

## **Appendix 5 Cost Estimation Borne by the Recipient Country**

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## Appendix 5 Cost Estimation Borne by the Recipient Country

### (1) Works Costs

#### 1) Allowances in works borne by the Malawi side (drilling machine operator class)

- Second year works:

$$210 \text{ MK/day} \times 3 \text{ persons} \times 250 \text{ days} = 157,500 \text{ MK}$$

- Third year works:

$$210 \text{ MK/day} \times 2 \text{ persons} \times 250 \text{ days} = 105,500 \text{ MK}$$

- Total: 262,500 MK

#### 2) Costs incurred in the management of works borne by Malawi side

##### ① First year works

- Allowances of supervisors:

$$230 \text{ MK/day} \times 6 \text{ days} \times 6 \text{ months} = 8,280 \text{ MK}$$

- Allowances of drivers:

$$160 \text{ MK/day} \times 6 \text{ days} \times 6 \text{ months} = 5,760 \text{ MK}$$

- Gasoline and other vehicles running costs

$$800 \text{ MK/day} \times 6 \text{ days} \times 6 \text{ months} = 28,800 \text{ MK}$$

- Total

42,840 MK

##### ② Second and third year works

- Allowances of supervisors:

$$230 \text{ MK/day} \times 6 \text{ days} \times 12 \text{ months} = 16,560 \text{ MK}$$

- Allowances of drivers:

$$160 \text{ MK/day} \times 6 \text{ days} \times 12 \text{ months} = 11,520 \text{ MK}$$

- Gasoline and other vehicles running costs

$$800 \text{ MK/day} \times 6 \text{ days} \times 12 \text{ months} = 57,600 \text{ MK}$$

- Total

85,680 MK

##### ③ Sub-total ( ① + ② )

214,200 MK

#### 3) Grand Total ( 1) + 2) )

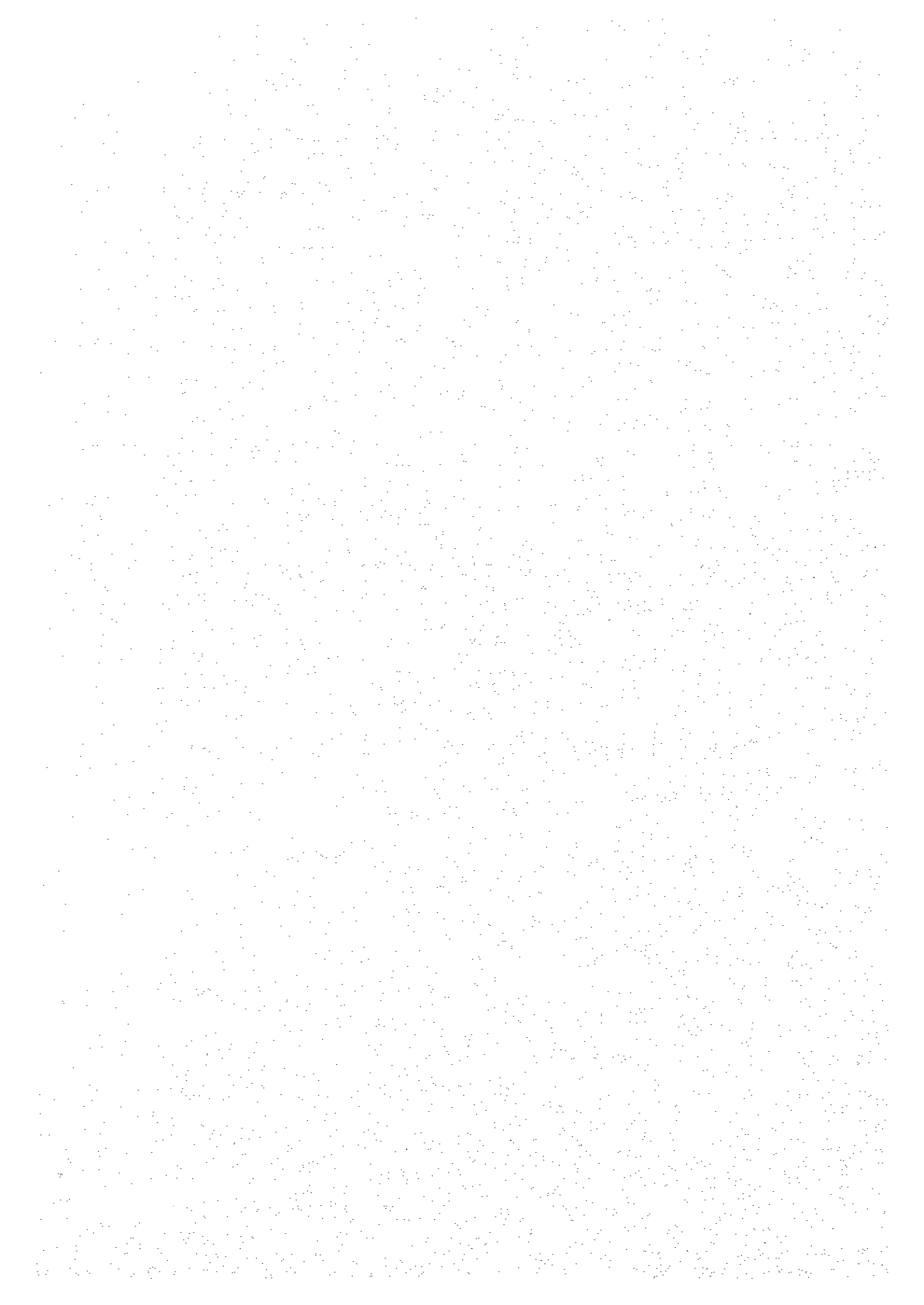
476,700 MK

(2) The cost of enlightenment activities is discussed in 3-2-1.



## **Appendix 6 Other Relevant Data**

- A-1 Borehole Construction Plan at Village Level**
- A-2 Borehole Construction Plan Compared with Requested Village**
- A-3 List of Existing Boreholes**
- A-4 Meteorological and Hydrological Data**
- A-5 Results of Electric Prospecting**
- A-6 Results of Water Quality Analysis**



A-1 (1)

BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

T. A. MPHEREMBE

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
8	SIMON JERE	442			1	1-1	IA	40
	SAMARA QUMAYO	408			1	1-2	IA	40
9	MUKOSAWA NSERE	254			1	1-3	IA	40
	MALIDADE	182			1	1-4	IA	40
13	CHIBEKU KASKOMBE	340			1	1-5	IA	55
	TIMEO UTEKA	340			1	1-6	IA	55
14	SIMON CHISI	372			1	1-7	IIA	45
17	MZANYA (Mawira) JERE	216			1	1-8	IIB	40
19	SANDRESS MLOTHA X2	508			2	1-9	IIB	40
						1-10	IIB	40
20	KABWAFU SETT. SCHEME (B)	1491			2	1-11	IA	40
						1-12	IA	40
21	KABWAFU SET. SCHEME(A)	2440			1	1-13	IA	40

Type I	0	0	9
Type II	0	0	4
TOTAL	0	0	13

A-1 (2)

## BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA CHINDI) - I

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth (m)
			1	2	3			
2	DAVIDE NYIRENDA	648			1	2-1	IA	40
3	JAMES KAMUTONDOLI	417			1	2-2	IA	40
	CHIMIMBA CHIPETA	556			1	2-3	IIB	40
4	SANGAZINJE MLOTIHA X2	691			2	2-4	IIB	55
						2-5	IIB	55
	DUKUTU GONDWE	406			1	2-6	IIB	55
5	VANELA NYANJAGHA	687			1	2-7	IIA	40
	CHILONGOZI GONDWE	650			1	2-8	IIA	40
7	CHITOWO KUMWENDA	677			1	2-9	IA	40
	KAJEMBE KUMWENDA (B)	180			1	2-10	IA	40
8	DANIEL JERE (B) X2	854			2	2-11	IA	45
						2-12	IA	45
	SILIYA THEGHA	395			1	2-13	IA	45
10	CHINOMBO JERE	326			1	2-14	IA	60
11	JONATHAN MANDA	223			1	2-15	IA	50
	MUHLALAPASI MOYO	395			1	2-16	IA	50
	SAMUEL HARA	268			1	2-17	IA	50
15	SAULOSI NGULUWE	257			1	2-18	IA	50
16	LAZARO PHIRI	394			1	2-19	IA	45
	CHIRAMBE	366			1	2-20	IA	45
	CHIZOLA (MATEYU NTHARA)	721			1	2-21	IA	45
	NKWETA	275			1	2-22	IA	45
17	ZEBEDIYA	233			1	2-23	IB	45
	MKHUZO MUMBA	398			1	2-24	IB	60
	KAJEMBE KUMWENDA (A)	326			1	2-25	IA	40
18	KASUZUMIRA	440			1	2-26	IIA	45
	ZINYATI SOKO	526			1	2-27	IA	50
	SAMUEL MUFALEKA	577			1	2-28	IIA	55
19	DANIEL JERE	318			1	2-29	IIA	55
	MUSA MHANGO	379			1	2-30	IIA	60
	DOLORA NGWIR X2	735			2	2-31	IIA	60
					2-32	IIA	60	
20	MUDUNCHWA NGULUBE	404			1	2-33	IA	50
	KAMBOMBO KUMWENDA	502			1	2-34	IIA	40
21	CHIDIWA NZIMA	588			1	2-35	IA	45
	CHIKHOTA MUKHALIPI	609			1	2-36	IA	40
	GAMPHANI HARA	680			1	2-37	IA	50
23	ZUBAYUMO MUNDHLOPA	329			1	2-38	IA	55
	MGADA MKANDAWIRE	293			1	2-39	IA	60
26	JUMBAMO	376			1	2-40	IA	55
	CHOKOLA	379			1	2-41	IA	50
27	SIMON MOYO	495			1	2-42	IA	50
	MSAZULWA MNGUNDA	402			1	2-43	IA	50
28	PHILLIP CHAMA	343			1	2-44	IA	45
	MBUNGE	226			1	2-45	IA	45
29	RUFU NKHWINIKA	742			2	2-46	IA	50
						2-47	IA	50
	TIMOTI MNYANGA MKHALIPI	136			1	2-48	IA	45
30	CHIBULA	337			1	2-49	IA	55
	CHINOMBO HLONGO	336			1	2-50	IIA	50
	KAMBOMBO KUMWENDA	257			1	2-51	IIA	45
	CHIPONDA KUMWENDA	376			1	2-52	IIA	45
31	CHINOMBO JERE	151			1	2-53	IIA	40
	TIKATIKA LUNGU	419			1	2-54	IIA	45
	TIMEYO TCHWA	340			1	2-55	IIA	45
32	GEORGE MGULIRA	864	1			2-56	IIC	50
	MAGODI NYIRENDA	356			1	2-57	IIC	45
33	CHIMWEMBE MAPALA	160	1			2-58	IIA	45
	KAMANGADAZI SOKO X2	616	2			2-59	IIA	45



## BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA CHINDI)-2

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
						2-60	IIA	45
34	INDAWAMBE GAUSI	816	1			2-61	IIA	50
	YOTAMU ZIWAX2	1437			2	2-62	IIA	50
						2-63	IIA	50
35	KAMPINGO NYAMBOSE	459			1	2-64	IIC	40
	CHINGANYI MKANDAWIRE	569			1	2-65	IA	65
36	WADILIKA TEMBO	563			1	2-66	IA	55
	CHIGOGA	336			1	2-67	IA	60
	CHIMODZIMODZI	300			1	2-68	IA	55
37	MTEMBEREMBE MKANDAWIRE	393		1		2-69	IA	45
	THOM MTONGA	385			1	2-70	IA	45
39	SINIZGA KASONGA	404		1		2-71	IA	50
	JOIL MHANGO	404		1		2-72	IA	50
	MORTON MTONGA	160		1		2-73	IA	50
40	KAZI WALWE	427		1		2-74	IA	50
	MBOKOMA MTONGA	452		1		2-75	IA	45
41	YAKOBE NGULUBE	644			1	2-76	IA	55
	CHANAMANA MWANDIRA	953			1	2-77	IA	50
	MBOGO MOYO X2	828			2	2-78	IA	55
						2-79	IA	55
42	MATOMOLA CHADEWA	567			1	2-80	IA	65
	SITEFANO MWANZA	1037			1	2-81	IA	65
43	YESAYA NKOSI X2	1698	2			2-82	IIA	40
						2-83	IIA	40
	KANYARU CHADEWA	189			1	2-84	IIA	50
	NGOMIYAWO MOYO	983			1	2-85	IIA	40
44	DAULIRE MOYO X2	1241	2			2-86	IIA	50
						2-87	IIA	45
	YESAYA NKOSI	338	1			2-88	IIA	45
45	CHITAPA MOYO X2	831	2			2-89	IIA	40
						2-90	IIA	40
	GOMANI CHIRWA	308	1			2-91	IIA	40
	YESAYA NKOSI	527	1			2-92	IIA	40
46	CHATAPA MOYO	798		1		2-93	IIA	40
	SIMON CHIKOSERA GONDWE	745		1		2-94	IIA	40
	MPEYAMA GONDWE	738		1		2-95	IA	50
47	YAKOBE GAMA	380		1		2-96	IA	60
	MOSES GAMA	834		1		2-97	IA	40
	NYAMBO ZIMBA	786		1		2-98	IA	40
48	YOBE GAMA	983			1	2-99	IA	60
	KONGOLI CHILANGA	485			1	2-100	IA	45
53	YORAMU NDHLOVU	394		1		2-101	IA	50
	PENDAMAZUBA CHIZINGA	137		1		2-102	IA	55
	KATHYOLA NGULUBE	505		1		2-103	IA	45
	MANGALISO X2	693		2		2-104	IA	45
						2-105	IA	50
54	JAMES MOYO X2	753		2		2-106	IIA	45
						2-107	IIA	45
	SIMAJI NYIRENDA	474		1		2-108	IIA	40
	SALMON JERE	201		1		2-109	IIA	40

Type I	0	15	49
Type II	14	6	25
TOTAL	14	21	74

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A-1 (4)

BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA MTWALO)

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
3	CHALUMA	165			1	3-1	IIC	40
	MALI (Malisawa Kumwenda)	527			2	3-2	IIC	40
						3-3	IIC	40
3	ZIGA TEMBO (B)	222			1	3-4	IIB	40
	CHAMHANYA GONDWE	257			1	3-5	IIB	50
3	CHAULUMA MIIANGO (A)	226			1	3-6	IIB	45
	NYOZOMO CHAIMA	243			1	3-7	IIB	40
3	ZIGA TEMBO	245			1	3-8	IIA	45
	MABWANYA LICHE	221			1	3-9	IIA	45

Type I	0	0	0
Type II	0	0	9
TOTAL	0	0	9

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## A-1 (5)

## BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(SC KAMPINGO SIBANDE)

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
16	DAVID Sibande	479	1			4-1	IIA	45
17	DAULIRE MOYO	800	2			4-2	IIA	45
						4-3	IIA	45
						4-4	IIA	40
19	ZABRONI KAMANGA	616	1			4-4	IIA	40
	MATEKENYA	759	2			4-5	IIA	45
	ESWAZINI	540	1			4-6	IIA	45
21	CHAKOLAGARU BIPA	331	1			4-8	IIC	40
	HANNOCK LUKHELE	596	1			4-9	IIC	40
29	HANNOCK LUKHELE	354	1			4-10	IIC	40
30	NTAJA CHAVURA	820	1			4-11	IIC	65

Type I	0	0	0	
Type II	11	0	0	
TOTAL	11	0	0	11

A-1 (6)

## BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA M' MBELWA) -1

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
4	CHIWAYA Mkandawire	270		1		5-1	IA	50
5	KAMANGADAZI	1043		2		5-2	IA	50
						5-3	IA	50
						5-4	IIC	50
6	ZUWAYUMO	731		1		5-5	IC	50
7	KAZEZANI MAKAMO	562		1		5-6	IIC	50
	ZABEDIYA	599		1		5-7	IIA	50
8	LUTHULI	1028		2		5-8	IIA	50
						5-9	IIC	50
	GALAMALA	541		1		5-10	IA	55
9	SAULOSI TEMBO	652		1		5-11	IIA	55
10	JONASI LOWOLE	1179	1			5-12	IIA	45
	NDEMER	309	1			5-13	IIA	45
11	SAMUEL MAWASO	606	1			5-14	IIA	60
	YEREMIA	542	1			5-15	IIA	60
12	GALERA SHABA	763	1			5-16	IIA	50
	EZEKIA MWANZA	725	1			5-17	IIA	50
13	MTABBALIKA MOYO	373	1			5-18	IIA	50
	SIMON MVULA X2	939	2			5-19	IIA	50
						5-20	IIA	45
14	CHANUNKHA SHABA X4	1931		4		5-21	IIA	45
						5-22	IIA	45
						5-23	IIA	45
						5-24	IIA	45
						5-25	IIA	45
15	KASOTI PHIRI X2	925	2			5-26	IA	40
	CHIYONA NYIRENDA	528		1		5-27	IIA	50
16	NUYEHELE	523		1		5-28	IIA	50
	MGUBANI MBEYE	734		1		5-29	IA	40
	SAMUEL MOYO	345		1		5-30	IIA	50
17	PETER NDABANDALA X2	1150	2			5-31	IIA	50
						5-32	IIB	40
18	KANDODO CHISI	583		1		5-33	IA	50
	BONGO MWANZA	320		1		5-34	IA	55
19	MOSESI PHIRI	574		1		5-35	IA	55
	GOMANI MKANDAWIRE	409		1		5-36	IA	55
20	JAMU KALUWA	868		1		5-37	IA	55
	KANYERAMALO THIKA	459		1		5-38	IA	50
21	JOCOBO PHIRI	558		1		5-39	IA	50
	AMONI MVULA	448		1		5-40	IA	45
	DANIEL MAKAMO	265		1		5-41	IB	60
27	WILLIAM NGWENYA	705		1		5-42	IB	60
28	BENJAMIN ZIMBA	437		1		5-43	IB	55
	CHISAKASA	497		1		5-44	IA	60
	THOMASI MANDA	345		1		5-45	IB	65
29	THOMASI NYIRENDA	462		1		5-46	IB	60
30	DANIEL TEMBO	910		1		5-47	IB	65
31	MTEYO	589	1			5-48	IA	55
32	TEGHA NYIRONGO	882	2			5-49	IA	55
						5-50	IIA	40
						5-51	IA	55
33	LONGWE KAMANGA	485	1			5-52	IA	45
	ZEBEDIYA NYIRENDA	692	1			5-53	IB	70
	YESAYA SHUMBA	713	1			5-54	IIB	60
34	YOHANE CHISI X2	624	2			5-55	IIB	60

A-1 (7)

## BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA M'MBELWA) -2

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
	KABAMIRA NG'OMA	390	1			5-56	IIA	45
35	PHAZIMA NKAMBULE X2	942	2			5-57	IIA	45
						5-58	IIA	45
	MAGODI SHUMBA	957	1			5-59	IIA	50
37	MAPULANGA MTONGA	374		1		5-60	IA	50
38	CHIMUTU	1293	2			5-61	IIA	40
						5-62	IIA	40
39	MCHEPASALU	553	1			5-63	IIA	40
	KAYERAKA	417	1			5-64	IIA	40
41	MOSES CHILENJE X2	1394		2		5-65	IA	55
						5-66	IA	55
	MG'AWA MTONGA	609		1		5-67	IA	55
43	EMTERA	424		1		5-68	IB	50
44	CHIBISA	431		1		5-69	IA	50
	CHIBEKU	520		1		5-70	IA	45
45	JINYI	178		1		5-71	IA	50
	MSANGULA	560		1		5-72	IA	50
46	CHIBO MSIMUKO	569		1		5-73	IA	50
	KAMBEWA ZIMBA	305		1		5-74	IA	50
47	MZAMU	620		1		5-75	IA	50
	KACHINGWE	566		1		5-76	IB	45
	CHILUPULA	283		1		5-77	IB	60
48	CHIMUSEBEZO BANDA X2	1100		2		5-78	IB	50
						5-79	IB	50
51	MILINGO JERE	526		1		5-80	IB	65
	KASICHI MVULA X2	693		2		5-81	IB	60
						5-82	IB	55
52	CHALOTWA	637		1		5-83	IB	55
53	JOHN M' MTONGA	362		1		5-84	IB	50
54	KAPYOKOLO	433		1		5-85	IB	65
	MALAGA	497		1		5-86	IA	45
	CHIBULA	262		1		5-87	IB	45
55	CHISENGA KWENDA	503		1		5-88	IA	55
	MALAYA PHIRI	571		1		5-89	IA	55
56	MABAMBA	816		1		5-90	IB	45
58	ZEBERA	606		1		5-91	IA	45
	EZUNGULENI (KAPOPO)	331		1		5-92	IA	40
59	MWALIMU	803		1		5-93	IA	55
	GWAMANDA	363		1		5-94	IA	55
60	HANNOCK MHLANGA X2	735		2		5-95	IIA	40
						5-96	IIA	40
	ZAYA	485		1		5-97	IIA	40

Type I	6	52	0
Type II	24	15	0
TOTAL	30	67	0

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A - 1 (8)

BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA MZIKUBOLA)

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
3	CHINOMBO TCHAYA	517	1			6- 1	IIA	50
	KAFOTEKA MKANDAWIRE X2	773	2			6- 2	IIA	50
						6- 3	IIA	50
	ALICK CHISI	323	1			6- 4	IIA	50
4	ALICK NDAWANDAWA	517	1			6- 5	IIA	45
	ISSAC NGIYI (B)	154	1			6- 6	IIA	45
	CHISUSU NYIRENDA	275	1			6- 7	IIA	45
9	SAMSON SHUMBA	692	2			6- 8	IIA	45
						6- 9	IIA	45
10	SAMBIZGA (B)	276	1			6-10	IIB	60
	CHIZUMBA	587	1			6-11	IIB	50
11	CHIBULA	361	1			6-12	IIB	60
	VWANENA	218	1			6-13	IIB	60
	ZABINDUKA	290	1			6-14	IIB	60
12	CHIKOMENI (A)	429	1			6-15	IIB	60
	FIMBO	212	1			6-16	IIA	55
13	CHIMUKUSA MUMBA	240	1			6-17	IIC	50
	CHIKONDA WANGA	100	1			6-18	IIC	45
	DAVIDE KUMWENDA	191	1			6-19	IIC	45
	ALIFEYO JERE	501	1			6-20	IIC	50
	MATCHOWANI NKHOSWE	233	1			6-21	IIA	50
	MBOFANA NYIKA	240	1			6-22	IIA	50
15	KAJIKHOMELE	373	1			6-23	IIA	40
	CHINJOKA CHIRWA	538	1			6-24	IIA	40
19	MAGEGA SEZI	126	1			6-25	IIC	40
23	MUSWAMPHIRI MUZI (B)	305	1			6-26	IIA	45
	VWALAMUTABA LUSALE	173	1			6-27	IIC	40
24	MULAPAMANI NYASULU	187	1			6-28	IIC	40
	ZALEZA MOYO	354	1			6-29	IIC	40
	BWANALI	244	1			6-30	IIC	40
25	SAMUEL KAMANGA	301	1			6-31	IIA	40

Type I	0	0	0
Type II	31	0	0
TOTAL	31	0	0

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## A - 1 (9)

## BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(TA MZUKUZUKU)

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
001	RANJENI	376	1			7- 1	IIA	65
	MIJERE	300	1			7- 2	IIA	65
002	CHIZAWINJA JONASI X2	499	2			7- 3	IIA	50
						7- 4	IIA	50
	MATEYO NYIRENDA	248	1			7- 5	IIA	50
004	BARTIMEYO (B)	479		1		7- 6	IIA	40
	DAKALIMALE	264		1		7- 7	IA	55
005	MLEFU	477	1			7- 8	IIA	40
	SIMONI	227		1		7- 9	IIA	40
006	MBEKWA	374	1			7-10	IIA	40
	KAMANGADAZI TEMBO	286	1			7-11	IIA	40
	MUNGONIWAWO	261	1			7-12	IIA	40
	ROADS CAMP	865	1			7-13	IIA	40
008	MHABI	556		1		7-14	IIA	45
010	CHITEMBEYA NKHATA	379	1			7-15	IIA	50
	ARAM MHONE (B)	129	1			7-16	IIA	55
011	MATEMANGA	313		1		7-17	IIA	55
	MALEPA	337		1		7-18	IIA	55
012	MPEZENI MSIMUKO	250		1		7-19	IB	55
	KABINGA BADGA	247		1		7-20	IB	45
015	ARAM MHONE	229		1		7-21	IA	50
	KAMBALIRA (Jongunbaba)	212		1		7-22	IA	50
017	MHLABA JERE	395	1			7-23	IIA	45
018	CHINDOKA JONAZI X2	922	2			7-24	IIA	50
						7-25	IIA	50
801	CHAPHONYA	194	1			7-26	IIA	60
	EMBANGWENI T. P. A.	921		1		7-27	IIA	60

