romwe Collector Well Garden*

Season	Cropped Area ha	Gross Margin \$/ha	Returns to labour \$/day	Notes
Winter 91	0.21	658	-	Poor start to social cohesion and inappropriate management.
Drought 91/92	0.22	45870	2.85	Drought year, high sales.
Summer 92/93	0.30	7965	8.68	
Winter 93	0.46	18333	3.56	
Summer 93/94		-	-	No crops, destroyed by mice and hailstorm, active
Winter 94	0.46	18903	5.77	
Summer 94/95	-	-	-	No crops.
Winter 95	0.1	3946	0.67	Poor leadership. Pumps not repaired.

8.4 CONCLUSIONS

Though members of the community garden at Tamwa/Sihambe/Dhobani had continued to achieve high gross margins in past seasons, they have received a less attractive return to labour this winter season. Problems of frequent bushpump breakdown and subsequent delayed maintenance and the poor leadership on the part of the garden committee are worrying. However, a recent initiative by the revived committee is an indication that there is still hope and room for returning to the high performance.

9. General Conclusions and Recommendations

The main conclusions that can be drawn from the information presented here are :

- * The trend was for the financial performance of the gardens during the 1995 Winter season to be better than for previous seasons. The exception was the Romwe Garden which had a very poor season. Average gross margin per hectare was Z\$ 67,433 and the average gross margin per labour day was Z\$ 10.7. Improved performance can be attributed primarily to the increased experience of the scheme members;
- * the improved performance was recorded despite leadership and/or organisational problems which were reported for all but one of the gardens. Leadership problems did not appear to have a catastrophic influence on garden performance unless they were associated with, or occurred at the same time as, pump breakdowns or other difficulties requiring important decisions to be made, collective action and/or major expenditure. The combination of leadership problems, a series of pump breakdowns and problems with pipes and the tank resulted in the very poor performance of the Romwe Garden;
- * the returns per labour day from the gardens are comparable and in some cases far higher than wages that can be earned by labourers that are able to obtain employment in the region. Although it was not one of the original justifications for implementing the pilot project, income generation is clearly an important benefit;
- * the use of agro-chemicals by the schemes is very low with three gardens using no agro-chemicals at all. Other surveys (i.e. the return to household survey) have reported that pest control is one of the major problems on the gardens. It is clear therefore that more pest control measures should be taken using either chemical or, preferably, biological methods.

The main recommendation is that monitoring of the gardens should continue for several more seasons. There is still much to be learnt with regard to the many factors that can influence garden performance. These factors can include: the experience of scheme members, the experience and structure of local institutions, the age and reliability of pumps, agro-climatic factors such as soil fertility or droughts and changes in marketing opportunities. At the time of writing this report, funding has not been secured to support monitoring of the 1996 Winter Season.

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