Type I	0	5	0
Type II	16	6	0
TOTAL	16	11	0

27

A - 1 (10)

BOREHOLE CONSTRUCTION PLAN AT VILLAGE LEVEL

(MZIMBA URBAN)

EA No.	Village Name	Population EST. '96	ZONE			BH NO.	Hydrogeological Type	Tentative Target Depth(m)
			1	2	3			
702	MZIMBA T. P. A	292	1			8-1	IIA	50
703	MZIMBA T. P. A	669	1			8-2	IIA	50
704	MZIMBA T. P. A	259	1			8-3	IIA	50

Type I	0	0	0	
Type II	3	0	0	
TOTAL	3	0	0	3



A - 2 (1)

T. A	ESTIMATED POPUL. '96	Borehole Construction Plan Compared with Requested Village										TOTAL		
		CASE-1 (1BH/250P)	CASE-2 (1BH/500)	EXISTING Nos. of BH	NECESSITY (CASE-2)	ALLOCATION *1 Nos. of BH	PROPOSED *2 Nos. of BH	NOS. /ZONE			REQUESTED BH in AREA			
								1	2	3				
M'Mbelwa	81092	322	164	85	89	90	97	30	67	0	111			
Miwalo	4902	20	10	3	7	8	9	0	0	9	0			
Kampingo Sibande	10453	43	21	5	16	18	11	11	0	0	12			
Chindi	80228	318	162	65	106	108	109	14	21	74	41			
Mzikubola	18381	73	37	1	36	39	31	31	0	0	35			
Mpherembe	13309	52	28	15	13	14	13	0	0	13	6			
Mzukuzuku	26180	108	52	37	27	20	27	16	11	0	21			
Mzimba Boma	1395	6	3	0	3	3	3	3	0	0	4			
TOTAL	235940	942	477	211	297	300	300	105	99	96	230			

\*1: Nos. in TA = {(300 + Total Nos. of Existing) x (Popul. in TA) / (Total Popul.)} - (Nos. of Existing in TA)

\*2: Re-allocated in consideration of accessibility and hydrogeological condition

A - 2 (2)

Borehole Construction Plan Compared with Requested Village		(TA M'belwa)-1		#1 : ( ) Indicate No. of Requested Village					
ZONE E. A. No.	ESTIMATED POPUL. '96	EXISTING (1/500)		REQUESTED VILLAGE		REQUESTED VILL.		BHI Nos.	
		(BHI / HEAD)	(1/500)	NAME #1	POPUL.	Nos./ZONE	No.		NAME
						1	2	3	
2	1197	5	2	4	0				
2	1272	5	3	2	1	CHIWAYA Mkwandawire	1		
2	1208	5	2	1	0	KAMANGADAZI	2		
2	1311	5	3	2	1	ZUWAYUMO (184)	1	184	ZUWAYUMO MAKAMO
2	1333	5	3	1	0	KAZEZANI MAKAMO	1		
2	1509	6	3	0	0	ZABEDIYA	1		
2	1086	4	2	1	1	LUTHULI	2		
2	1488	6	3	1	3	GALAMALA	1		
2	1148	5	2	0	2	SAULOSI TEMBO (126)	1	126	SAULOSI TEMBO
2	1188	5	2	0	2	JONASI LOWOLE (*122)	1	122	BOKOLA SCH.
2	1312	5	3	0	3	NDEMBERA (120)	1	120	INDEMBERA NGWIRA
2	1931	8	4	0	0	YEREMIA	1	123	SAMUEL MAPASO
2	1829	7	4	2	2	SAMUEL MAWASO (123)	1	124	PATAMO KAMANGA
2	1775	7	4	1	3	GALERA SHABA (132)	1	132	GALELA SHABA
2	1607	6	3	1	2	EZEKIA MWANZA	1	5	MTAMBA LIKA MOYO
2	1853	7	4	2	0	MTABBALIKA MOTO (005)	1		
2	1931	8	4	0	3	SIMON NYULA X2	2		
2	1829	7	4	2	4	SIYONA NYIRENDA	1	4	
2	1775	7	4	1	2	CHIYONA NYIRENDA	1	2	NGOLI SCH.
2	1607	6	3	1	3	NUYEHELE	1	128	KASOTI PHIRI
2	1520	6	3	1	2	MGUBANI MBEYE	1	2	SAMUEL MOYO
2	1853	7	4	2	4	SAMUEL MOYO (002)	1		
2	1327	5	3	1	2	PETER NDABANDALA X2 (009)	2		
2	1691	7	3	0	11	KANDODO CHIISI (004) (011#)	1	8	JEREMIA MAIOBE
2	1065	4	2	3	0	BONGO MWANZA (007)	1	9	PETER NDABA X 2
2	1065	4	2	3	0	MOSESI PHIRI	1	12	CHARLES CHIINDIA
2	596	2	1	1	0	GOMANI MKANDAWIRE	1	7	MBONGO MWAZA
2	1065	4	2	3	0	JAMU KALUWA	1	11	MIRERA SCH.
2	1065	4	2	3	0	KANYERAMALO THIKA	1	10	BOKOSI DINDI
2	1065	4	2	3	0	JOCOBO PHIRI	1	4	KANDODO CHIISI
2	1065	4	2	3	0	AMONI NYULA	1		
2	1065	4	2	3	0	DANIEL MAKAMO	1		
2	1065	4	2	3	0		1	172	ENGALAWENI



A - 2 (4)

Borehole Construction Plan Compared with Requested Village										(TA M' Mbelwa)-3									
ZONE/ E. A. No.	ESTIMATED POPUL. '96	EXISTING		NECESSITY CASE(1/500)	REQUESTED No. of BH	PROPOSED VILLAGE		Nos./ZONE			REQUESTED VILL.		Bif. Nos.						
		(1/250)	(1/500)			NAME	*1	POPUL.	1	2	3	No.		NAME					
			0			KACHINGWE	566		1										
			0			CHILUPULA	283			1									
2	48	1405	3	1	2	CHIMUSEBEZO BANDA X2	1100			2		214	KAMBOKOTO	2					
2	49	1295	3	3	0							215	MZOMA SCH.	1					
2	50	1030	4	2	3							227	KASICH MVULA	1					
2	51	1219	5	2	0	MILINGO JERE	526			1									
			0	0	2	KASICH MVULA X2(227)	693			2									
2	52	1390	6	2	1	CHALOTWA	637			1		44	MQOCHA MTONGA	1					
2	53	1058	4	2	0	JOUN M' MTONGA	362			1									
2	54	1408	6	3	6	KAPYOKOLO(047)	433			1		43	CHIBULA NGULUBE	1					
			0	0	3	MALAGA(048)	497			1		47	KAPHOKOTO MWANDIRA	1					
						CHIBULA(043)	262			1		46	MTUZUZU SCH.	2					
												48	MALANGA MTONGA	1					
												49	KWALIBWE SCH.	1					
2	55	1546	6	1	2	CHISENGA KWENDA	503			1		51	KACHINJERE NYIRONGO	1					
			3	2	1	MALAYA PHIRI	571			1		56	CHISENGA CHIPETA	2					
2	56	1555	6	2	1	MABAMBA(050)	816			1		50	MABANGA MTONGA	1					
2	57	1957	8	4	0							54	KAPOPO MARKET	1					
2	58	1250	5	3	2	ZEBERA	606			1									
			0	0	1	EZUNGULENI (KAPOPO) (054)	331			1									
2	59	1764	7	4	2	MWALINU	803			1		60	GWANDA BANDA	1					
			0	0	1	GWAMANDA(060)	363			1									
2	59	498	PIPED WATER	(1)															
2	60	1292	5	3	3	LIANNOCK MILANGA X2(061)	735			2		61	LIANNOCK HLANGA	2					
			0	0		ZAYA	485			1									
2	60	505	PIPED WATER																
2	801	1531	6	3	5							197	INKOSI MBELWA	33					
TOTAL	81092	322	164	85	89			30	67	0				113					

A - 2 (5)

Botcholo Construction Plan Compared with Requested Village										(TA Mwaio)			*1 : ( ) Indicate No. of Requested Village		
ZONE No.	E. A. No.	ESTIMATED POPUL. '96	EXISTING (1/500)		NECESSITY CASE (1/500)	REQUESTED No. of BH	PROPOSED VILLAGE			REQUESTED VILL.					
			(BH / HEAD)	Nos. of BH			NAME #1	POPUL.	Nos. / ZONE	No.	NAME	BH Nos.			
3	54	1226	5	2	2	0	CHALUMA	165	1	2	3	1			
							MALI (Majisawa Rumwenda)	527				2			
3	55	760	3	2	2	0	ZIGA TEMBO (B)	222				1			
							CHAMHANYA GONDWE	257				1			
3	56	1211	5	2	1	0	CHALUMA MHWANGO (A)	226				1			
							NYOZOMO CIAIMA	243				1			
3	69	937	4	2	2	0	ZIGA TEMBO	245				1			
							MADWANYA LICHE	221				1			
3	803	768	3	2	2	0									
TOTAL		4902	20	10	3	7			0	0	0	9			

A - 2 (6)

ZONE No.	E. A. No.	Borehole Construction Plan Compared with Requested Village				(SC Kampano Sibande) #1 : ( ) Indicate No. of Requested Village				REQUESTED VILL.					
		ESTIMATED POPUL. '96 (1/250)	( BH / HEAD )	EXISTING Nos. of BH (1/500)	NECESSITY CASE (1/500)	REQUESTED No. of BH	PROPOSED VILLAGE NAME #1	POPUL.	Nos./ZONE	1	2	3	No.	NAME	BH Nos.
1	16	515	2	1	0	1	0	0							
1	17	1416	6	3	0	3	1	1	DAULIRE MOTO	800	2		143	DAVID SIBANDE	1
									ZABRONI KAMANGA	616	1				
									DAVID Sibande(143)	479	1				
1	19	1436	6	3	1	2	3	3	MATEKENYA(*147)	759	2		147	KAPOLI SCH.	1
									ESWAZINI(146)	540	1		146	ESWAZINI	2
1	20	1051	4	2	1	1	1	1	CHAKOLAGARU BIPA	331	1		111	BAULENI SIBANDE	1
1	21	1159	5	2	0	2	1	1	UANNOCK LUKHELE	596	1		113	NG'OMBAYAVUKA KAMANGA	1
									NG'OMBE YAVUKA(113)	336	Inaccessible				
1	28	929	4	2	1	1	1	1	INTHAPANGWA LUNDA(116)	312	Inaccessible		116	MTHAPAGWA LUNDA	1
1	29	1454	6	3	0	3	3	3	UANNOCK LUKHELE	354	1		130	MZONDI NDHLOVU	1
									MZONDI NDHLOVU(130)	420	No Aquifer		121	TADEYO CHAKWIRA	1
									TADEYO CHAKWIRA(121)	390	No Aquifer		117	MBWIRIWIZA SCH.	1
1	30	2493	10	5	2	3	2	2	PATUMA KAMANGA	779	Inaccessible		118	EDINDENI SCH.	1
									ZEBEDIYA ZIGHILI(*118)	284	Inaccessible		125	KADOZA MUNGUTHIA	1
									KADOZO MGUNTHIA(125)	276	Inaccessible				
									NTAJA CHAYURA	820	1				
TOTAL		10453	43	21	5	16	12	11							

A - 2 (7)

ZONE No.	ESTIMATED POPUL. '96	Borehole Construction Plan Compared with Requested Village		(TA Chindi)-1		*1 : ( ) Indicate No. of Requested Village			REQUESTED VILL. NAME	BU Nos.	
		(BH / HEAD) (1/250)	(1/500)	EXISTING Nos. of BH	NECESSITY CASE (1/500)	REQUESTED No. of BH	PROPOSED VILLAGE NAME	POPUL.			Nos. / ZONE
3	2	1549	3	2	1	0	DAVIDE NYIRENDA	648	1	1	
3	3	1664	3	1	2	0	JAMES KAMUTONDOLI	417	1	1	
3	4	1430	3	0	3	0	CHIMBA CHIPETA	556	1	1	
3	5	1700	3	1	2	0	SANGAZINJE MLOTIA X2	691	2	2	
3	6	1102	2	3	0	0	CHITOWO KUMWENDA	677	1	1	
3	7	1255	3	1	2	0	KAJEMBE KUMWENDA (B)	180	1	1	
3	8	1703	3	0	3	0	DANIEL JERE (B) X2	854	2	2	
3	9	1352	3	2	0	0	SILIYA THECIA	395	1	1	
3	10	870	2	1	1	0	CHINOMBO JERE	326	1	1	
3	11	1815	4	1	3	0	JONATHAN MANDA	223	1	1	
3	12	1697	3	2	1	0	MUHLALAPASI MOYO	395	1	1	
3	13	1756	4	0	4	0	SAMUEL HARA	268	1	1	
3	14	1505	3	0	3	0	SAULOSI NGULUBE	257	1	1	
3	15	1779	4	1	3	0	LAZARO PIIRI	394	1	1	
3	16	1513	3	1	2	3	CHIRAMBE	366	1	1	
3	17	2165	4	1	3	0	CHIZOLA (MATEYU NTHARA)	721	1	1	
3	18	2197	4	0	4	0	INKWETA	275	1	1	
3	19	1390	3	0	3	0	ZEBEDIYA	233	1	1	
3	20	1382	3	1	2	0	MKHUZO MUMBA	398	1	1	
3	21		4	0	4	5	KAJEMBE KUMWENDA (A)	326	1	1	
3	22		4	1	3	0	KASUZUMIRA	440	1	1	
3	23		4	0	4	0	ZINYATI SOKO	526	1	1	
3	24		4	0	4	0	SAMUEL MUFALEKA	577	1	1	
3	25		4	0	4	5	DANIEL JERE (A) (*28)	318	1	1	28 HANNOCK NG'OMA
3	26		4	0	4	0	MUSA MIANGO	379	1	1	21 KAZITHOLE ZIBA
3	27		3	1	2	3	DOLORA NGWIRA X2 (020) (*021)	735	2	2	20 DOLORA NGWIRA
3	28		3	1	2	0	MUDUNGWA NGULUBE	404	1	1	151 NTHUMBA ADMARC
3	29		4	1	3	0	KAMBOMBO KUMWENDA (*151)	502	1	1	27 NTHUMBA SCI
3	30		4	1	3	0	CHIDIWA NZIMA	588	1	1	
3	31		4	1	3	0	CHIKHOTA MUKHALIPI	609	1	1	
3	32		4	1	3	0	GAMPHANI IARA	680	1	1	
3	33		4	5	0	0	ZUBAYUMO MUNDILOPA	329	1	1	
3	34		3	1	2	0	MGADA MKANDAWIRE	293	1	1	
3	35		3	1	2	0	JUMBANO	376	1	1	

A - 2 (8)

Borehole Construction Plan Compared with Requested Village										(TA Chindi) - 2			*1 : ( ) Indicate No. of Requested Village		
ZONE No.	E. A No.	ESTIMATED POPUL. '96 (1/250)	EXISTING (BH / HEAD) (1/500)	EXISTING No. of BH	NECESSITY CASE (1/500)	REQUESTED No. of BH	PROPOSED VILLAGE.			REQUESTED VILL.					
							NAME	#1	POPUL.	Nos. / ZONE	1	2	3	NAME	No.
3	27	1366	5	3	1	2	0	CIKOKOLA		379		1			
3	28	1234	5	2	1	1	0	SIMON MOYO MSAZULWA MNCUNDA PHILLIP CIAMA MBUNGE		495 402 343 226		1 1 1 1			
3	29	1230	5	2	1	1	0	RUFU NKIWINIKA TIMOTI MNYANGA MKHALIPI		742 136		2 1			
3	30	1787	7	4	0	4	3	CHIBULA CHINOMBO ILONGO (152) KAMBOMBO KUMWENDA CHIPONDA KIMWENDA (*155)		337 336 257 376		1 1 1 1		152 155	MABUKA ILONGO SASA SCH.
3	31	1254	5	3	0	3	4	CHINOMBO JERE (026) TIKATIKA LUNGU (022) (*156) TIMEYO TCHWA		151 419 340		1 1 1		156 26 22	KAWULHLANGA SCH. CHIROMBO JERE TIKATIKA LUNGU
3.1	32	2003	8	4	2	2	3	GEORGE MGULIRA Chelinda (23) MAGODI NYIRENDA (024)		864 356		1 1		23 145 24	GEORGE CHELINDA MZALANGWE MAGOGI NYIRENDA
1	33	1846	7	4	1	3	0	CHIMEMBE MAPALA KAMANGADAZI SOKO X2 NDABAMBE GAUSI (202)		160 616 816		1 2 1		202	NDABAMBE GAUSI
3.1	34	2253	9	5	2	3	1	YOTAMU ZIWAX2 KAMPINGO NYAMBOSE (150) CHIINGANYI MKANDAWIRE (144)		1437 459 509		2 1 1		150 144 153	KAMPONGO NYAMBOSE CHIING'AYA SCH RUFUNKUNIKA
3	35	1606	6	3	1	2	3								
3	36	1378	6	3	0	3	0	WADILIKA TEMBO CHICOGA CHIMODZIMODZI		563 336 300		1 1 1			
2.3	37	1983	8	4	2	2	0	MTEMBEREMBE MKANDAWIRE THOM MTONGA		393 395		1 1			
2	39	1372	5	3	0	3	0	SINIZCA KASONGA JOIL MHIANGO MORTON MTONGA		404 404 160		1 1 1			
3.2	40	1156	5	2	0	2	0	KAZIHALWE MBOKOMA MTONGA		427 452		1 1			
3	41	2425	10	5	1	4	0	YAKOBE NGULUBE CHAMAWANA MWANDIRA MBOGO MOYO X2		644 953 828		1 1 2			
3	42	1604	6	3	1	2	1	MATOMOLA CHADEWA SITEFANO MWANZA (154)		567 1037		1 1		154	STEPHANO MWANZA
1.2.	43	3003	12	6	2	4	6	YESAYA NKOSI X2 (*135)		1698		2		135	EDINGENI



A - 2 (9)

Borehole Construction Plan Compared with Requested Village		(TA Chindiri)-3		*1 : ( ) Indicate No. of Requested Village										
ZONE E. A No.	ESTIMATED POPUL. '96	EXISTING INCESSITY		REQUESTED VILLAGE		REQUESTED VILL.		BH Nos.						
		(1/250)	(1/500)	NAME *1	POPUL.	Nos. /ZONE	No.		NAME					
1	44	1579	6	3	0	3	2	1	2	1	189	25	KANYERU KADEWA	1
1	45	1843	7	4	0	4	5	1	1	1	983	140	KAUNDI SCH.	2
2	46	3269	13	7	4	3	4	2	2	2	1241	136	DAULIRE MOYO	2
2	47	2563	10	5	2	3	0	1	1	1	338	110	YESAYA NKOSI	2
3	48	1496	6	3	1	2	0	1	1	1	831	109	NAMRAMBE CAUSI	2
2	49	1685	7	3	5	0	0	1	1	1	308	119	GONANI CHIIRWA	1
2	50	1623	6	3	4	0	0	1	1	1	527	168	CHIISASA AGRI.	1
2	51	2826	11	6	1	5	1	1	1	1	798	108	SIMO GONDWE	2
2	52	2123	8	4	0	4	0	1	1	1	745	137	MPEYAMA GONDWE	1
2	53	2118	8	4	9	0	0	1	1	1	738	137	MPEYAMA GONDWE	1
2	54	2118	8	4	9	0	0	1	1	1	380			
2	802	2118	8	4	9	0	0	1	1	1	834			
TOTAL	80228	318	162	106	65	106	41	14	21	74	485	254	CHIIZUNGU VILL.	1



A - 2 (11)

Borehole Construction Plan Compared with Requested Village										(TA Mzikubola)- 2			*1 : ( ) Indicate No. of Requested Village		
ZONE E. A. No.	ESTIMATED POPUL. '96	( BI / HEAD ) (1/250)	EXISTING Nos. of BI (1/500)	NECESSITY CASE (1/500)	REQUESTED No. of BI	PROPOSED VILLAGE			REQUESTED VILL.						
						NAME #1	POPUL.	Nos. /ZONE	No.	NAME	BI Nos.				
1	829	3	2	0	1	NAME #1 BWANALI (099)	244	1	2	3	NAME MULUPANI NYASULU	1			
2	1328	pipcd water				SAMUEL KAMANGA (066)	301	1			SAMUEL KAMANGA	1			
3	240	pipcd water		(1)		CHIGAULE QUTOTO	245	No Aquifer							
4	1454	pipcd water		(2)											
5	940	pipcd water													
6	1314	pipcd water													
7	1356	pipcd water													
8	1530	pipcd water													
9	1051	pipcd water													
10	66	pipcd water													
11	244	pipcd water				JANSON SIUMBA (B)	209	Inaccessible							
12	816	3	2	0	0										
TOTAL	18381	73	37	1	36			31	0	0		38			

A - 2 (12)

Borehole Construction Plan Compared with Requested Village		(TA Mpherenbe)		* 1 : ( ) Indicate No. of Requested Village							
ZONE I. A No. No.	ESTIMATED POPUL. '96	( BH / HEAD )		PROPOSED VILLAGE.		REQUESTED VILL.					
		(1/250)	(1/500)	NAME #1	POPUL.	Nos./ZONE	No.	NAME	BH Nos.		
						1	2	3			
3	7	29	0	0	2				38	CHIDYAKE	2
3	8	1079	4	2	4	SIMON JERE (037) (036)		1	37	SIMON JERE	3
						SAMARA QUMAYO		1	36	EMCHISHENI SCH.	1
3	9	1250	5	3	0	MUKOSAWA NSERE		1			
						MALIDADE		1			
3	13	1031	4	2	0	CHILBERU KASKOMBE		1			
						TIMEO UTEKA		1			
3	14	974	4	2	1	SIMON CHISI		1			
3	17	1090	4	2	1	MZANYA (Mawira) JERE		1			
3	18	898	4	2	0						
3	19	1340	5	3	1	SANDRESS MLOTIA X2		2			
3	20	2311	9	5	3	KABWAPU SETT. SCHEME (B)		2			
3	21	2440	10	5	4	KABWATU SETT. SCHEME (A)		1			
3	801	867	3	2	2						
TOTAL		13309	52	28	15			0	0	13	6

A - 2 (13)

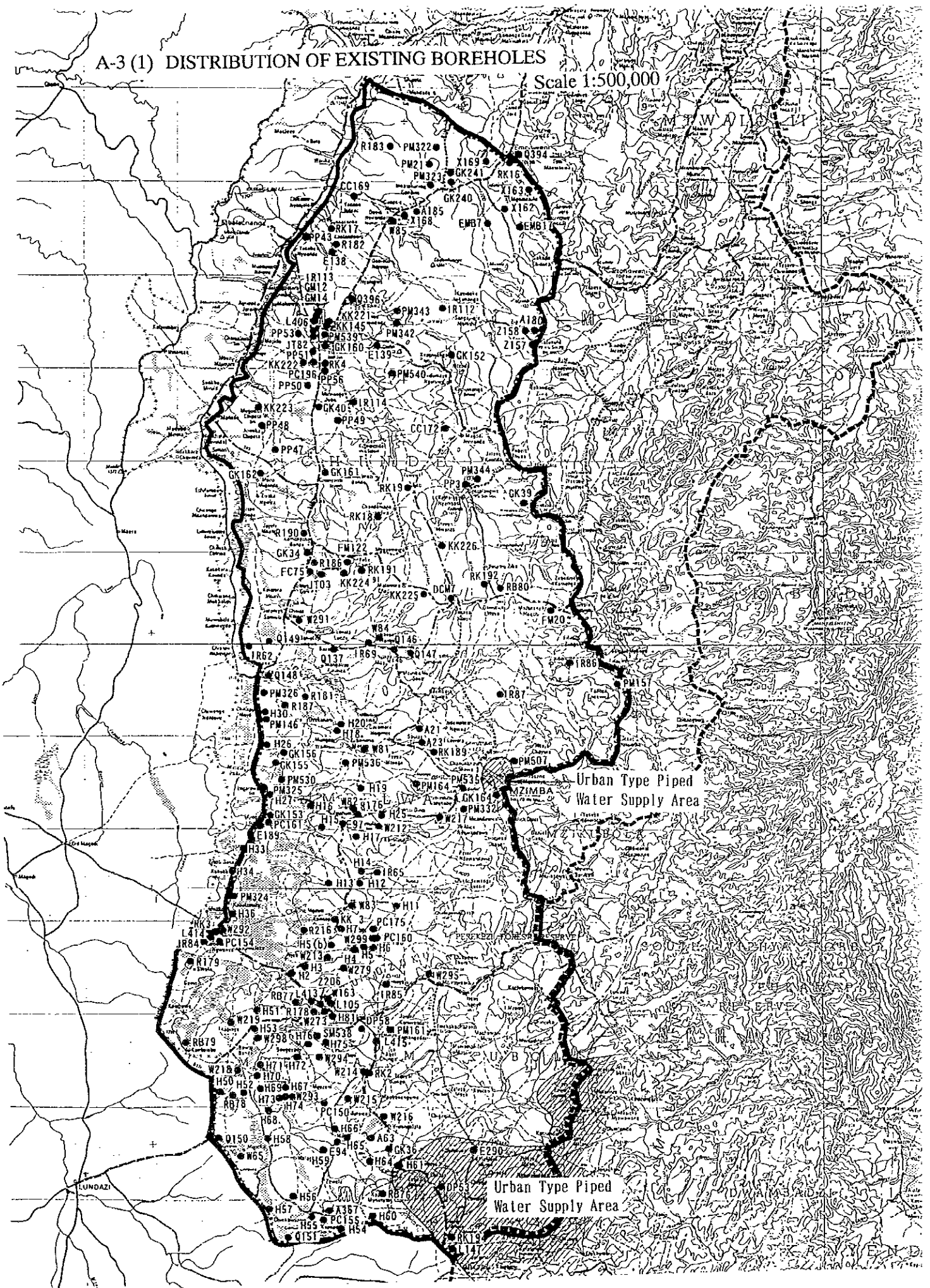
ZONE F. A. No.	ESTIMATED POPUL. '96	Borchole Construction Plan Compared with Requested Village		(TA Mzukuzuku)		*1 : ( ) Indicate No. of Requested Village			REQUESTED VILL.		BH NOS.			
		(BH / HEAD)	(1/500)	EXISTING Nos. of BH	NECESSITY CASE (1/500)	REQUESTED No. of BH	PROPOSED VILLAGE: NAME #1	POPUL.	Nos. / ZONE	No.		NAME		
1 001	1681	7	3	1	2	1	RANJENI	376	1	2	3	211	ETCHEYENI SCH.	1
1 002	1852	7	4	1	3	0	MJERE (#211) CHIZAWINJA JONASI X2 MATEYO NYIRENDA	300 499 248	1 2 1					
1.2 003	1386	6	3	8	0	1	BARTIMEYO (B)	479	1			208	NBAWA SCH.	1
2 004	1035	4	2	0	2	0	DAKALIMALE	264	1					
1.2 005	1535	6	3	1	2	1	MUBU SIMONI	477 227	1 1			221	MPHOSA VILL.	1
1.2 006	2169	9	4	0	4	0	MBEKWA KAMANGADAZI TEMBO MUNGONIRAWO ROADS CAMP	374 286 261 865	1 1 1 1					
2 007	877	4	2	3	0	0	MILABI	556	1					
2 008	1190	5	2	1	1	0								
2.1 009	1143	5	2	2	0	4								
1 010	1167	5	2	0	2	0	CHITEMBEYA NKHATA ARAM MIONE (B)	379 129	1 1					
2 011	1318	5	3	1	2	0	MATEMANGA MALEPA	313 337	1 1					
2 012	1427	6	3	1	2	1	IMPEZENI MSIMUKO (#242) KABINGA BADCA	250 247	1 1			242	MAKOSIKASI SCH.	1
2 013	919	4	2	5	0	2						240	ELIAKIMO MWANDIRA	2
2 014	1157	5	2	4	0	0	ARAM MIONE	229	1					
2 015	953	4	2	0	2	0	KAMBALIRA (Jongumbaba)	212	1					
2 016	1463	6	3	4	0	0								
1.2 017	957	4	2	1	1	1	MILABA JERE (#196) CHINDOKA JONAZI X2 (191)	395 922	1 2			196 191	VIBANGALALA SCH. CHINDOKA JONASI	1 2
1.2 018	1883	8	4	2	2	7								
2.1 801	2068	8	4	2	2	3	CHAPHONYA (#223) EMBANGWENI T. P. A. (224)	194 921	1 1			223 224	EMBANGWENI M.I.S.S. EMBANGWENI T. C.	1 2
TOTAL	26180	108	52	37	27	21			16	11	0			21

A - 2 (14)

Borchhole Construction Plan Compared with Requested Village										(Mzimba Urban) #1 : ( ) Indicate No. of Requested Village									
ZONE E. A. No.	ESTIMATED POPUL. '96	CONSTRUCTION (BH / HEAD)		EXISTING Nos. of BH (1/500)	NECESSITY CASE (1/500)	REQUESTED No. of BH	PROPOSED VILLAGE			REQUESTED VILL.									
		(1/250)	(1/500)				NAME #1	POPUL.	Nos. /ZONE	1	2	3	NAME	No.	BI Nos.				
1	701	175	1	0	0	0													
1	701	2373	Piped Water																
1	702	292	1	0	0	1													
1	702	1985	Piped Water																
1	703	669	3	0	0	1													
1	703	2809	Piped Water		(1)														
1	704	259	1	0	0	1													
1	704	2099	Piped Water																
TOTAL		1395	6	3	0	3													4

A-3 (1) DISTRIBUTION OF EXISTING BOREHOLES

Scale 1:500,000



A-3 (2) Data on Existing Boreholes

NO.	T. A.	E. A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/mim)	PUMP DEPTH (m)	REMARKS (Water only)	GEOLOGY
					1	2	3						
1	M' MBELWA	002	H30	Dokowe			28.7	9.7	9.0	21	no data	0-3 soft sands	
2	M' MBELWA	002	PM146	Kamieteka		1	45.5	3.5	60.0	33		3-30 heavy clays 30-46 gneiss	
3	M' MBELWA	002	PM326	Chisebe		1	45.5	6.9	90.0	33		0-3 top soil 3-20 sandy clays 20-45 weathered gneiss	
4	M' MBELWA	002	R187	M' ngoni Wamavi		1	39.8	12.7	90.0	33		0-25 light sandy clays 25-39 sandy clays 39-40 heavy clay	
5	M' MBELWA	004	H26	Mbulawa Ngulube		1	42.9	7.4	9.0	12		no data	
6	M' MBELWA	004	GK156	Samon Kurwenda		1	40.6	12.8	30.0	33		0-3 red clays 3-12 sandy clays 12-40 weathered gneiss	
7	M' MBELWA	005	R181	Kamangadazi		1	50.8	6.2	21.0	33		0-38 sandy clay 38-39 hard rock 39-47 yellow clay	
8	M' MBELWA	006	H18	Dikison Sakara		1	45.0	11.2	54.0	33		0-3 surface deposit 3-36 clay deposit 36-45 pinad	
9	M' MBELWA	006	H20	Daniel Tembo		1	36.6	5.8	33.0			0-3 surface deposits 3-22 gravel and sand 22-37 decomposed rock	
10	M' MBELWA	007	W81	Zuba Yomo Makamo		1	54.9	2.5	15.0	33		no data	
11	M' MBELWA	009	A23	Mtenhe School		1	31.2	5.6	15.0	24		0-4 surface deposit 4-24 sandy soil 24-39 yellow clays 39-42.7 hard rock	
12	M' MBELWA	010	A21	Janas lowele		1	50.3	6.5	60.0	30		0-6 soft weathered rock 6-27 gneiss 27-50 hard rock 0-3 soil	
13	M' MBELWA	015	PM164	Mvakule		1	46.7	3.9	120.0	33		3-20 unconsolidated rock 20-32 quartzite 32-46 gneiss	
14	M' MBELWA	015	RK189	Mohongo Sch.		1	48.5	5.5	60.0	33		0-19 soil sediments 19-48 basement gneiss 0-6 top soil	
15	M' MBELWA	016	PM535	Mnyehele Chipet		1	46.8	7.9	120.0	33		6-20 soft rock 20-47 gneiss	
16	M' MBELWA	017	PM332	Peter Ndabandab		1	42.7	9.2	20.0			0-2 surface deposit 2-12 dambo soil 12-42.7 white sandy rock	
17	M' MBELWA	018	W217	Kandodo Chisi		1	40.9	8.9	39.0	33		0-82 sandy clays 32-42 white rock	
18	M' MBELWA	019	H25	Chingati Chirwa		1	45.3	13.5	60.0	33		no data	
19	M' MBELWA	019	H19	Biwe		1						0-39 soft weathered rock 39-45 basement gneiss	
20	M' MBELWA	020	PM536	Kaluweya		1							



A - 3 (3) Data on Existing Boreholes

NO.	T. A	E. A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/mim)	PUMP DEPTH (m)	REMARKS (Water Ql/y <sup>2</sup> )	GEOLOGY
					1	2	3						
21	M' MBELWA	022	GK155	Malaza Zima			41.5	11.6	15.0	33		no data	
22	M' MBELWA	023	PM325	Vula Chipeta			46.4	8.2	120.0	33		no data	
23	M' MBELWA	023	H27	Engalaweni			16.7	9.8	9.0	12		no data	
24	M' MBELWA	023	PM530	Chibuwu			26.5	7.1	15.0	21		0-9 soft sandy weathered quartzite	
25	M' MBELWA	024	PC161	Mjinsc Sch.			25.0	9.3	120.0	15	f/c	no data	
26	M' MBELWA	024	GK153	Mjinsc Agr.			41.5	8.4	27.0	33		0-6 red soil	
27	M' MBELWA	024	E189	Mjinsc			30.9	6.5	20.0			6-14 alluvium	
28	M' MBELWA	026	H33	Kabuku Phiri			28.3	7.8	21.0	21		14-30 decomposed gneiss	
29	M' MBELWA	026	H34	Zikoti Saka			25.0	6.3	21.0	18		no data	
30	M' MBELWA	027	PM324	Matambo Ngutub			55.0	7.8	120.0	33		no data	
31	M' MBELWA	029	H15	Thomas Nyirenda			60.0	8.7	15.0	33		no data	
32	M' MBELWA	029	H16	Mtola Bofa			56.7	7.5	15.0	30		0-9 top/sub soil and rubble	
33	M' MBELWA	030	W82	Yotamu Ng'oma			50.2	11.1	15.0	33	f/s	9-50 clays	
34	M' MBELWA	030	R176	Manyamula Agr			38.4	10.5	30.0	33		50-59 decomposed gneiss	
35	M' MBELWA	031	E97	Manyamula			30.9	6.5	9.0	24	f/c	0-3 surface deposits	
36	M' MBELWA	031	H17	Mleyo Ng'oma			46.7	10.0	15.0	30		3-36 clay deposits	
37	M' MBELWA	033	W212	Tombolombo			45.7	13.5	30.0	33		36-50 pinad	
38	M' MBELWA	035	H11	Phazima			19.5	4.4	27.0	12		0-3 top soil and clays	
39	M' MBELWA	036	H12	Mpangavisoli			47.3	12.6	39.0	33		3-18 light sandy clays	
40	M' MBELWA	036	H14	Bichi Mumba			35.8	9.5	15.0	30		18-40 dambo sand	
41	M' MBELWA	036	IR65	Mjoka Sch.			40.3	11.1	39.0	33		0-13 soil with clays	
42	M' MBELWA	037	H13	Aron Hara			36.6	12.2	21.0	30		13-17 mica	
43	M' MBELWA	038	W83	Chimutu			29.3	8.5	120.0	27		17-45 weathered gneiss	
44	M' MBELWA	038	KK 3	Kanutepa Mwale			26.0	8.6	120.0	21		0-9 top soil	
45	M' MBELWA	039	PC175	Kayeleva								9-21 clays	

A - 3 (4) Data on Existing Boreholes

NO.	T. A.	E. A.	EXIST. BHL #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD/PUMP (l/min)	DEPTH (m)	REMARKS (Water Q. l/hr)	GEOLOGY
					1	2	3						
46	M' MBELWA	040	H4	Handile Ndhlovu	1			37.8	12.5	54.0	27	0-12 subsoil and rubble 12-28 clays and quartzite 28-59 decomposed gneiss	
47	M' MBELWA	040	H5	Handile Ndhlovu	1			42.3	12.5	21.0	33	Fc Fs 0-12 subsoil rubble 12-24 clays 24-45 weathered gneiss	
48	M' MBELWA	040	H6	Mbobo		1		45.5	11.8	54.0	33	0-15 subsoil and rubble 15-29 yellow clays 29-45 decomposed gneiss	
49	M' MBELWA	040	H7	Katambalala	1			35.8	9.0	21.0	30	0-9 subsoil and rubble 9-17 red clays 17-35 weathered gneiss	
50	M' MBELWA	040	PC160	Mharaunda	1			36.0	15.9	120.0		no data	
51	M' MBELWA	040	W299	Mharaunda Sch.	1			29.3	8.5			0-3 subsoil 3-20 clays decomposed gneiss 20-30 weathered gneiss	
52	M' MBELWA	041	R216	Moses Chilenji		1		45.7	9.0	30.0	33	no data	
53	M' MBELWA	042	H2	Katondo		1		51.1	5.2	78.0	33	0-12 subsoil and rubble 12-18 clays 18-61 shales	
54	M' MBELWA	042	H3	Njembwa I		1		61.6	10.0	21.0	33	0-6 subsoil and rubble 6-32 coarse sands 32-48 clays	
55	M' MBELWA	042	H5 (b)	Njebwa Gondwe		1						no data	
56	M' MBELWA	042	W213	Njebwa I		1		25.0	7.6	68.0		0-3 loam soil 3-16 gravel 16-25 gneiss	
57	M' MBELWA	043	H36	William Ngwenya		1		18.6	5.0	54.0	15	0-6 soil and rubble 6-9 mica clays 9-18 porous gravel	
58	M' MBELWA	044	R179	Chibeku Nguluwe		1		39.4	9.1	120.0	33	0-19 clays and coarse sand 19-33 gray sand 33-45 weathered rock	
59	M' MBELWA	046	RB79	Kalikumbi		1		44.9	8.7	60.0	33	0-19 clays and coarse sand 19-33 gray sand 33-45 weathered rock	
60	M' MBELWA	047	W219	Belete (Mzamu)		1		36.6	9.2	33.0		0-13 red clays 13-36 red pinnel 36-40 weathered rock	
61	M' MBELWA	048	H51	Chisembezo Band		1		24.0	5.4	27.0	18	0-3 topsoil and rubble 3-4 clays 4-28 mica and granite	
62	M' MBELWA	049	H53	Kambokolo		1		40.5	7.4	9.0	33	Fs 0-12 subsoil and rubble 12-24 sand and clays 28-40 weathered gneiss	
63	M' MBELWA	049	W298	Mzoma Sch.		1		46.8	8.8	90.0		0-3 surface deposits 3-24 sandy clay 24-46 decomposed gneiss	
64	M' MBELWA	049	W218	Wilson Jete		1		55.0	10.8	120.0	33	no data	

A-3 (5) Data on Existing Boreholes

NO.	T.A	E.A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/m.m)	PUMP DEPTH (m)	REMARKS (Water Q <sub>15</sub> *2)	GEOLOGY
					1	2	3						
65	M' MBELWA	050	H50	Kasichi Mvula		1	26.2	6.3	15.0	21		no data	
66	M' MBELWA	050	R378	Kalikumbi Sch.		1	59.6	7.8	15.0	33		no data	
67	M' MBELWA	050	H52	Isaac Lukhunda		1	31.8	4.7	21.0	24		no data	
68	M' MBELWA	052	Q150	Mgocha Customs		1						no data	
69	M' MBELWA	052	W65	Mgocha Mtonga		1	42.7	8.6	68.0			0-12 overburden 12-33 clays 33-42 decomposed gneiss	
70	M' MBELWA	053	H58	Vakaza Banda		1	38.6	9.0	27.0	30		no data	
71	M' MBELWA	055	H59	Dulu Nkhunga		1	44.7	5.4	39.0	33		0-9 laterite 9-25 overlying basement 25-45 gneiss	
72	M' MBELWA	056	H56	Kamalimbwe Sch		1	33.0	6.7	21.0	27		0-9 red brown sands 9-20 colluvium 20-36 gneiss	
73	M' MBELWA	056	H57	Kanyolokera		1	39.3	6.8	27.0	33		0-6 reddish sand 6-21 deeply overlying 21-40 basement gneiss	
74	M' MBELWA	057	Q151	Kapolo Police		1	33.6	7.7	60.0	27	Fe	0-18 red clay 18-30 decomposed rock 30-34 basement gneiss	
75	M' MBELWA	057	H55	Malembo		1	31.7	9.0	54.0	27	Fe	no data	
76	M' MBELWA	057	A367	Malembo		1	24.4	4.9	20.0			0-5 surface deposits 5-17 gravel 17-24 boulders	
77	M' MBELWA	057	PC155	Mhrafufa Sch.		1	36.1	7.4	90.0	30		no data	
78	M' MBELWA	058	H54	Mudima Mwandira		1	32.0	4.9	21.0	21		0-6 dark brown sand 6-20 overlying colluvium 29-45 weathered gneiss	
79	M' MBELWA	059	H60	Hannock Mshanga		1	25.5	7.8	39.0	21		0-6 grayish colluvium 6-15 overlying basement 15-25 gneiss	
80	M' MBELWA	059	R876	Kaluwe Sch.		1	47.0	9.8	90.0	33		0-9 red sandy soil 9-24 sands and clays 24-47 weathered gneiss	
81	M' MBELWA	059	H61*	Chafisi		1	23.6	6.7	70.0			no data	
82	M' MBELWA	801	KK3	Edingeni HQ.		1						no data	
83	M' MBELWA	801	L414	Edingeni Sch.		1	37.5	6.1	90.0			0-5 course sand 5-21 shattered gneiss 21-37 decomposed gneiss	
84	M' MBELWA	801	W292	Edingeni		1	31.7	8.5	41.0			0-6 soil 6-20 weathered gneiss 20-45 weathered rock	
85	M' MBELWA	801	PC154	Edingeni		1	40.1	10.1	45.0	33		no data	
86	M' MBELWA	801	JR84	Edingeni Disp		1						no data	
87	MTWALO	056	Z158	Malumbo		1	11.3	0.3				no data	
88	MTWALO	803	A180	Kafukure Police		1	41.6	4.6	35.4	27	Fe	0-15 sub soil and rubble 15-47 quartzite and gneiss	
89	MTWALO	803	Z157	Kawitwifu		1						no data	

A-3 (6) Data on Existing Boreholes

NO.	T. A	E. A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/min)	PUMP DEPTH (m)	REMARKS (Water Q11, y2)	GEOLOGY
					1	2	3						
90	KAMPINGO SIBANDE	019	FM29	Eswazini Agr	1		42.4	8.2	9.0	33		no data	
91	KAMPINGO SIBANDE	020	IR86	Chibembe Sch.	1		39.5	7.9	15.0	30		0-6 top gray soil 6-18 sandy clays 18-39 weathered rock	
92	KAMPINGO SIBANDE	028	PM157	Mathandani Sch.	1		47.4	13.2	48.0	30		0-6 soil weathered rock 6-20 clays 20-47 gneiss	
93	KAMPINGO SIBANDE	030	PM507	David Mumba	1		64.7	25.5	30.0	33		0-9 sand 9-48 decomposed rock 48-64 gneiss	
94	KAMPINGO SIBANDE	030	IR87	Endingeni II. CTR.	1		57.5	7.0	30.0	33	Fc Fs	0-6 red soil 6-30 gravel 30-57 weathered gneiss	
95	CHINDI	002	CC169	kavisopo	1		38.3	3.5	42.6	33		no data	
96	CHINDI	002	W85	Kabando Sch.	1		32.2	8.4	79.8	24		0-3 top soil 3-15 clays 15-33 weathered rock	
97	CHINDI	003	IR112	Kapilingo Sch.	1		42.7	9.1	44.4	21		0-3 stilly clay 3-21 medium hard gneiss 21-40 weathered gneiss 40-45 hard rock	
98	CHINDI	005	GK152	Ntende	1							no data	
99	CHINDI	006	E139	Kajembe kumwend	1		23.8	7.3	24.0	15		0-11.9 clays and sand bush 11.9-18 weathered gneiss 18-45 weathered rock	
100	CHINDI	006	PM842	Robert Mlika	1		36.6	7.7	29.4	24		no data	
101	CHINDI	006	PM843	Zowe Sch.	1		43.9	9.6	49.8	24		0-3 top soil 3-20 heavy clays 21-46 gneiss	
102	CHINDI	007	Q396	Mzambazi Mission	1		47.3	5.5	85.0			0-5 surface red clays 5-21 sandy gravel 21-48 basement gneiss	
103	CHINDI	009	E138	Yakuwata	1		26.5	8.5	15.6	27		no data	
104	CHINDI	009	RI82	Chigowo	1		44.0	3.4	66.6	24		no data	
105	CHINDI	010	RK17	Moses Kanyama	1		60.1	4.2	18.6	30	Fe	no data	
106	CHINDI	011	PF43	Bundi Chikoswe	1		42.4	4.8	30.0	36		no data	
107	CHINDI	015	PF53	Thaleya Wvula	1		24.5	7.3	19.2	18		no data	
108	CHINDI	015	KK222	Moses Mzima	1		60.4	7.2	44.4	33		no data	
109	CHINDI	018	PM540	Kanwanga Sch	1		46.8	10.2	13.2	36		0-3 top soil 3-20 basement gneiss 20-47 gneiss	
110	CHINDI	020	CC172	Nthumba School	1		32.9	3.4	60.0	21		no data	
111	CHINDI	021	IR114	Chamunguma Sch.	1		48.0	10.5	44.4	24		no data	
112	CHINDI	022	PP56	Dau Mbidzi	1		31.2	7.7	30.0	27		0-3 top soil 3-15 sandy clays 15-31 gneiss	
113	CHINDI	022	PF50	Reuben Lungu	1		46.0	8.2	60.0	33		no data	
114	CHINDI	022	PF51	Ndisanji Zima	1		28.7	8.3	44.4	18		no data	

A-3 (7) Data on Existing Boreholes

NO.	T.A	E.A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/min)	PUMP DEPTH (m)	REMARKS (WATER QTY#2)	GEOLOGY
					1	2	3						
115	CHINDI	022	PC196	ENGUCWINI			1	27.1	9.5	6.0	27	no data	
116	CHINDI	022	RK4	Luweya Sch.			1	59.5	5.7	180.0	33	0-3 top soil 3-30 quartzite 30-49 hard rock	
117	CHINDI	023	GK40	Ejezeni			1	46.1	7.8	45.0	33	no data	
118	CHINDI	026	RK223	Kanyankhunde			1	40.0	4.9	92.4	33	no data	
119	CHINDI	027	PP48	Joweka Phiri			1	42.3	9.5	54.6	33	no data	
120	CHINDI	028	PP47	Luji Phiri			1	33.6	4.1	60.0	27	no data	
121	CHINDI	029	PP49	Chinkhutha Vge.			1	30.6	22.1	60.0	24	no data	
122	CHINDI	032	PP3	Mzalangwe H. Cir			1	47.5	14.2	30.0	30	0-6 soil 6-30 soft weathered rock 30-47 granite	
123	CHINDI	032	PM344	Mzalangwe ADMAR			1					no data	
124	CHINDI	033	GK39	M'belwa Institiute			1	46.8	2.1	60.0	15	no data	
125	CHINDI	034	RK192	Yolamu Ziba			1	41.8	11.0	30.0	33	no data	
126	CHINDI	034	RB80	Baphani Setile			1	59.8	8.0	180.0	33	no data	
127	CHINDI	035	RK19	Chinganya Sch.			1					0-15 sandy soil 15-40 coarse sand 40-80 firm brown soil 80-100 fine sand 100-150 firm brown rock	
128	CHINDI	037	GK161	Ndemba Vge.			1	41.0	5.0	29.4	36	no data	
129	CHINDI	037	GK162	Magido D/Tank			1	42.4	6.1	27.0	21	0-6 soil 6-9 gravel rock 9-24 quartzite 24-61 gneiss	
130	CHINDI	041	RK18	Lwakhosi			1	61.7	8.2	90.0	33	no data	
131	CHINDI	042	RK226	Visenhe Sch.			1	29.9	8.1	45.0	27	0-33 soft sandy rock 33-36 quartz 36-46 gneiss	
132	CHINDI	043	RK225	Malinyeli Sch.			1	46.0	6.4	45.0	33	no data	
133	CHINDI	043	DM7	Kaundi School			1	32.9	3.5	90.0	27	no data	
134	CHINDI	045	WB4	Chisasa			1	43.6	10.3	45.0	33	0-3 top soil 3-20 sandy clays 20-44 gneiss	
135	CHINDI	046	Q146	Chisasa ADMARC			1	36.5	5.5	60.0	30	no data	
136	CHINDI	046	Q147	Chikosa Gondwe			1	18.6	8.3	21.0	15	0-3 red soil 3-6 gravel 6-19 weathered gneiss	
137	CHINDI	046	IR69	Chisasa Agr			1	36.8	3.5	90.0	30	0-12 soft weathered rock 12-45 type of gneiss	
138	CHINDI	047	RK224	Bulala Agr			1	60.6	10.2	60.0	33	0-3 soil 3-21 weathered rock 21-60 gneiss	
139	CHINDI	047	RK191	Bulala H. Centre			1	36.3	4.8	39.0	30	no data	
140	CHINDI	048	FM122	Bulala H. Centre			1	46.0	7.2	39.0	33	no data	
141	CHINDI	049	GK34	Kanghoch R. cam			1					no data	
142	CHINDI	049	R190	Chisoyomb			1					no data	
143	CHINDI	049	R186	Kampanjiwa			1					no data	

A - 3 (8) Data on Existing Boreholes

NO.	T. A.	E. A.	EXIST. BH. #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD PUMP (l./min)	DEPTH (m)	REMARKS (Water Qlty etc)	GEOLOGY
					1	2	3						
144	CHINDI	049	FC75	Kamwanjiwa TB		1		20.0	6.3	54.0	15	0-9 light clays 9-21 weathered gneiss 21-40 broken formation 40-45 granite	
145	CHINDI	049	J103	Kamwanjiwa T. Base		1						no data	
146	CHINDI	052	IR62	Timothy Mphaka		1	40.4	10.8		60.0	33	no data	
147	CHINDI	052	Q148	Dinici Mghogho		1	36.9	8.2		60.0	30	no data	
148	CHINDI	052	Q149	Kapinyuka		1	37.6	6.6		30.0	30	no data	
149	CHINDI	052	W291	Chisengezi		1						no data	
150	CHINDI	053	Q137	Cizungu Sch.		1	23.0	9.0		45.0	18	0-16 red sandy soil 16-28 decomposed gneiss	
151	CHINDI	802	IR113	Euthini Sec. Sch.		1						no data	
152	CHINDI	802	GM12	Euthini Sec. Sch.		1						no data	
153	CHINDI	802	GM14	Euthini Sec. Sch.		1	59.6	18.9		66.6		no data	
154	CHINDI	802	KK21	Enterera		1						no data	
155	CHINDI	802	KK145	Mombo		1						no data	
156	CHINDI	802	GK160	Euthini II/C		1	59.7	16.4		40.2	39	0-3 soil 3-20 heavy clays 20-40 weathered rock	
157	CHINDI	802	PM539	Euthini P. Sch.		1	39.4	4.4		60.0	15	no data	
158	CHINDI	802	J132	Euthini MCHD.		1						no data	
159	CHINDI	802	L406	Etherera		1	45.5	16.2		70.8	33	no data	
160	MZIKUBOLA	010	W295	Thozza		1	54.8	11.2		180.0	33	no data	
161	MZIKUBOLA	022	E290*	Chankhanza Uteka		1	41.2	6.1		68.0		0-9 clays overburden gneiss 9-41 decomposed gneiss	
162	MZIKUBOLA	027	DP53*	Kamatavo Sch.		1	43.5	8.2		39.0	27	0-9 clays 9-28 weathered gneiss 28-45 hard rock	
163	MZIKUBOLA	029	L147*	Jenda Agr.		1						no data	
164	MZIKUBOLA	029	RK194*	Kamalanbo		1	45.8	6.1		45.0		0-6.1 weathered rock 6.1-30 weathered gneiss 30-45 gneiss	
165	MPHEREMBE	009	R183	Chaviwa Sch.		1	27.0	8.7		34.2	24	no data	
166	MPHEREMBE	014	X169	Saulos Mgemezu		1	50.0	18.5		19.8	33	no data	
167	MPHEREMBE	017	X163	Rufukazi Gama		1	39.0	10.2		60.0	24	0-6 sand clays and sand 6-18 weathered gneiss 18-39 basement gneiss	
168	MPHEREMBE	018	X162	Nzimema		1	41.8	10.5		21.6	24	0-3 top soil 3-25 decomposed gneiss 25-42 basement gneiss	
169	MPHEREMBE	018	EMB17	Zimeya Jere II		1						no data	
170	MPHEREMBE	019	EMB7	Sandite Mtoha.		1	40.6	2.9		33.6	36	no data	
171	MPHEREMBE	020	X168	Kabwaf Settlement (B)		1	45.0	20.7		45.0		0-7 brown clays 7-16 colluvium 16-46 weathered basement gneiss	
172	MPHEREMBE	020	A185	Kszapi Mlonga		1	30.3	12.5		66.0	27	0-21 sub soil and rubble 21-45 weathered gneiss	
173	MPHEREMBE	020	PM323	Kabwaf Settlement (A)		1						no data	

A - 3 (9) Data on Existing Boreholes

NO.	T. A.	E. A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/min)	PUMP DEPTH (m)	REMARKS (WATER Q. l/v2)	GEOLOGY
					1	2	3						
174	MPHEREMBE	021	PM322	Kabwal Settlement (A)								no data	
175	MPHEREMBE	021	GK241	Kabwal Settlement (A)								no data	
176	MPHEREMBE	021	GK240	Kabwal Settlement (A)								no data	
177	MPHEREMBE	021	PM21	Kabwal Settlement (A)								no data	
178	MPHEREMBE	801	RK16	Inkosi Mpherembe			1	61.0	17.5	12.0	33	Ca 0-6 top soil 6-42 weathered gneiss 42-61 gneiss	
179	MPHEREMBE	801	Q394	Mpherembe Hq.								no data	
180	MZUKUZUKU	001	W279	Eichiyeni Sch.			1	48.0	9.3	54.0	33	no data	
181	MZUKUZUKU	002	FR85	Kalungulu Sch.								no data	
182	MZUKUZUKU	003	R077	Mbawa Agr.			1	33.6	6.1	30.0		0-3 overburden 3-22 coarse sand 22-33 quartz	
183	MZUKUZUKU	003	L413	Mbawa Agr.			1	41.5	6.6	180.0	30	0-23 coarse sand and silt with mica	
184	MZUKUZUKU	003	U81	Mtezi Mill			1	28.6	9.1	54.0		no data	
185	MZUKUZUKU	003	L105	Mbawa Agr.			1	52.5	4.3	25.0		0-6 soil 6-30 weathered gneiss 30-52 biotitic gneiss	
186	MZUKUZUKU	003	R178	Mbawe Sch.			1	43.0	8.4	120.0	33	0-6 top soil 6-35 weathered gneiss 35-45 basement gneiss	
187	MZUKUZUKU	003	Z206	Mbawa Sch.								no data	
188	MZUKUZUKU	003	W163	Mbawa Agr.			1	44.8	5.8	100.0		0-3 surface deposit 3-13 loose gravel 13-44 broken biotitic gneiss	
189	MZUKUZUKU	003	W273	Mbawa Agr.			1	47.3	8.8	70.0		BUSH (1960) 0-3 sandy soil 3-24 biotite gneiss 24-48 overlain red clay	
190	MZUKUZUKU	005	DP58	Foster Jere			1	38.7	8.4	39.0	21	Fc Fs 0-3 surface deposit 3-20 hard clays 20-39 gneiss	
191	MZUKUZUKU	007	H75	Malapa Manda			1	29.2	5.1	15.0	18	0-2.4 surface deposit 2.4-18 gray colluvium 18-30 quartz and gneiss	
192	MZUKUZUKU	007	H76	Mhawi			1	41.0	6.2	15.0	33	Fs 0-9 surface deposit 9-22 brown laterite 22-41 gneiss	
193	MZUKUZUKU	007	SM538	Batameyo Lembo			1	48.5	8.8	120.0	33	Fc no data	
194	MZUKUZUKU	008	W294	Dimi			1	36.0	6.3	30.0	27	Fs 0-13 sandy soil 13-16 gravel 16-35 pinnet	
195	MZUKUZUKU	009	W214	Ephangweni			1	38.0	13.3	180.0	33	Fc 0-3 surface deposit 3-18 gravel 18-38 hard white quartz	
196	MZUKUZUKU	009	RK2	Mzukuzuku Hq.								no data	
197	MZUKUZUKU	011	W215	Swaswa Sch.			1	51.9	6.7	20.0		0-2 sandy soil 2-15 clays 15-51 decomposed gneiss	

A-3 (10) Data on Existing Boreholes

NO.	T.A.	E.A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/min)	PUMP DEPTH (m)	REMARKS (Water qty/d)	GEOLOGY
					1	2	3						
198	MZUKUZUKU	012	PC150	Mtaba Handa			35.0	6.5	92.4	30		no data	
199	MZUKUZUKU	013	H67	Kabinga Banda		1	42.0	3.7	15.0	24	Fs	0-12 sands 12-28 clays 28-41 decomposed gneiss	
200	MZUKUZUKU	013	H72	Bongoya Msimuko		1	32.5	6.0	27.0	24	Fs	0-12 sub soil and rubble 12-25 clays 25-32 gneiss	
201	MZUKUZUKU	013	H73	Eziakimo Jere		1	31.7	7.0	21.0	24		0-6 sub soil and rubble 6-10 clays and sand 10-31 decomposed gneiss	
202	MZUKUZUKU	013	H74	Mpezeni Msimuko		1	32.0	4.8	15.0	33		0-8 sand and rubble 8-15 weathered gneiss 15-33 quartz	
203	MZUKUZUKU	013	W293	Makhosikazi		1	48.8	11.6	33.0			0-3 surface deposit 3-13 yellow clays 13-48 decomposed gneiss	
204	MZUKUZUKU	014	H68	Matkenya Jere		1	41.0	7.8	21.0	33		0-15 subsoil and rubble 15-33 yellow clays 33-42 decomposed gneiss	
205	MZUKUZUKU	014	H69	Chilomba		1	21.5	4.5	27.0	15	Fc	0-6 subsoil 6-12 clays 12-21 sands	
206	MZUKUZUKU	014	H70	Bori Nyirenda		1	25.5	5.2	27.0	18		0-4 sub soil and rubble 4-25 coarse sands 0-2 surface deposit	
207	MZUKUZUKU	014	H71	Kapoli Mtonga		1	37.5	3.9	21.0	30		2-14 sandy clays 14-38 weathered rock 0-6 subsoil and rubble	
208	MZUKUZUKU	016	H65	Aron Chirwa		1	37.2	6.9	39.0	30		6-18 clays 18-26 decomposed gneiss 26-37 weathered gneiss	
209	MZUKUZUKU	016	H66	Mapupo Ndhlovu		1	31.4	6.4	54.0	27	Fc Fs	0-9 subsoil 9-26 decomposed gneiss 26-31 fractured gneiss	
210	MZUKUZUKU	016	E94	Mabiri School		1	44.3	11.7	54.0	33		0-2 surface deposit 2-20 coarse sands 20-45 weathered gneiss	
211	MZUKUZUKU	016	A63	William Tleu		1						no data	
212	MZUKUZUKU	017	W216	Vibangalala Sch.		1	45.0	10.0	120.0	33		0-3 surface soil 3-14 yellow clays 14-22 loose gravel 22-45 gneiss	
213	MZUKUZUKU	018	GK36	Chindoka Jonas		1	45.7	8.9	54.0	33		0-6 red top soil 6-24 sands gravel alluvials 24-30 clays 30-45 weathered rock	
214	MZUKUZUKU	018	H64	Mabvutoza Nkhat		1	36.0	14.2	15.0	33		0-3 gray alluvials 3-27 sands overlying 27-39 basement gneiss	



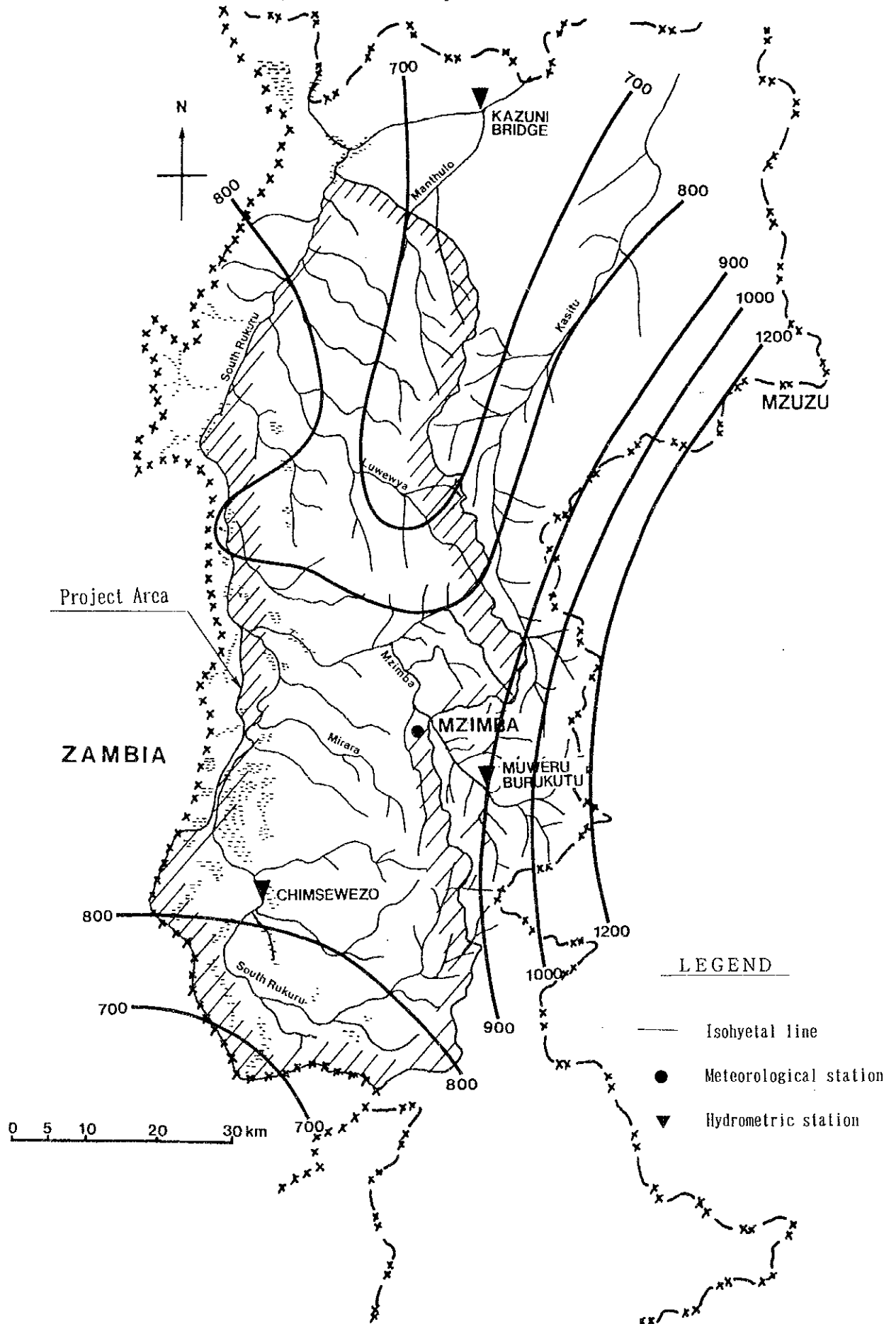
A-3 (11) Data on Existing Boreholes

NO.	T. A.	E. A.	EXIST. BH #1	VILLAGE NAME	ZONE			DEPTH (m)	WATER LEVEL (m)	MAX YIELD (l/mim)	PUMP DEPTH (m)	REMARKS (Water quality#2)	GEOLOGY
					1	2	3						
215	MZUKUZUKU	801	PM161	Embangweni	1							0-6 soil 6-33 oil sandy rock 33-54 strong quartzite	
216	MZUKUZUKU	801	L415	Embangweni Trading Cent		1	30.5	7.3	108.0			0-18 coarse sands and silt 18-19 silt sands and mica 19-30 hard pebbles	
217	MZIMBA URBAN	703	GR164*	Chanthomba Village	1							0-6 top soil 6-18 clay silt 18-33 broken quartz 33-45 weathered rock	

\*1: \* Existing BH in Piped Water Supplied Area

\*2: Water Quality -Fe:Iron rich, Ca:Calcium rich, Fc:Coliform Bacterium, Fs:Bacterium

A-4 (1) Locations of meteorological stations and hydrometric station



A - 4 (2) Meteorological and Hydrological Data

Monthly Rainfall (mm)

Station : Mzimba

SEASON	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
1985/86	0.0	0.0	0.0	0.5	128.9	184.1	317.3	217.8	120.8	16.2	1.3	0.8	987.7
1986/87	0.0	0.0	2.2	27.7	1.8	233.3	226.7	113.5	178.2	15.8	1.0	0.0	800.2
1987/88	0.0	0.0	0.0	0.5	11.8	161.1	200.0	124.7	256.5	41.6	5.7	0.0	801.9
1988/89	0.1	0.0	0.0	3.4	20.5	110.7	255.3	235.6	210.5	126.5	1.0	0.3	963.9
1989/90	1.5	0.0	0.0	0.0	107.9	397.8	216.8	283.5	84.1	18.2	16.9	0.0	1,126.7
1990/91	0.0	6.9	0.0	0.0	30.1	148.2	212.6	184.5	107.2	25.0	22.8	0.0	737.3
1991/92	0.0	0.0	4.6	1.7	145.1	113.3	136.7	189.3	151.9	0.8	67.5	0.0	810.9
1992/93	0.9	0.4	0.4	0.0	97.3	138.4	142.8	196.0	151.8	31.6	0.0	0.7	760.3
1993/94	0.3	2.2	0.0	0.0	29.5	39.7	297.0	230.2	116.4	15.2	1.1	0.0	731.6
1994/95	1.8	19.0	2.8	0.1	50.0	53.1	460.9	177.3	147.3	2.3	0.1	0.0	914.7
1995/96	0.0	0.0	0.0	0.5	15.6	112.4	179.2	285.3	276.8	6.0	0.0	2.6	878.4

Mean Monthly Drybulb Temperature (°C)

Station : Mzimba

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1980	20.2	21.4	19.8	19.6	17.8	14.7	15.1	17.2	21.1	22.1	23.4	20.5	19.4
1981	20.9	20.3	20.6	19.9	17.8	15.6	15.2	17.9	19.7	21.6	23.4	21.7	19.6
1982	20.6	20.5	20.2	19.8	17.7	16.7	16.2	17.2	19.9	21.8	17.2	20.9	19.1
1983	20.9	21.1	21.4	20.8	19.6	17.7	17.2	22.0	19.9	22.5	23.7	21.3	20.7
1984	19.4	19.8	20.2	19.4	18.4	16.3	16.5	16.5	20.6	22.5	21.5	20.1	19.3
1985	20.5	19.1	20.4	19.1	18.0	15.8	15.8	16.4	20.1	21.9	20.5	21.2	19.1
1986	19.6	20.1	20.0	19.7	18.2	15.5	15.3	17.7	19.9	22.5	22.1	20.3	19.2
1987	20.5	20.5	20.9	19.9	18.9	12.8	16.7	18.7	21.0	22.2	23.7	22.2	19.8
1988	20.3	20.8	20.4	20.5	17.8	17.3	16.6	18.1	20.0	22.4	21.7	21.2	19.8
1989	19.3	20.1	19.7	19.2	18.2	—	—	17.4	19.8	22.3	22.2	—	19.8
MEAN	20.2	20.4	20.4	19.8	18.2	15.8	16.1	17.9	20.2	22.2	21.9	21.0	19.6

A — 4 (3) Meteorological and Hydrological Data

Mean Monthly Maximum Temperature (°C)

Station : Mzimba

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1985	26.2	24.5	26.2	25.1	24.9	23.2	23.0	23.7	26.9	27.9	26.8	26.6	25.4
1986	24.8	26.0	25.7	25.6	25.1	22.8	23.0	24.8	26.3	29.0	28.5	26.4	25.7
1987	26.4	26.4	27.3	26.7	25.7	23.7	24.6	24.9	27.8	28.8	30.3	28.6	26.8
1988	25.8	26.5	26.4	26.5	24.4	24.2	23.4	25.0	26.9	28.6	27.7	27.5	25.2
1989	24.0	25.6	25.1	24.8	24.0	23.1	23.2	24.0	26.8	28.5	28.0	28.2	25.4
1990	26.1	26.8	27.6	27.0	25.8	24.7	23.5	23.5	23.5	29.4	29.4	28.3	26.3
1991	26.0	26.8	26.7	24.7	25.3	23.6	22.5	24.9	27.0	28.6	28.7	26.5	25.9
1992	26.8	27.3	27.0	26.5	25.6	24.1	22.5	25.0	26.9	29.3	28.6	27.4	26.4
1993	23.7	26.4	25.8	26.0	27.0	22.6	20.0	23.9	26.4	26.5	29.2	29.2	25.9
1994	26.3	25.9	26.8	26.5	25.8	23.9	23.0	24.3	26.9	29.9	30.1	29.4	26.6
MEAN	26.3	25.9	26.8	26.5	25.8	23.9	23.0	24.3	26.9	29.9	30.1	29.4	26.6

Mean Monthly Minimum Temperature (°C)

Station : Mzimba

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1985	16.4	15.8	16.7	14.5	12.9	9.7	9.4	10.9	15.0	16.5	16.7	16.4	14.2
1986	16.0	15.7	15.8	16.5	13.1	9.9	8.6	11.7	14.3	16.5	16.4	15.3	14.2
1987	16.6	16.4	16.6	15.6	14.6	9.9	10.8	13.8	15.9	17.0	18.5	17.4	15.3
1988	16.9	17.0	16.4	16.1	12.9	12.2	10.9	12.6	13.5	17.8	16.3	16.2	15.0
1989	15.6	15.7	15.2	14.9	13.6	11.5	10.4	12.5	14.1	17.4	18.1	17.8	14.7
1990	16.6	16.6	16.0	16.0	14.9	12.6	12.0	12.0	12.0	16.8	17.9	17.1	15.0
1991	16.8	17.0	17.0	15.5	15.1	10.4	11.0	11.6	13.8	16.9	17.7	17.3	15.0
1992	16.6	15.9	17.0	16.0	15.3	12.7	10.8	11.7	13.9	17.8	17.8	17.7	15.3
1993	16.8	16.7	16.5	16.5	14.1	10.7	10.8	12.9	15.9	17.4	18.1	16.3	15.2
1994	16.5	16.2	15.0	15.2	13.5	11.0	9.7	11.5	14.3	17.8	17.5	18.1	14.7
MEAN	16.5	16.2	15.0	15.2	13.5	11.0	9.7	11.5	14.3	17.8	17.5	18.1	14.7

A — 4 (4) Meteorological and Hydrological Data

Mean Monthly Relative Humidity (%)

Station : Mzimba

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1979	80	90	86	81	75	74	73	66	56	53	67	82	73.6
1980	86	79	86	84	75	72	73	66	56	56	57	81	72.6
1981	78	84	80	73	71	67	65	61	54	57	54	72	68.0
1982	83	82	81	78	76	70	67	62	58	60	69	81	72.3
1983	82	84	79	76	70	—	—	—	—	—	—	—	78.2
1984	85	85	82	78	75	74	69	63	51	51	66	79	71.5
1985	78	85	80	77	72	—	67	65	58	56	—	78	71.6
1986	83	81	83	78	73	71	65	61	56	58	66	79	71.2
1987	79	81	80	84	73	67	68	63	53	54	54	—	67.8
1988	—	81	85	78	76	74	70	65	55	55	65	77	71.0
MEAN	82	83	82	78	74	71	69	64	55	56	62	79	71.8

Windspeed (Knots)

Station : Mzimba

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1982	1.9	2.1	3.0	4.0	5.2	3.2	6.1	6.6	7.2	7.3	4.0	1.9	4.4
1983	1.7	2.0	—	3.9	3.8	4.5	5.3	6.3	6.1	7.3	5.7	6.9	4.9
1984	1.8	1.7	3.8	5.3	5.9	6.2	6.2	6.4	7.5	8.2	5.2	2.5	5.1
1985	0.9	1.3	1.0	1.5	1.8	1.8	1.4	2.1	1.9	1.9	1.4	1.0	1.4
1986	1.1	1.1	0.8	1.2	1.5	1.7	1.7	1.7	1.8	1.7	1.6	1.1	1.4
1987	6.6	1.7	1.8	3.8	4.8	3.6	0.6	6.3	1.9	7.6	4.2	2.4	3.7
1988	2.3	0.7	—	1.1	1.5	1.5	1.3	2.0	1.5	1.7	1.8	1.2	1.4
1989	1.2	1.0	0.9	1.3	1.4	1.5	1.5	1.5	1.9	1.8	1.4	1.0	1.3
1990	8.9	0.9	1.1	1.1	1.5	1.5	1.6	2.0	2.0	1.8	1.7	1.2	2.0
1991	1.0	1.0	—	1.4	1.4	1.5	1.7	1.7	1.7	1.7	1.5	1.0	1.4
1992	0.8	0.8	1.0	1.3	—	1.6	1.7	—	1.8	1.8	1.6	1.0	1.2
MEAN	2.4	1.1	1.5	2.4	2.9	2.6	2.6	3.7	3.2	3.9	2.7	1.9	2.6

A - 4 (5) Meteorological and Hydrological Data

Mean Monthly Discharge (m<sup>3</sup>/sec)

Station : Muweru Bulukutu

River : Mzimba

SEASON	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	MEAN
1986/87	0.64	1.57	1.57	1.80	1.78	1.46	0.98	0.76	0.66	0.39	0.20	0.19	0.99
1987/88	0.14	0.28	1.00	3.58	3.66	1.56	0.80	0.66	0.42	0.38	0.32	0.28	1.08
1988/89	0.30	—	3.00	3.37	12.61	13.37	2.72	1.49	1.20	1.01	0.79	0.64	—
1989/90	0.67	3.72	4.85	17.38	3.59	1.60	1.15	0.90	0.71	0.69	0.43	0.31	2.90
1990/91	0.29	2.13	7.85	7.42	18.83	3.28	0.00	0.00	0.00	0.00	0.00	0.00	3.31
1991/92	0.12	0.40	1.96	3.32	5.41	0.40	0.25	0.16	0.14	0.11	0.07	0.05	1.03
1992/93	0.05	4.02	4.53	11.20	10.17	0.52	0.44	0.25	2.62	—	0.41	0.06	—
1993/94	0.17	0.66	—	—	1.12	0.27	0.17	0.11	0.09	0.07	0.05	0.04	—
1994/95	0.39	1.15	3.64	2.68	1.53	0.98	0.78	0.82	0.85	0.84	0.73	0.42	1.23

Station : Chimsewezo

River : South Rukuru

SEASON	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	MEAN
1986/87	0.76	8.89	9.84	13.31	10.53	7.39	2.25	1.55	1.19	0.88	0.47	0.35	4.74
1987/88	0.15	1.54	0.01	10.34	12.12	2.84	1.27	0.83	0.59	0.37	0.15	0.12	2.50
1988/89	0.07	—	—	15.30	18.61	16.40	8.00	5.22	3.49	2.46	1.38	0.85	—
1989/90	0.83	7.85	16.67	10.65	—	—	2.95	1.68	1.16	0.97	0.56	0.27	—
1990/91	0.24	0.53	5.67	7.10	3.27	2.48	0.61	0.36	0.25	0.16	0.06	0.04	1.70
1991/92	0.30	0.92	4.29	2.06	3.53	1.36	0.30	0.10	0.07	0.05	0.00	0.00	1.08
1992/93	0.00	1.79	3.57	5.22	6.27	3.06	1.15	0.69	0.58	0.40	0.26	0.05	1.90
1993/94	0.19	0.30	3.64	5.73	3.60	3.57	0.81	0.79	0.69	0.51	0.25	0.02	1.65
1994/95	0.00	0.20	4.92	—	—	—	—	—	—	—	—	—	—

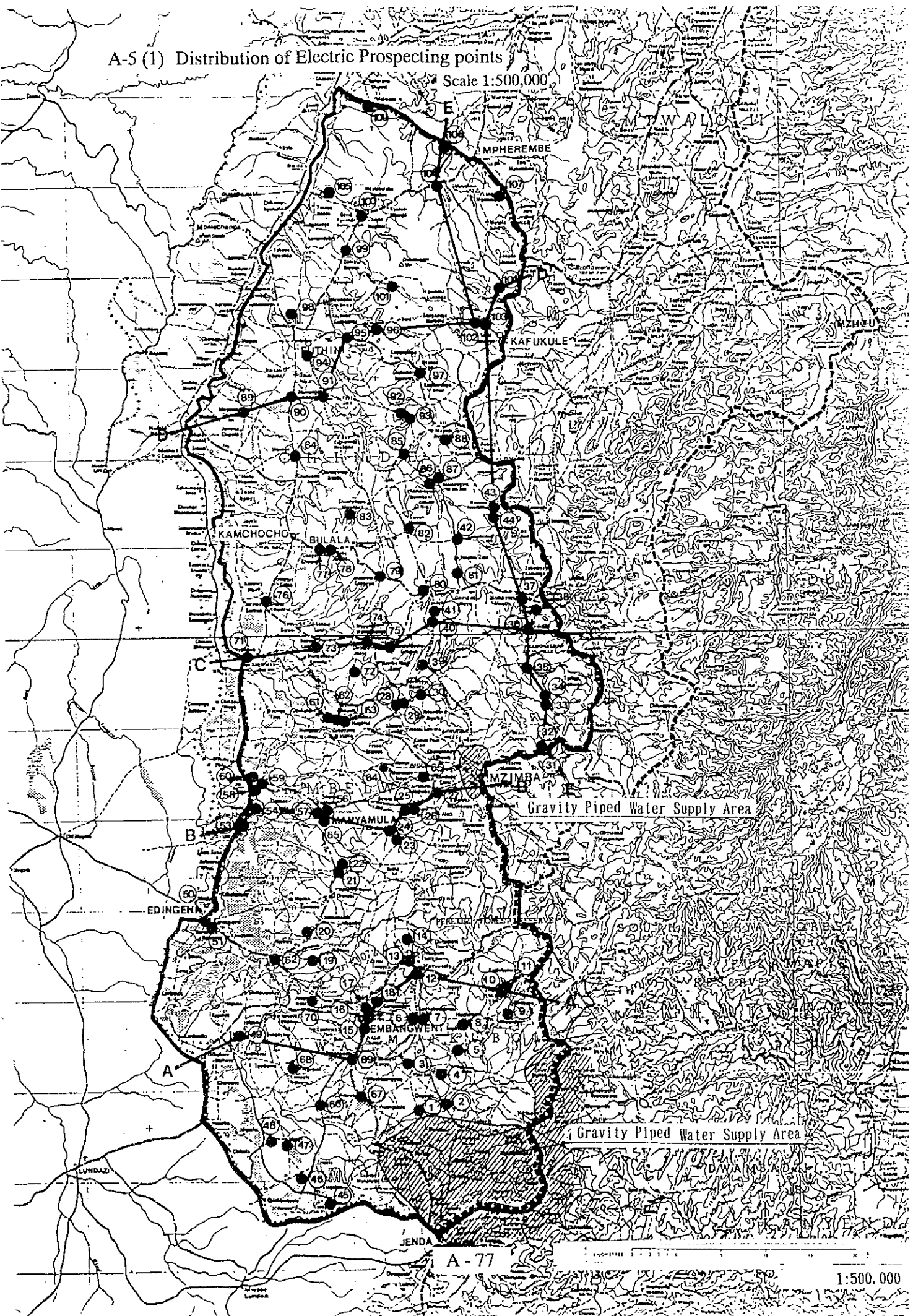
Station : Kazuni Bridge

River : South Rukuru

SEASON	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	MEAN
1986/87	2.08	29.88	52.29	68.84	—	37.81	10.74	4.92	3.47	2.06	1.27	0.66	—
1987/88	—	—	6.70	41.79	70.66	—	4.63	3.07	1.75	1.13	0.49	—	—
1988/89	0.12	0.86	13.19	46.59	—	—	19.25	7.68	5.05	2.46	1.66	0.89	—
1989/90	0.79	7.97	—	—	44.40	5.47	4.89	2.76	1.76	3.35	0.88	0.30	—
1990/91	0.15	—	13.33	31.79	14.29	31.34	2.23	0.87	0.53	0.38	0.20	0.12	—
1991/92	—	1.40	10.51	18.29	10.52	6.60	2.39	0.89	0.66	0.51	0.12	0.12	—
1992/93	0.12	3.80	13.20	41.15	48.48	11.76	1.77	0.68	0.54	0.43	0.17	0.12	10.50
1993/94	0.18	0.12	21.38	48.08	42.03	7.62	2.08	1.22	0.76	0.27	0.12	0.12	10.11
1994/95	0.12	0.12	38.25	46.53	67.09	9.22	2.39	1.95	—	—	—	—	—

A-5 (1) Distribution of Electric Prospecting points

Scale 1:500,000



A-77

1:500,000

A-5(2) List of Electric Prospecting and Evaluation of Electric Prospecting Result

No	Zone	T. A. / S. T. A.	Village	Aquifer		Type of $\rho$ -a curve	Evaluation	Remarks
				Resistivity ( $\Omega$ -m)	Depth (m)			
1	1	MZIKUBOLA	Sumuel Kamanga	41	31	A	○	
2			Chigaule Qutoto	—	—	C	×	Basement appears shallow
3			Chikondawanga II Lusale	315	35	C	○	
4			Zezeza Moyo	233/530	36/65	A	○	
5			Muswamphira Muzi	240	40	A	○	
6			Emchakachakeni Sch.	—	—	C	×	Basement appears shallow
7			Emchakachakeni Sch.	420	65~	A	△	Basement appears deep
8			Machowani Nkhoswe	135/63	46/65	A	○	
9			Chinjoka Nyirenda	600	54	A	△	Weathered rock appears shallow
10			Mapanjila Sch.	290	34	A	○	
11			Mapanjila	390	30	A	○	
12			Chikomani Thole	139	60	A	○	W 295 180l/m
13			Thoza Sch.	266	61	B	○	JT 210
14			William Muyawa	160	50	B	○	
15	1	MZUKUZUKU	Embangweni T. C.	560	52	A	△	Weathered rock appears shallow
16			Embangweni	168/480	23/72	A	○	
17			Embangweni	414	58	A	○	
18			Embangweni Distance Sch.	93	80	B	○	CSC
19			Etcheyeni Sch.	87/200	30/58	A	○	JT 195
20	1	M' MBELWA	Handle Ndklown I	60	23	A	△	Basement appears shallow
21			Mapangavisoti	195	50	A	○	H 12 120l/m
22			Mapangavisoti	280	36	A	○	
23			Yohan Chisi	361	70	B	○	
24			Yesaya Shumba	183	66	A	○	
25			Mirara Sch.	65	65	B	○	

○ : Productive aquifer is expected

△ : Fear of insufficient discharge and/or unsuitable water quality

× : Unsuitable for drilling point



A-5(3) List of Electric Prospecting and Evaluation of Electric Prospecting Result

No.	Zone	T. A. /S. T. A.	Village	Aquifer		Type of $\rho$ -a curve	Evaluation	Remarks
				Resistivity ( $\Omega$ -m)	Depth (m)			
26	1	M' MBELWA	Mirara Sch.	163	37	B	○	
27			Jeremia Mahobe	130/260	38/66	A	○	
28			Bokola Sch.	322	23	A	×	Basement appears shallow
29			Bokola Sch.	60	34	A	○	
30			Samuel Mabaso	330	22	A	△	Basement appears shallow
31			1	KAMPINGO SIBANDE	Mzondi Ndhlovu	—	—	C
32	Mzondi Ndhlovu	158/480			12/40	C	△	Basement appears shallow
33	Tadeyo Chakwira	320			28	C	△	Weathered rock appears shallow
34	Tadeyo Chakwira	123/460			17/60	C	△	Weathered rock appears shallow
35	Zebediya Zighili	160/340			11/23	C	×	Weathered rock appears shallow
36	Chibembe Sch.	340			39	C	○	IR 86 45l/m
37	Kapoli Sch.	300			32	A	○	
38	Eswanjini	154			27	A	○	FM 20
39	1	CHINDI			Yesaya Nkoshi	308/610	17/42	A
40			Endindeni Disp.	69/200	40/60	A	○	IR 87 45l/m
41			Yesaya Nkoshi	200	32	A	○	
42			Ndabanbe Gausi	80	48	A	○	
43			M' mbelwa Farm Institute	29	45	B	○	
44			M' mbelwa Farm Institute	43	37	A	○	
45	2	M' MBELWA	Kapopo Mkt	37	25	A	△	Basement appears shallow
46			Kachinjere Nyirongo	63	44	A	○	
47			Malanga Mtonga	58	45	B	○	
48			Mtuzuzu Sch.	56	74	B	○	
49			Mzoma Sch.	77	48	B	○	W 298
50			Edingeni Disp.	58	50	B	○	IR 84

○ : Productive aquifer is expected

△ : Fear of insufficient discharge and/or unsuitable water quality

× : Unsuitable for drilling point

A-5(4) List of Electric Prospecting and Evaluation of Electric Prospecting Result

No	Zone	T. A. / S. T. A.	Village	Aquifer		Type of $\rho$ -a curve	Evaluation	Remarks
				Resistivity ( $\Omega$ -m)	Depth (m)			
51	2	M MBELWA	Edingeni	44/100	34/48	A	○	
52			Chanjobyu	36	48	B	○	
53			Mjinge Sch.	360	40	A	○	
54			Mjinge	205	52	A	○	GK 153 30t/m
55			Manyamula	36	60	B	○	
56			Manyamula	37	60	A	○	
57			Manyamula Sch.	29	56	B	○	PM 142 60t/m
58			Engaraweni	140	60	A	○	
59			Engaraweni	59/168	27/60	A	○	
60			Engaraweni	76	22	A	×	Basement appears shallow
61			Zubayumo Makamo	332	20	A	×	Basement appears shallow
62			Zubayumo Makamo	—	—	—	—	not analyzable
63			Zubayumo Makamo	360	50	A	○	
64			Ngori Sch.	52	35	A	○	
65			Kandodo Chisi	230	25	A	△	Basement appears shallow
66	2	MZUKUZUKU	Aramu Mhone	93	42	A	○	
67			Baleni Jere	58	31	A	○	HG 3
68			Eliakimo Mwandira	81	34	B	○	
69			Ephangweni	240	60	A	○	W 214 180t/m
70			Mtezi Mithi	25	48	A	○	H 81 91t/m
71	2	CHINDI	Kamteteka Sch.	56/144	23/23~	B	○	
72			Chindindindi	40/115	23/46	A	○	
73			Chizungu Sch.	294	65	A	○	Q 137 45t/m
74			Chisasa ADMARC	200	32	C	○	Q 146 45t/m
75			Makurande Sch.	817	29	A	×	Basement appears shallow, High Resistivity

○ : Productive aquifer is expected

△ : Fear of insufficient discharge and/or unsuitable water quality

× : Unsuitable for drilling point

A-5(5) List of Electric Prospecting and Evaluation of Electric Prospecting Result

No.	Zone	T. A. /S. T. A.	Village	Aquifer		Type of $\rho$ -a curve	Evaluation	Remarks
				Resistivity ( $\Omega$ -m)	Depth (m)			
76	2	CHINDI	Chisengezi Sch.	155	65	A	○	
77			Bulala	175/380	21/70	A	○	
78			Bulala	155/65	27/52	A	○	FM 122 90t/m
79	3	CHINDI	Kanyeru Chadewa	692	65	A	△	Weathered rock appears shallow
80			Kawdi Sch.	533	30	A	△	Basement appears shallow
81			Makngazi Sch.	129	46	B	○	
82			Visente	105	70	B	○	
83			Lwankhhozi Sch.	94/240	27/62	A	○	RK 18 90t/m
84			Mbunge	35	40	A	○	
85			Mabuka Hlango	625	50	A	△	Weathered rock appears shallow
86			Mzalongwe ADMARC	244	57	C	○	
87			Mzalongwe	70/170	28/60	C	○	PM 344 25t/m
88			Kavululanga Sch.	67	42	A	○	
89			Kanyakhunde Sch.	144/534	21/45	A	○	KK 223
90			Rouben Lungu	30	46	A	○	GK 40
91			Chamunguwa	40/132	30/52	A	○	IR 114 20t/m
92			Nthumba ADMARC	69	46	C	○	CC 172
93			Nthumba ADMARC	283/630	18/46	A	△	Weathered rock appears shallow
94			Zebediya Nzima	100	32	B	○	
95			Kajembe Kumwenda	128	30	A	○	E 139 60t/m
96			Vavela Nyonyagha	55	24	A	△	Basement appears shallow
97			Musa Mango	387	55	A	○	PC 152
98			Nkhweta	141	44	A	○	PP 52
99	James Kamtondowi Gondwe	190	32	A	○			
100	Kapando Sch.	42	18	A	○	PM 341, Basement appears shallow		

○ : Productive aquifer is expected

△ : Fear of insufficient discharge and/or unsuitable water quality

× : Unsuitable for drilling point

A - 5(6) List of Electric Prospecting and Evaluation of Electric Prospecting Result

No.	Zone	T. A. / S. T. A.	Village	Aquifer		Type of $\rho$ -a curve	Evaluation	Remarks
				Resistivity ( $\Omega$ -m)	Depth (m)			
101	3	CHINDI	Chiminba Chipete	133	32	B	○	
102	3	MTWALO II	Chamhaya Gondwe II	194	64	B	○	
103			Chamhaya Gondwe I	169	18	A	○	B/H no number, Basement appears shallow
104			Mari Sawa	246	35	C	○	
105	3	MPHEREMBE	Timeyo	690	66	A	△	Weathered rock appears shallow
106			Khozapi Mtonga II	60	37	B	○	
107			Mwamba Jere	220	42	C	○	
108			Simon Chisi	32/700	23/36	A	△	Basement appears shallow
109			Simon Jere	200	25	C	×	PM 542, unsuitable water quality

○ : Productive aquifer is expected

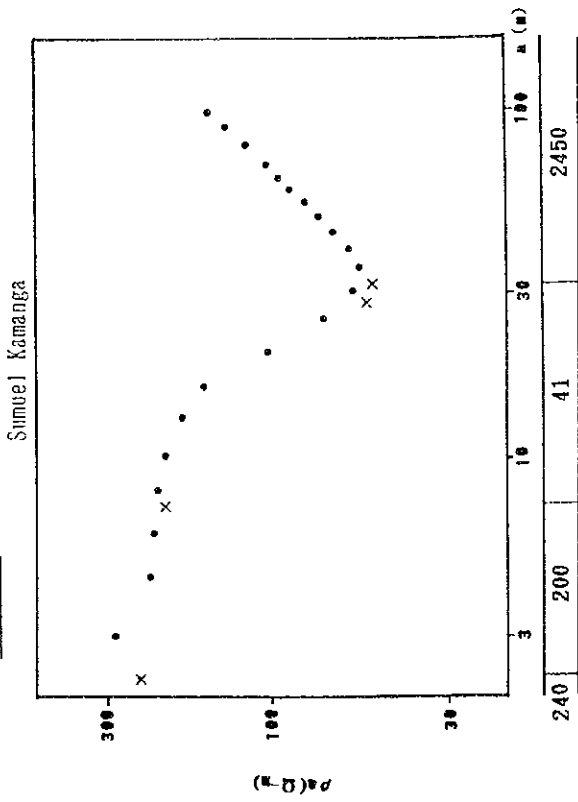
△ : Fear of insufficient discharge and/or unsuitable

× : Unsuitable for drilling point

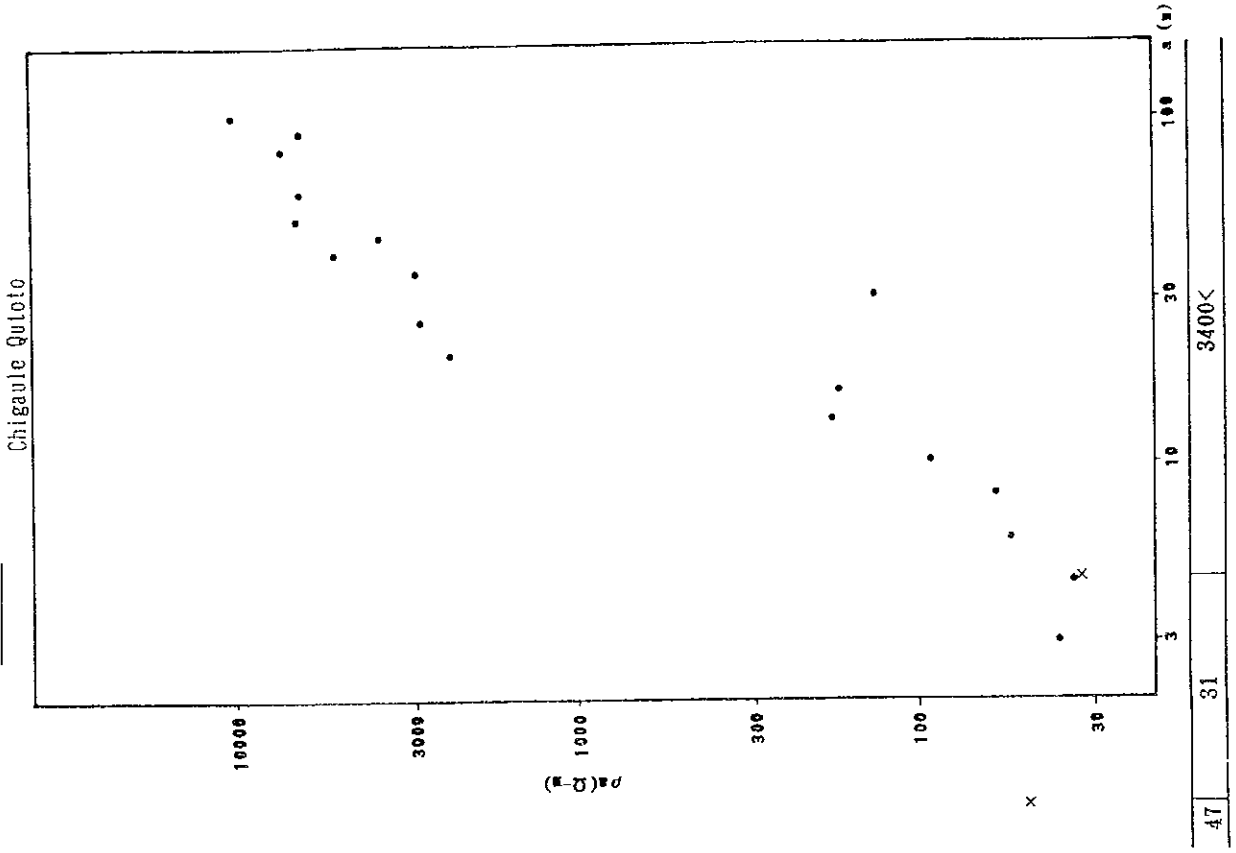
A-5 (7)  $\rho - a$  Curve

MZIKUBOLA

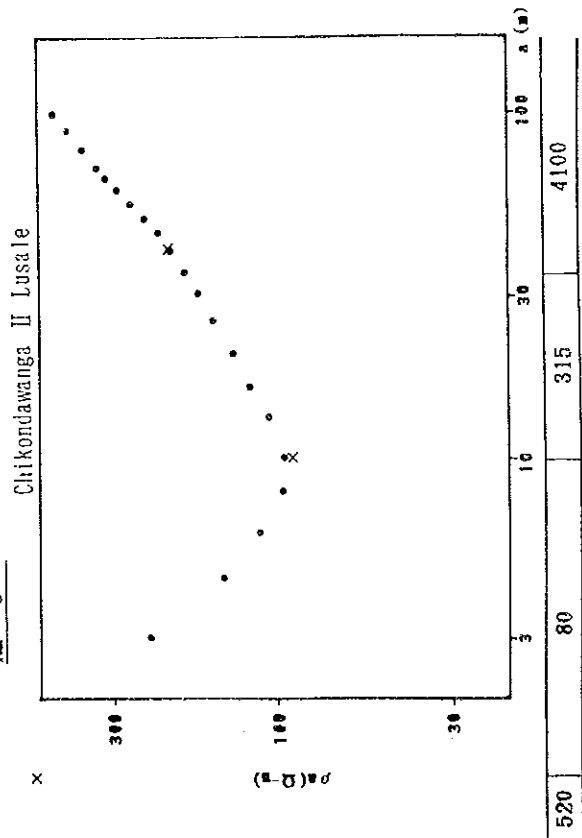
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No. 2



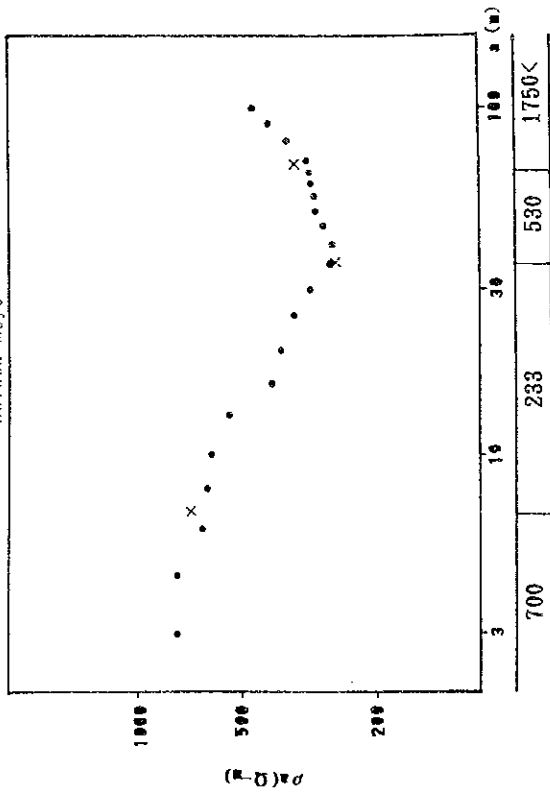
No. 3



A - 5 (8)  $\rho$  - a Curve

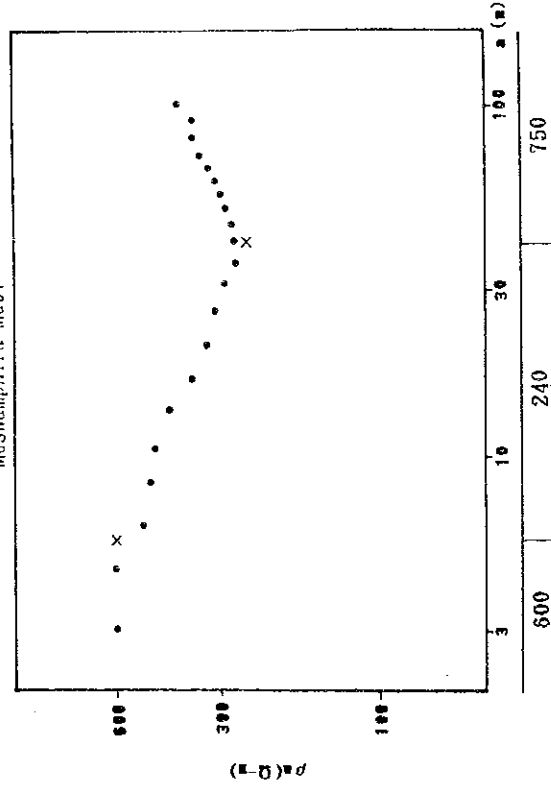
No. 4

Zeleza Moyo



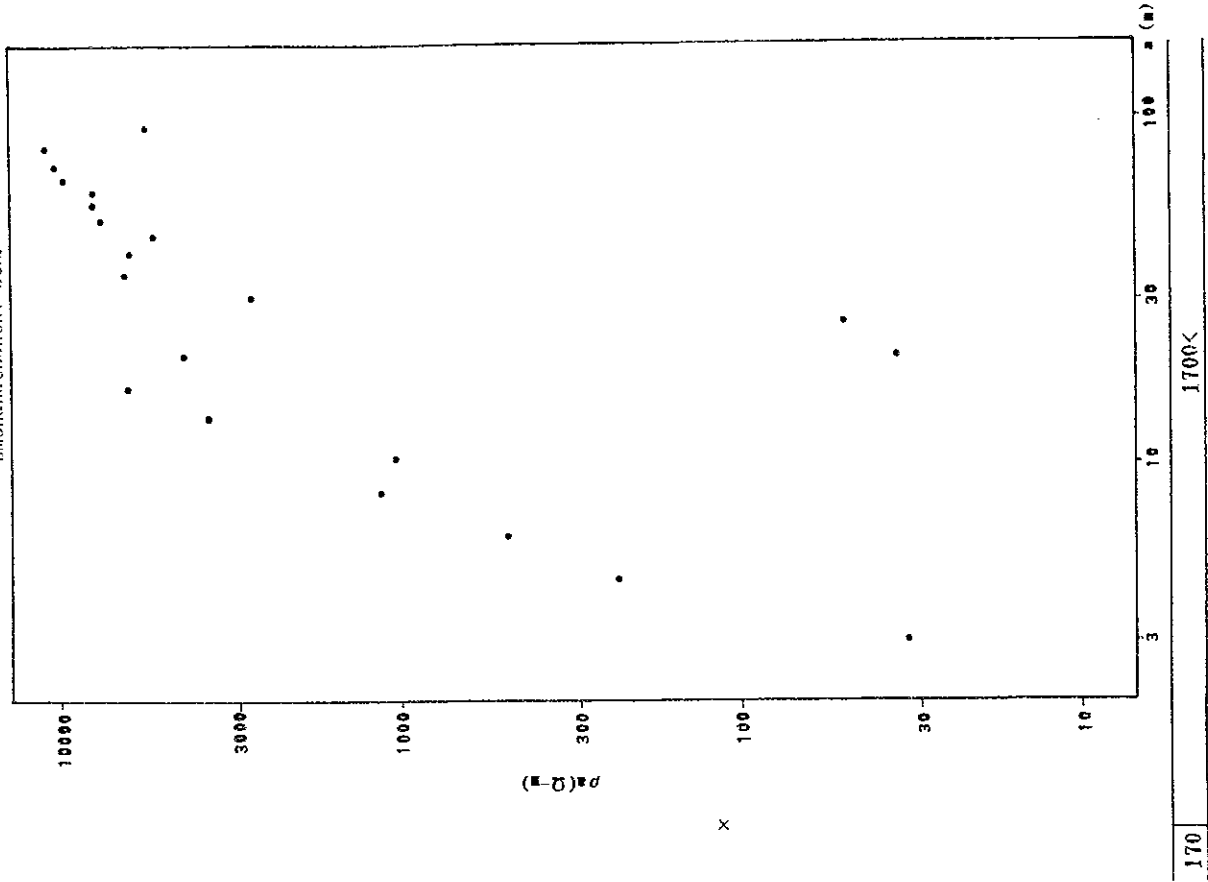
No. 5

Muswaphira Muzi



No. 6

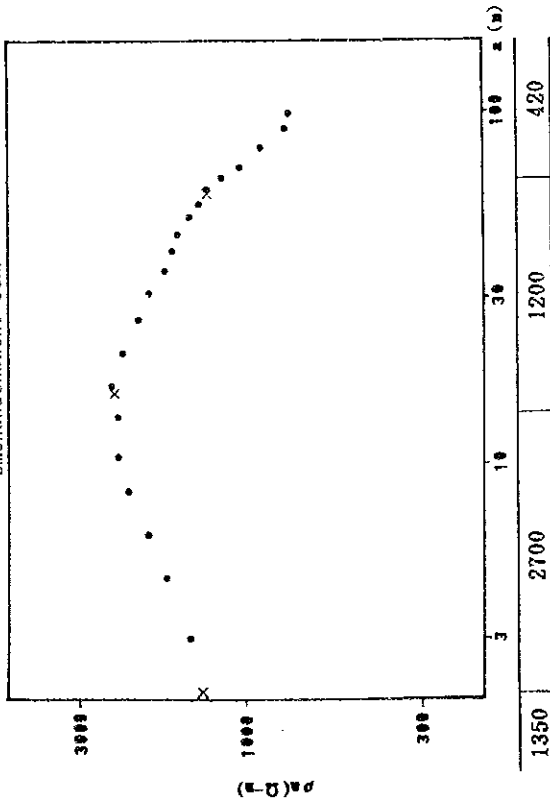
Imchakachakeni Sch.



A - 5 (9)  $\rho - a$  Curve

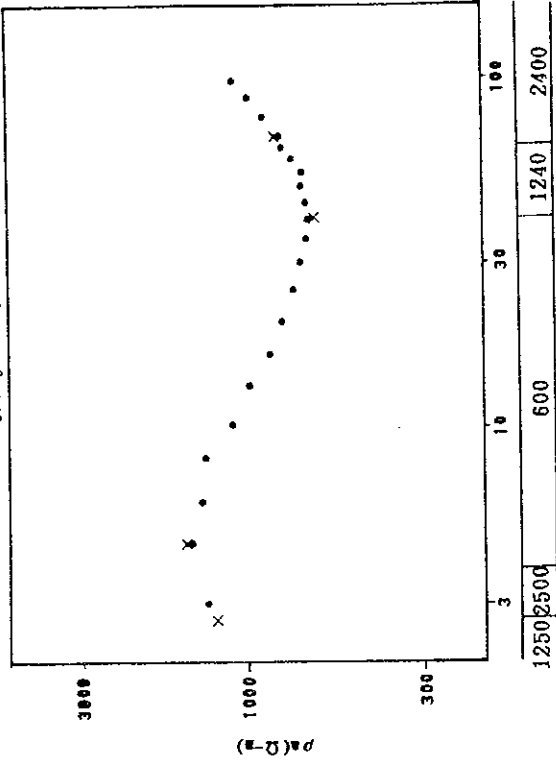
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Emchakachakeni Sch.



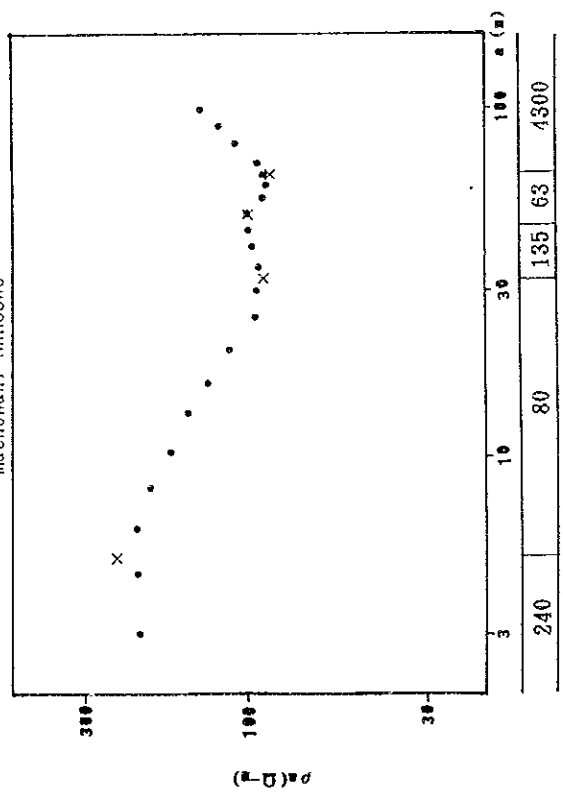
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Chinjoka Nyirenda



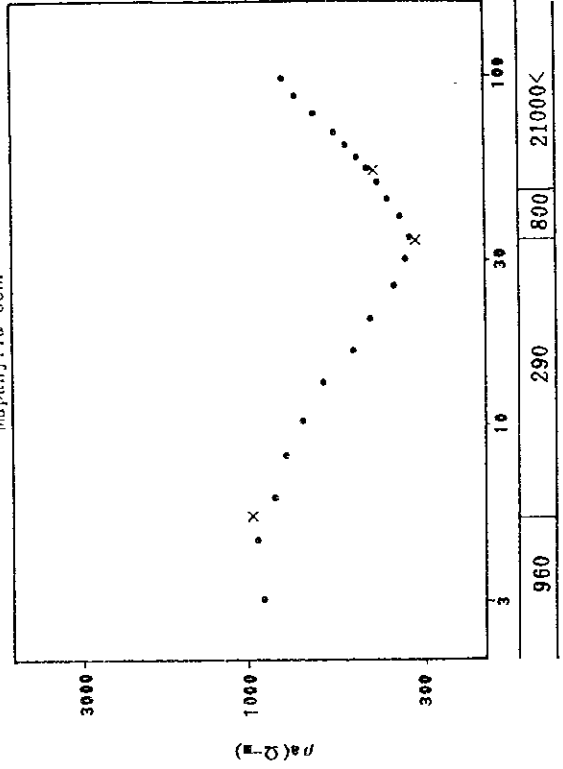
No. 8

Machiwani Nkhiswe



No. 10

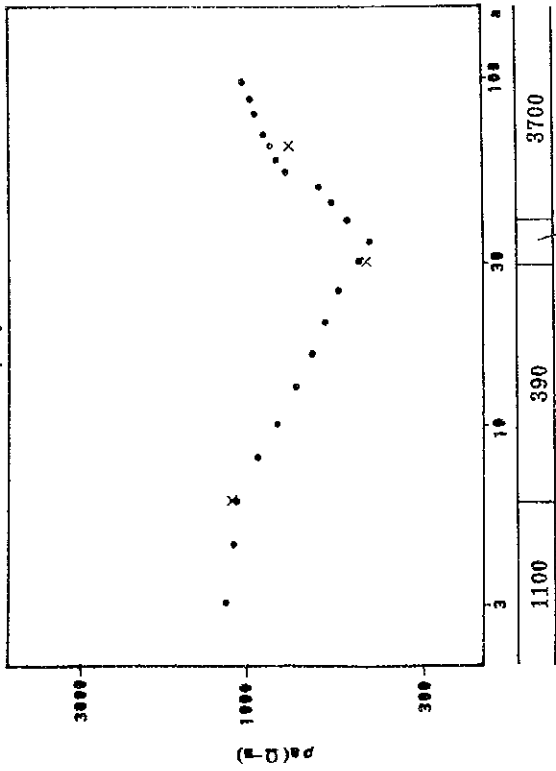
Mapanjila Sch.



A - 5 (10)  $\rho - a$  Curve

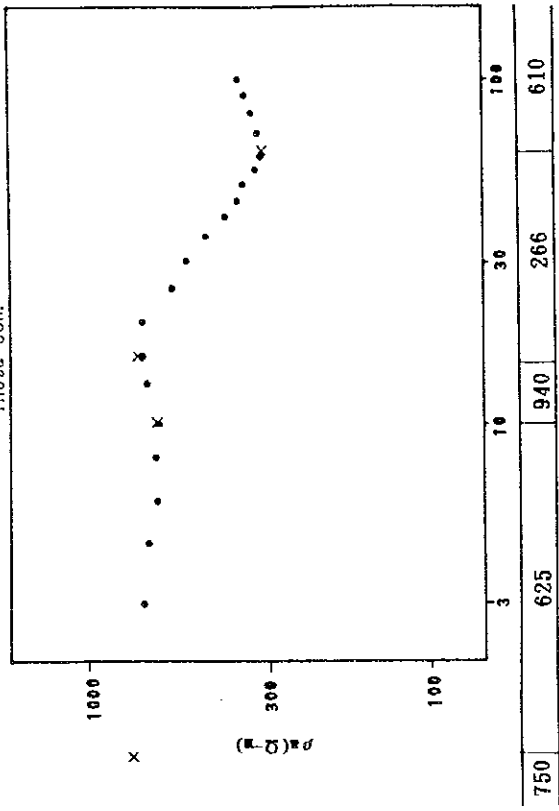
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Mapanjila



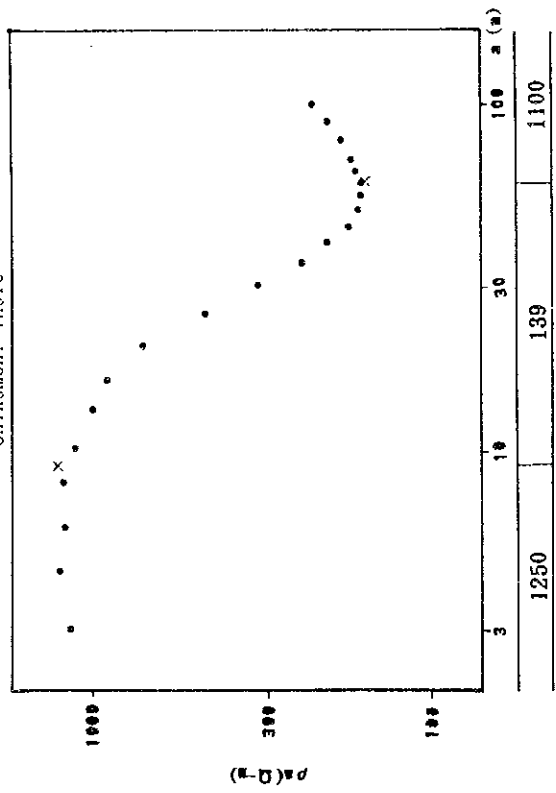
No. 1 3

Thoza Sch.



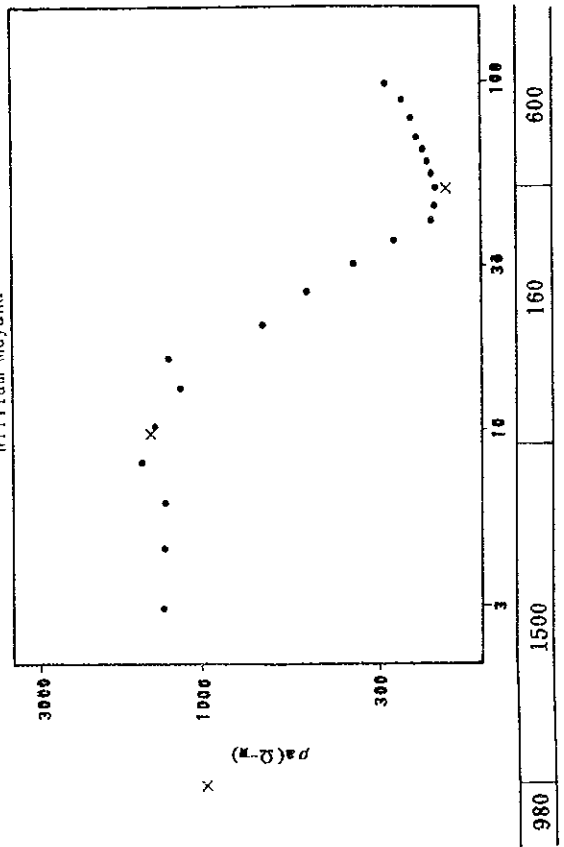
No. 1 2

Chikomani Thele



No. 1 4

William Muyaya

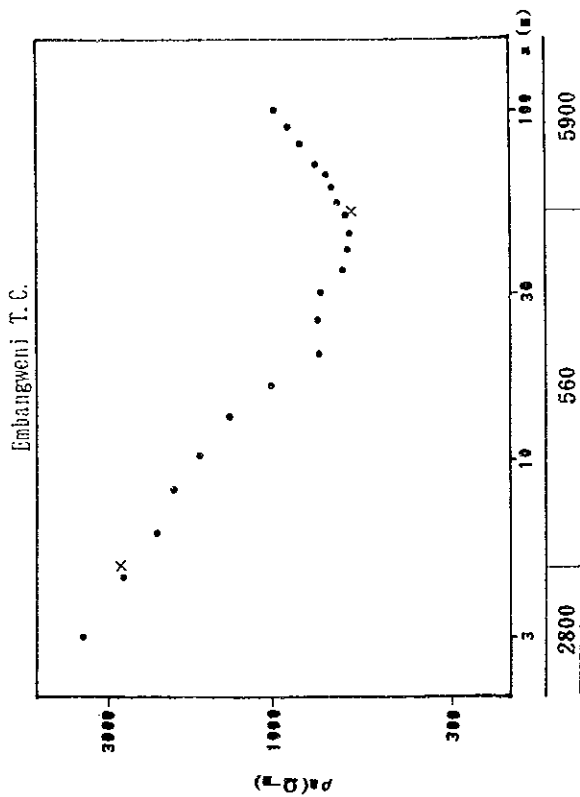




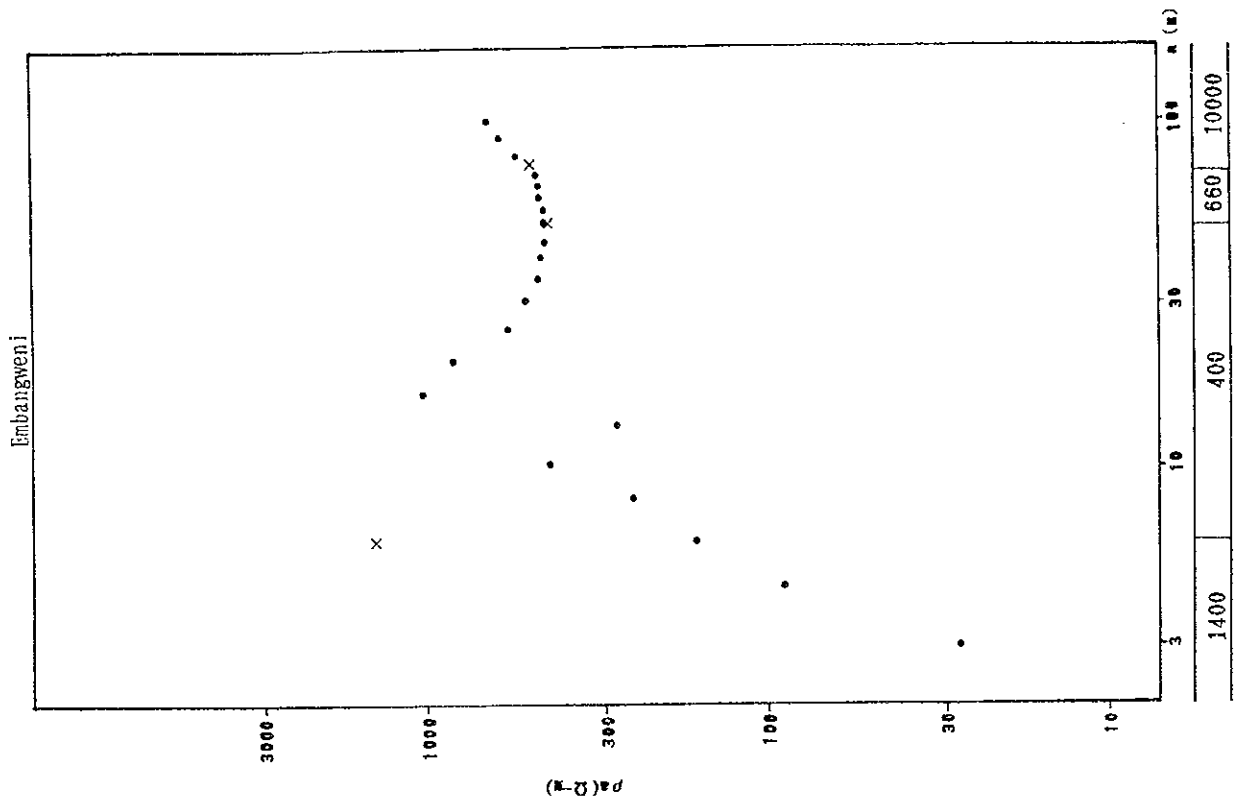
A - 5 (II)  $\rho - a$  Curve

MZUKUZUKU

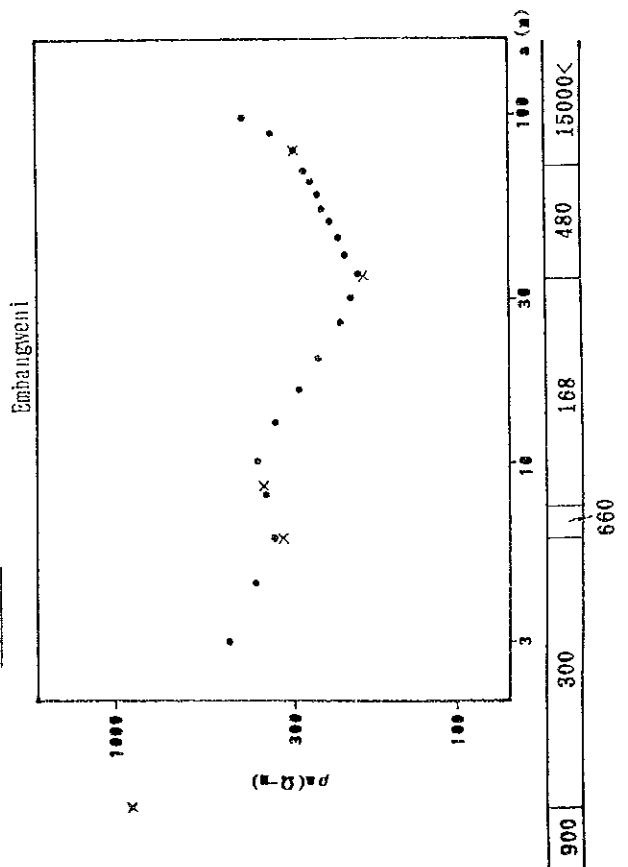
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No 1 7



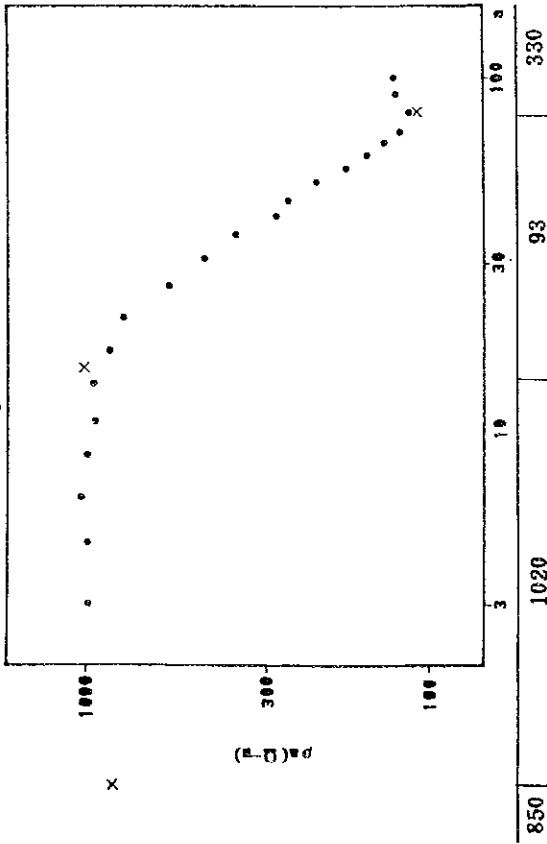
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A - 5 (12)  $\rho - a$  Curve

No 1 8

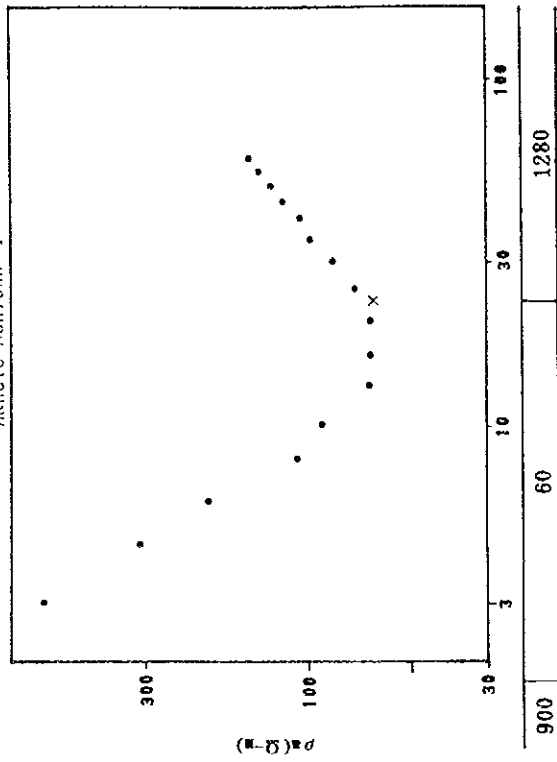
Embangweni Distance Sch.



M' MBELWA

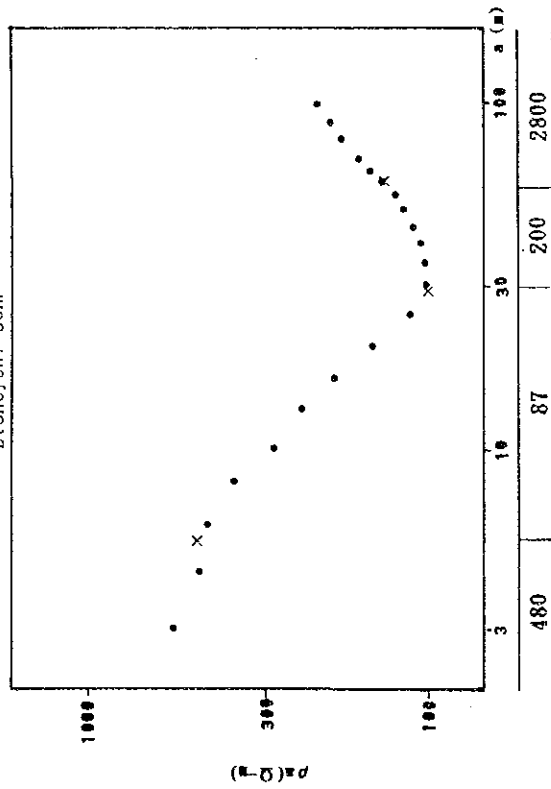
No 2 0

Maandle Ndklown I



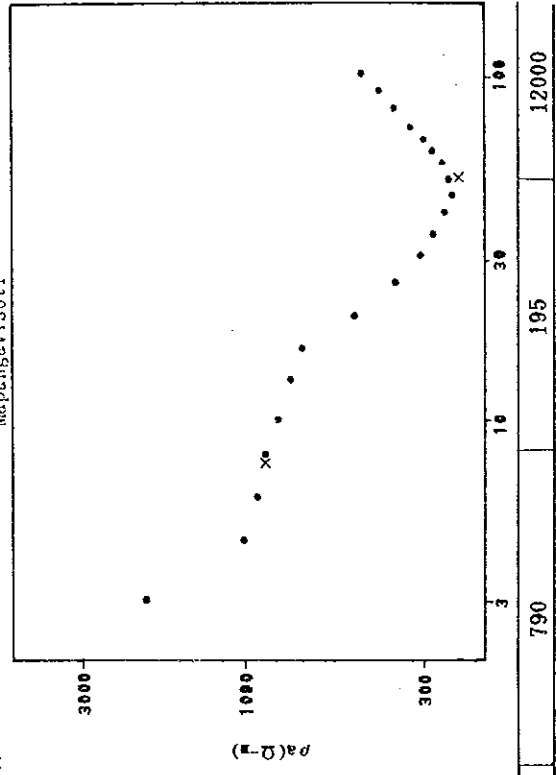
No 1 9

Etcheyeni Sch.



No 2 1

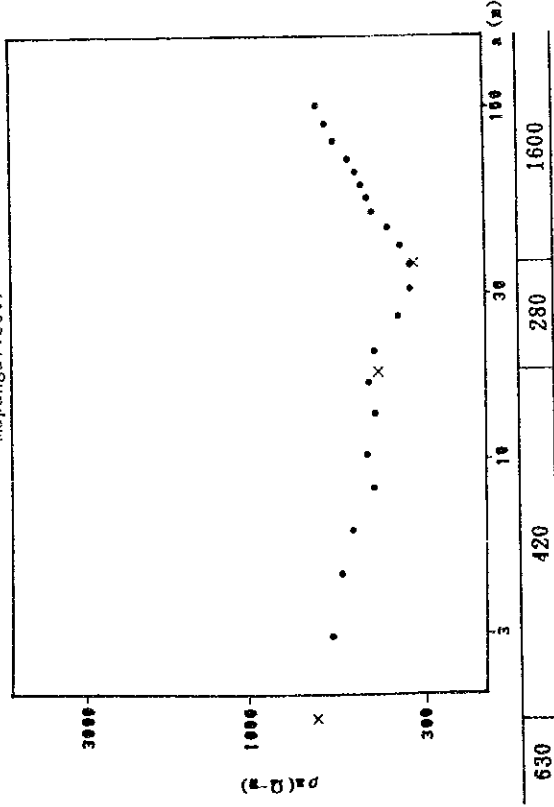
Mapangavisoli



A - 5 (13)  $\rho - a$  Curve

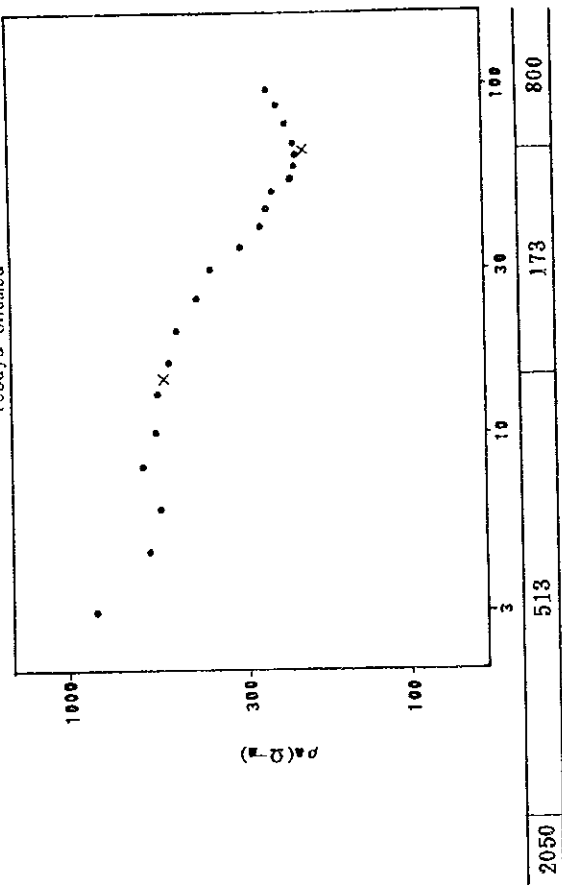
No. 2 2

Mapugavisotj



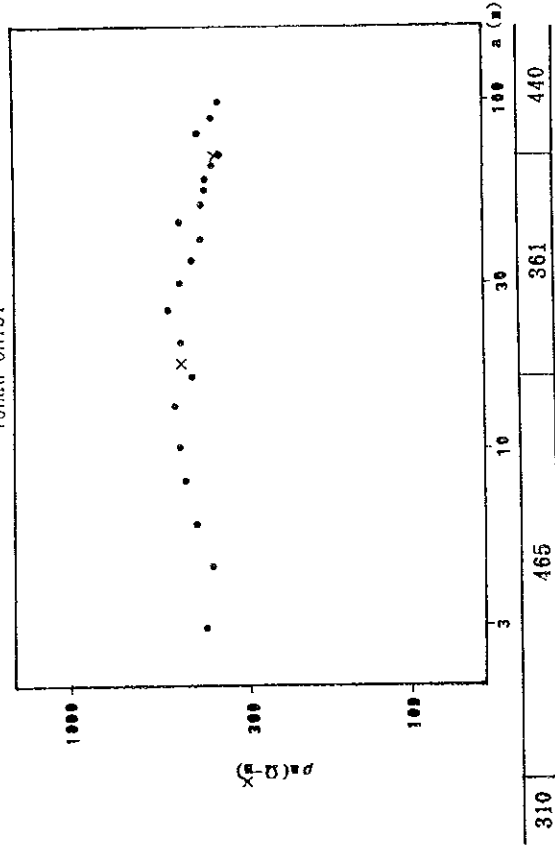
No. 2 4

Yesaya Shumba



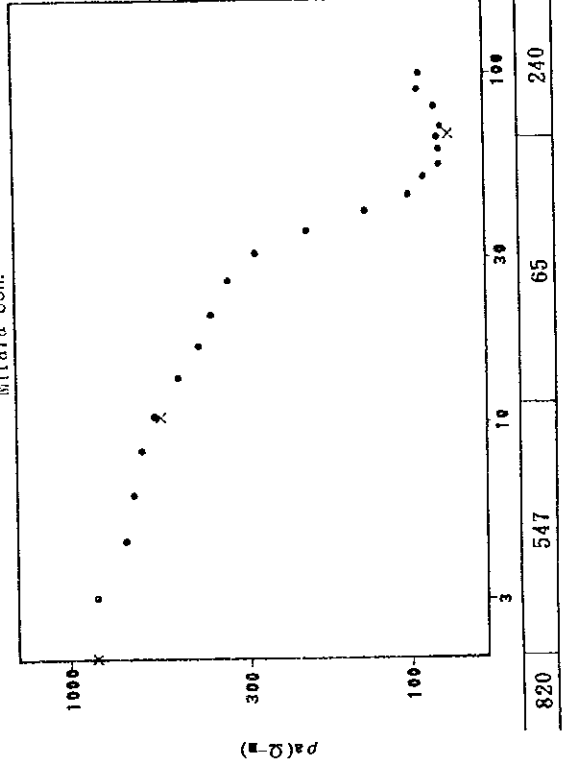
No. 2 3

Yohan Chisi



No. 2 5

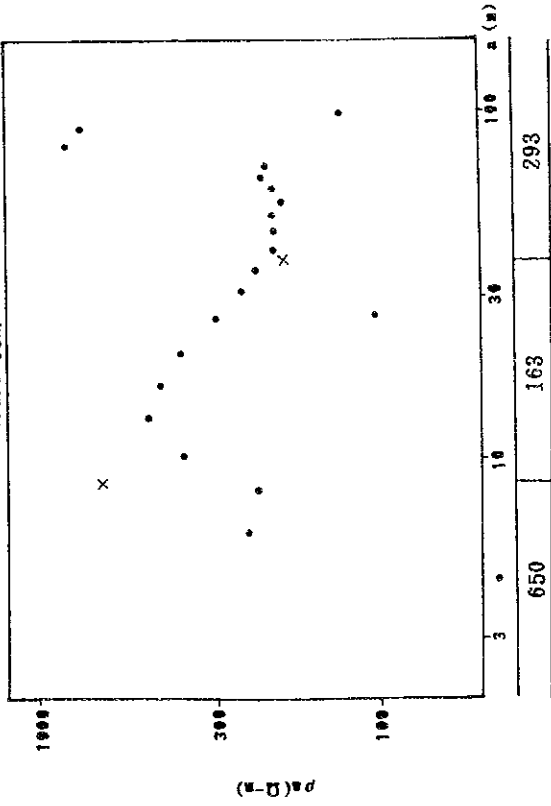
Mirara Sch.



A - 5 (14)  $\rho - a$  Curve

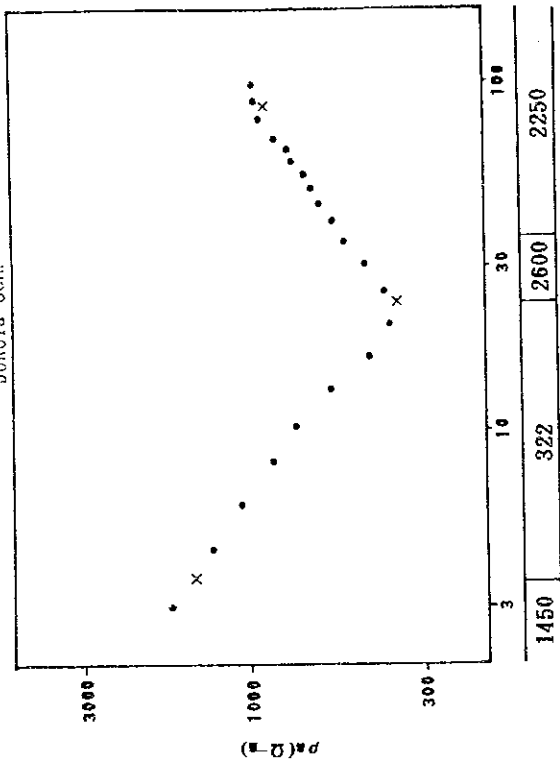
No. 2 6

Mirara Sch.



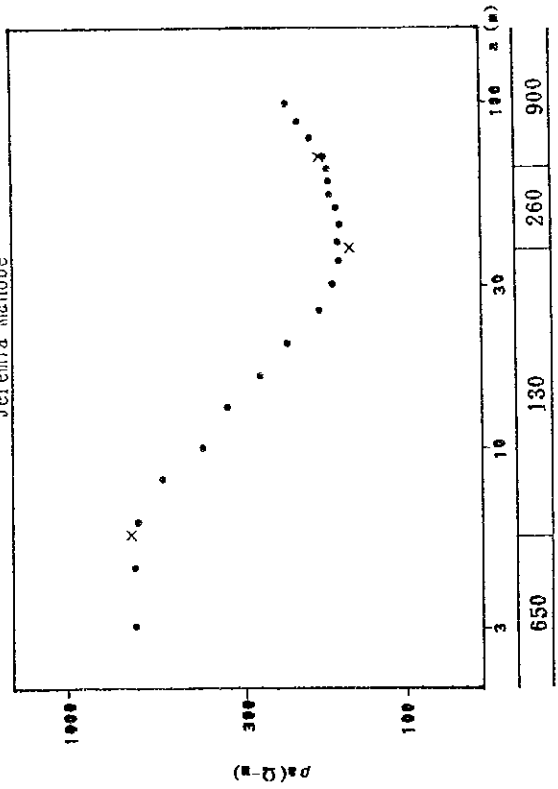
No. 2 8

Bokola Sch.



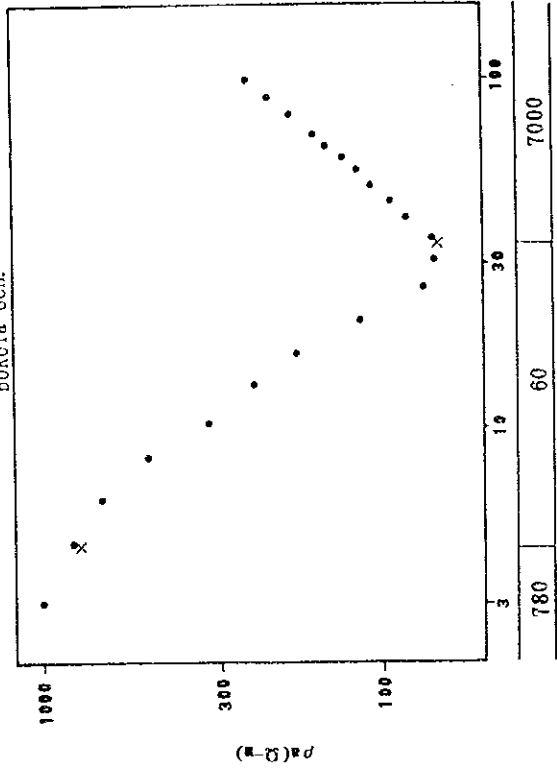
No. 2 7

Jeremia Mahobe



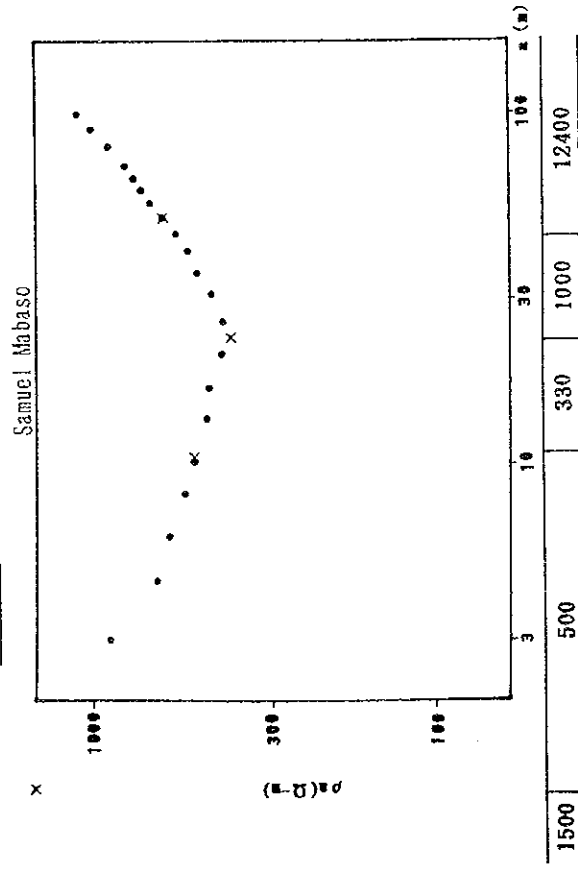
No. 2 9

Bokola Sch.

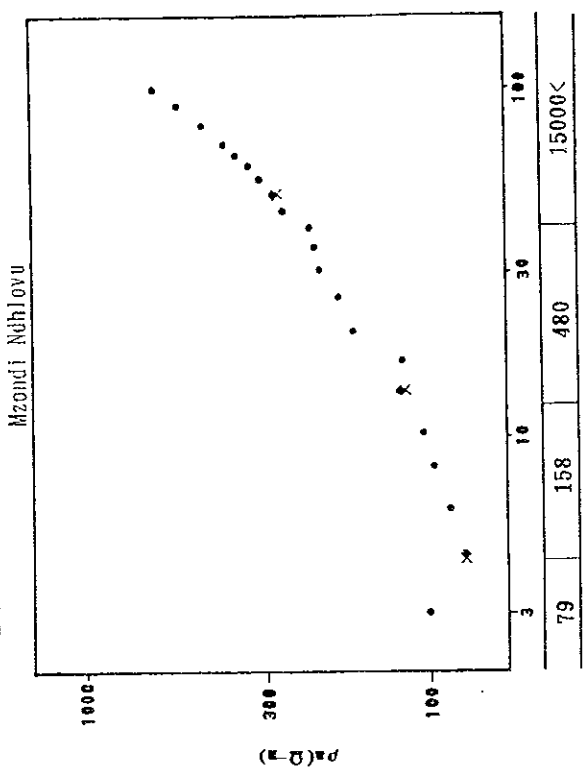


A - 5 (15)  $\rho - a$  Curve

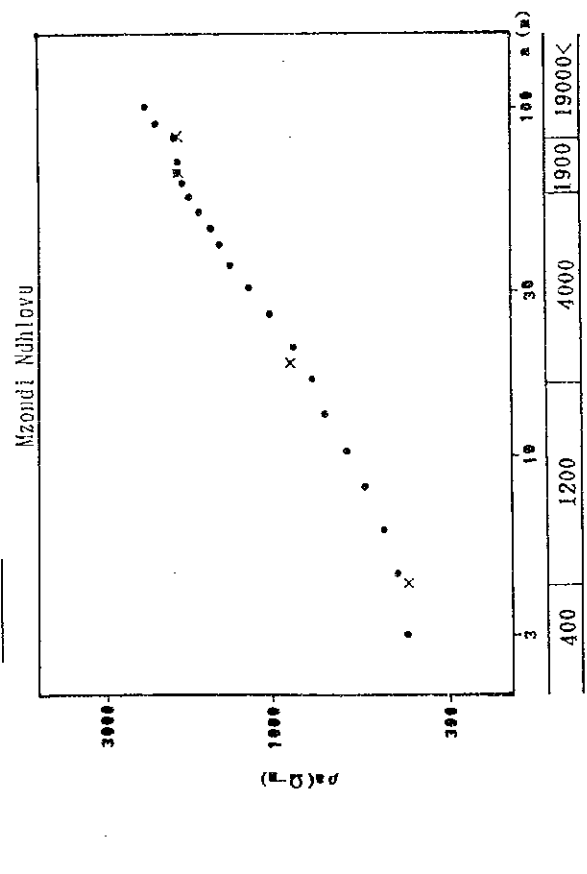
No 3.0



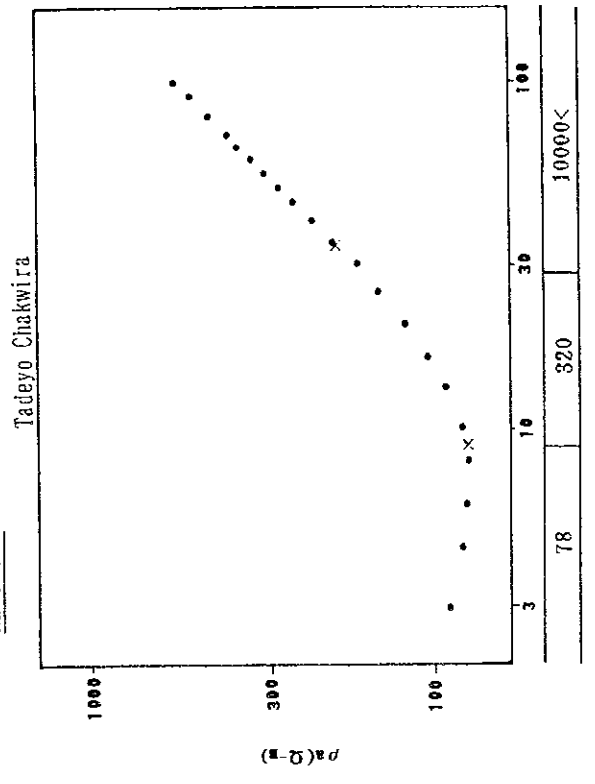
No 3.2



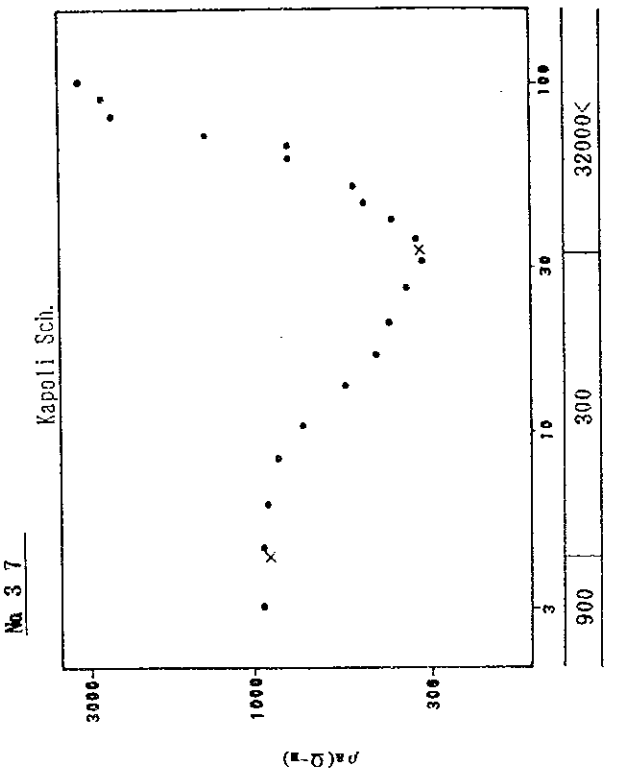
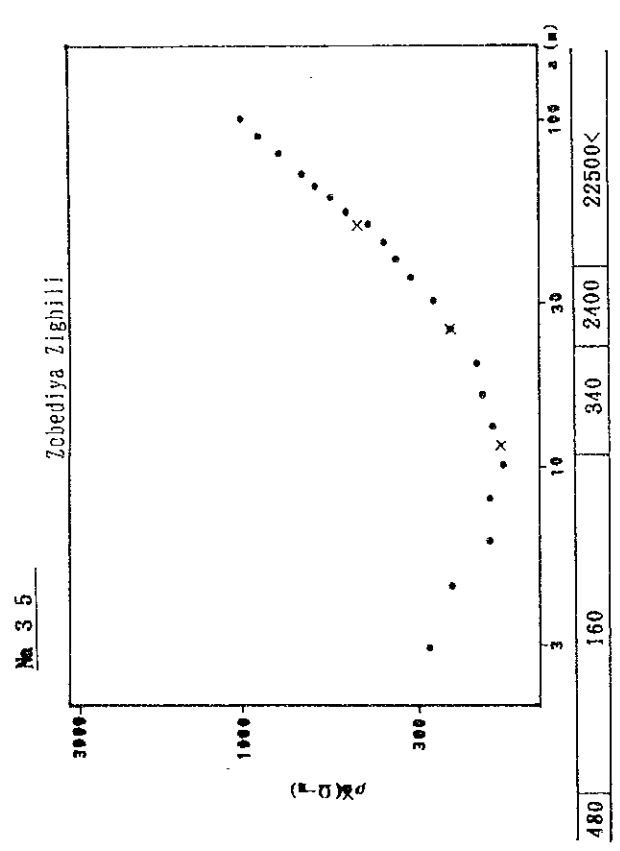
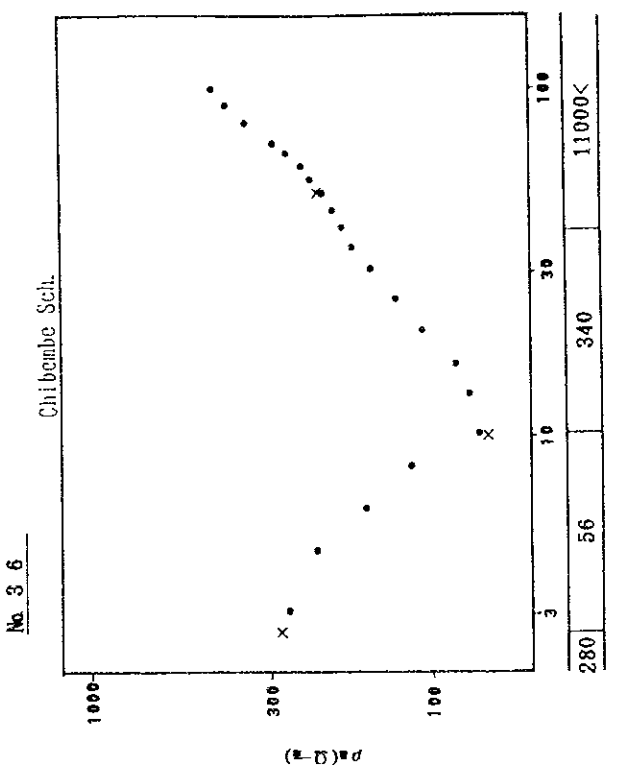
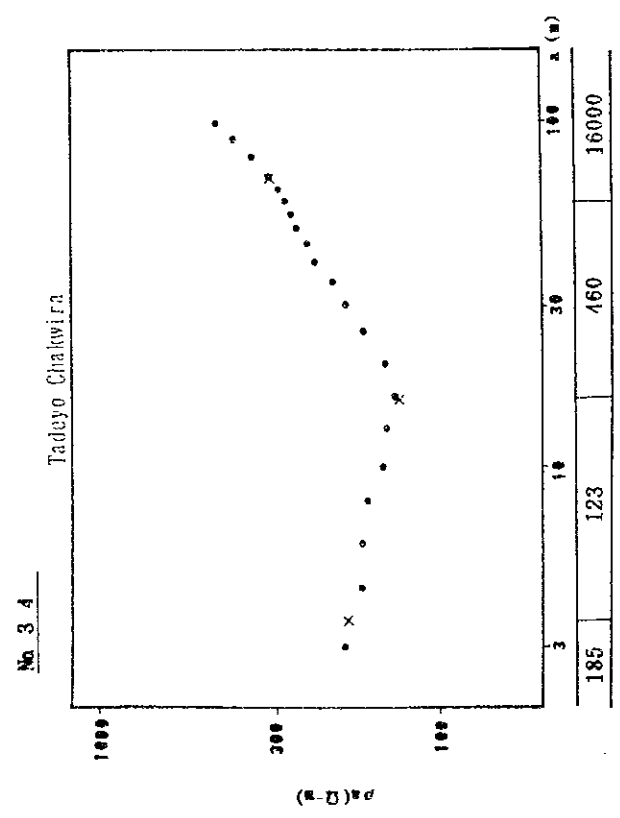
No 3.1



No 3.3



A - 5 (16)  $\rho - a$  Curve

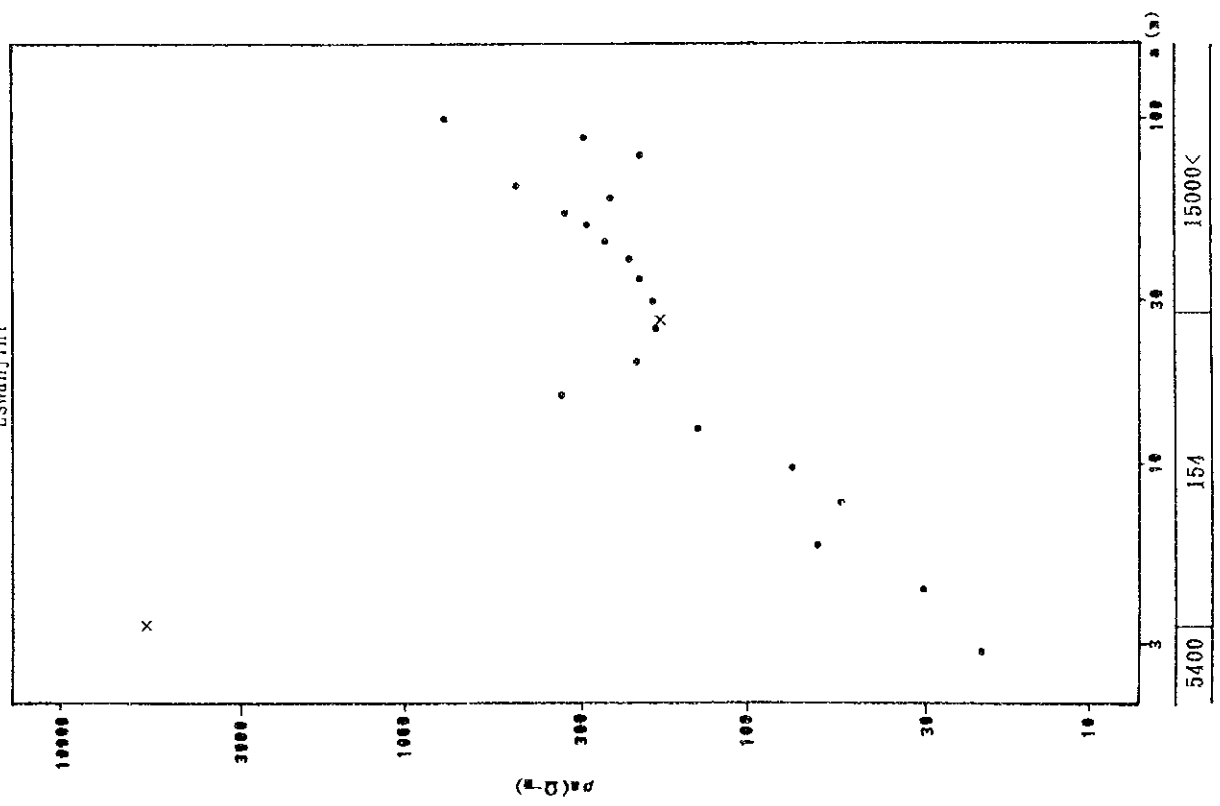


A - 5 (17)  $\rho - a$  Curve

CIHINDI

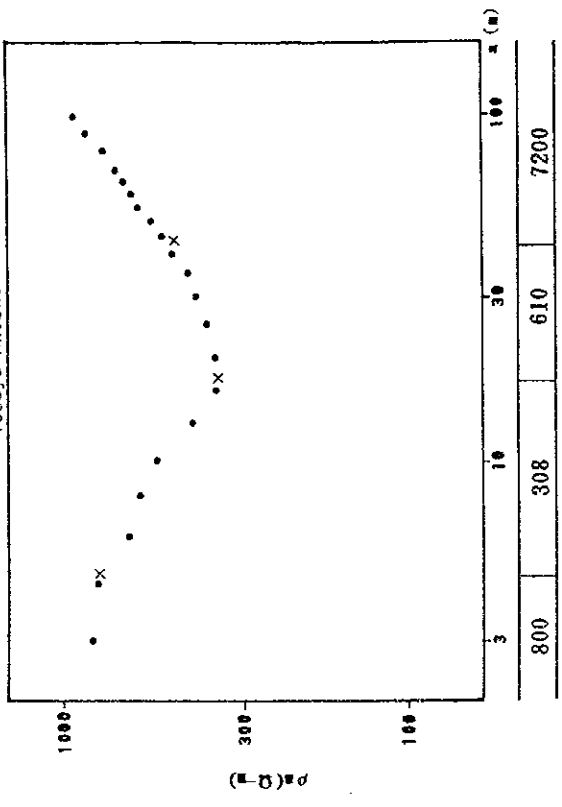
No 3 8

Eswanjini



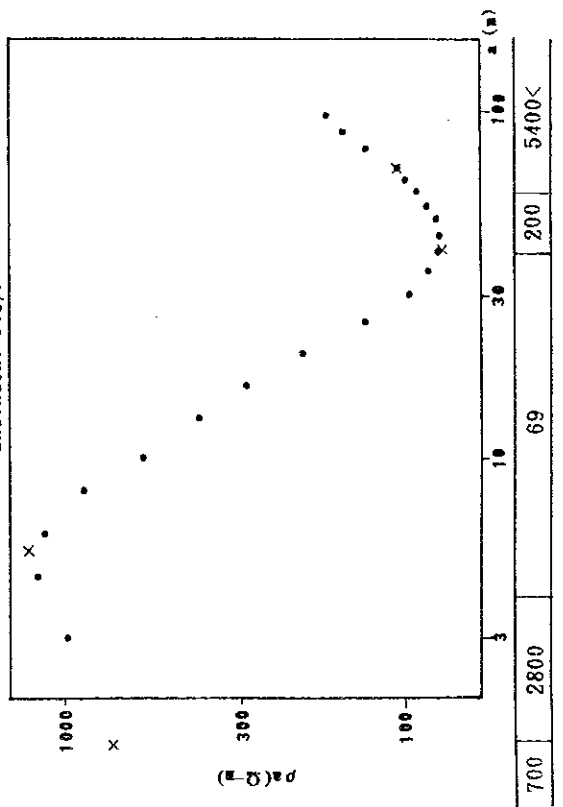
No 3 9

Yosaya Nkoshi



No 4 0

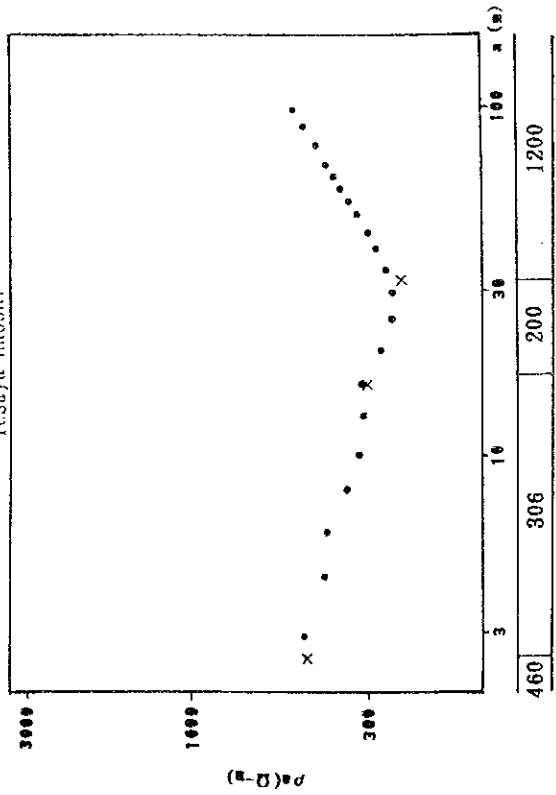
Endindeni Disp.



A - 5 (18)  $\rho - a$  Curve

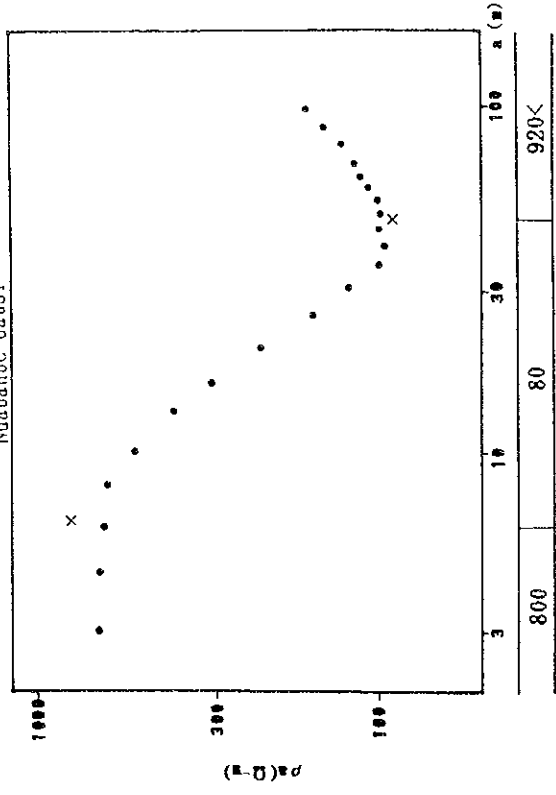
No. 4 1

Yosaya Nkoshi



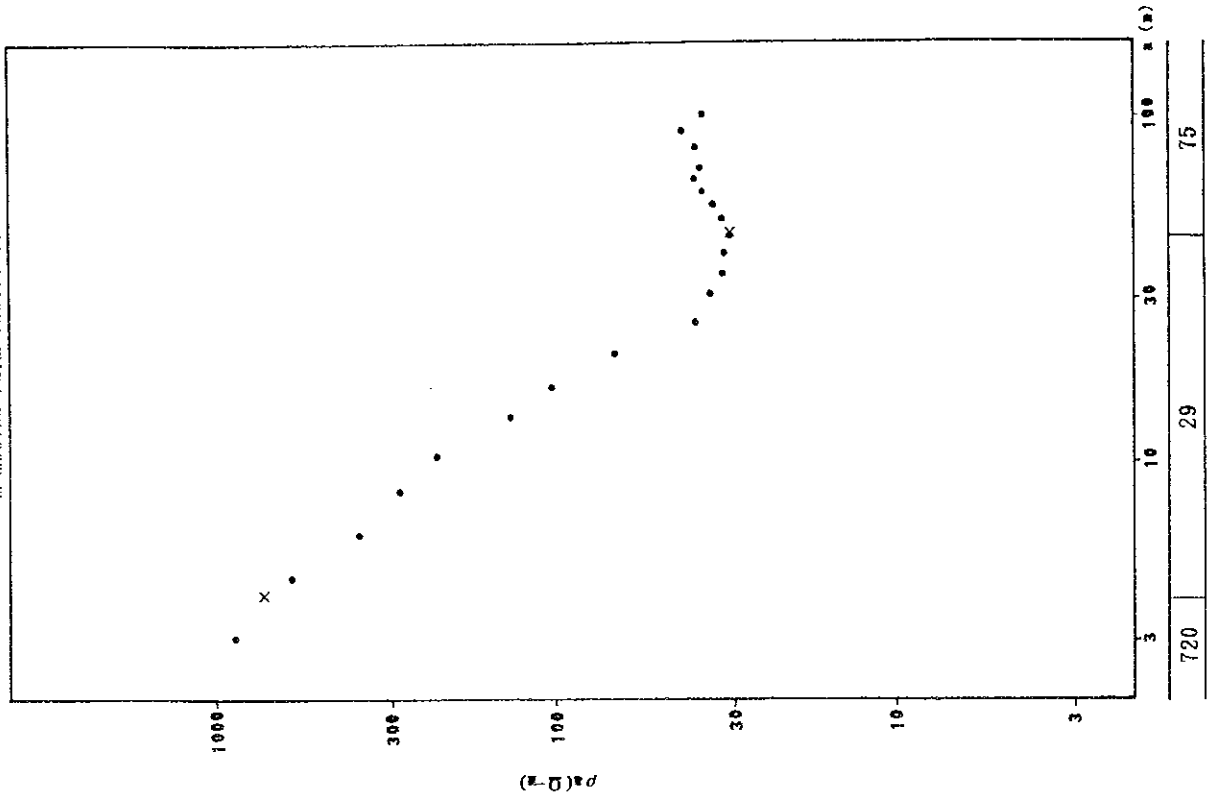
No. 4 2

Mdabambe Gausi



No. 4 3

Mmbelwa Farm Institute

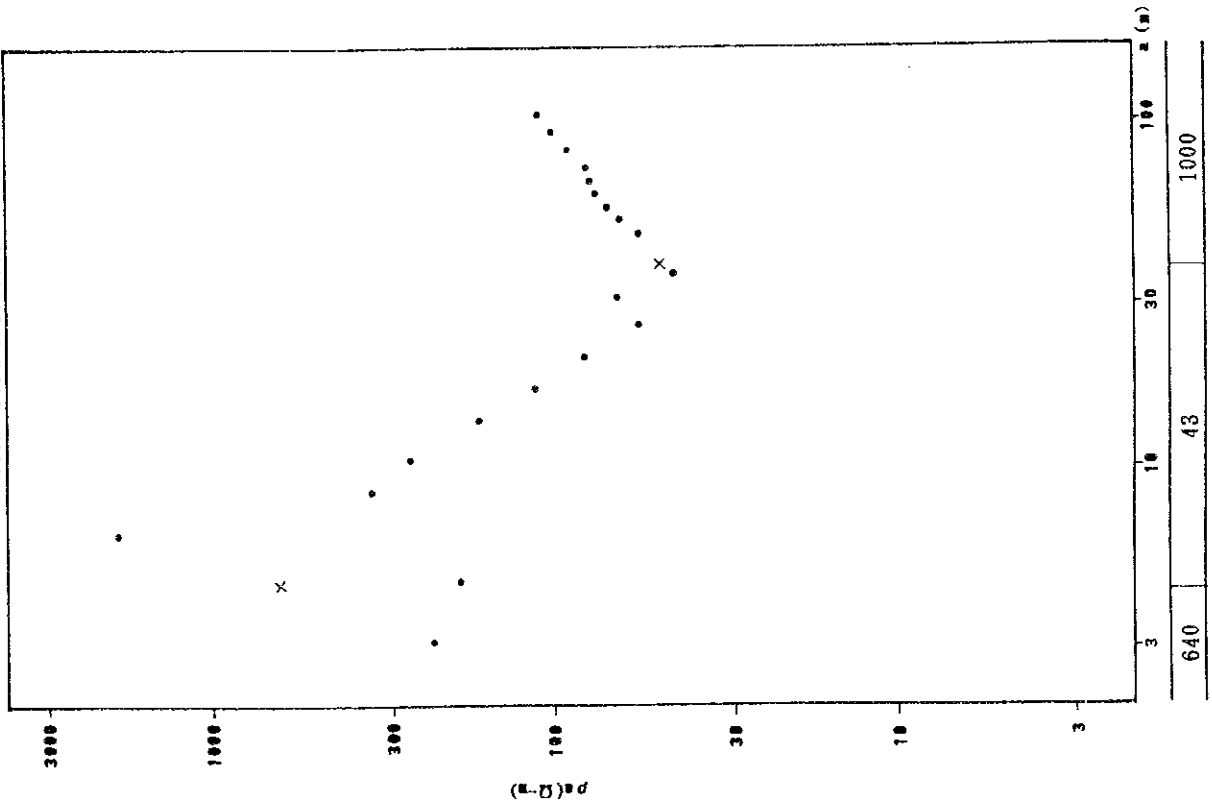




A - 5 (19)  $\rho$  - a Curve

No 4.4

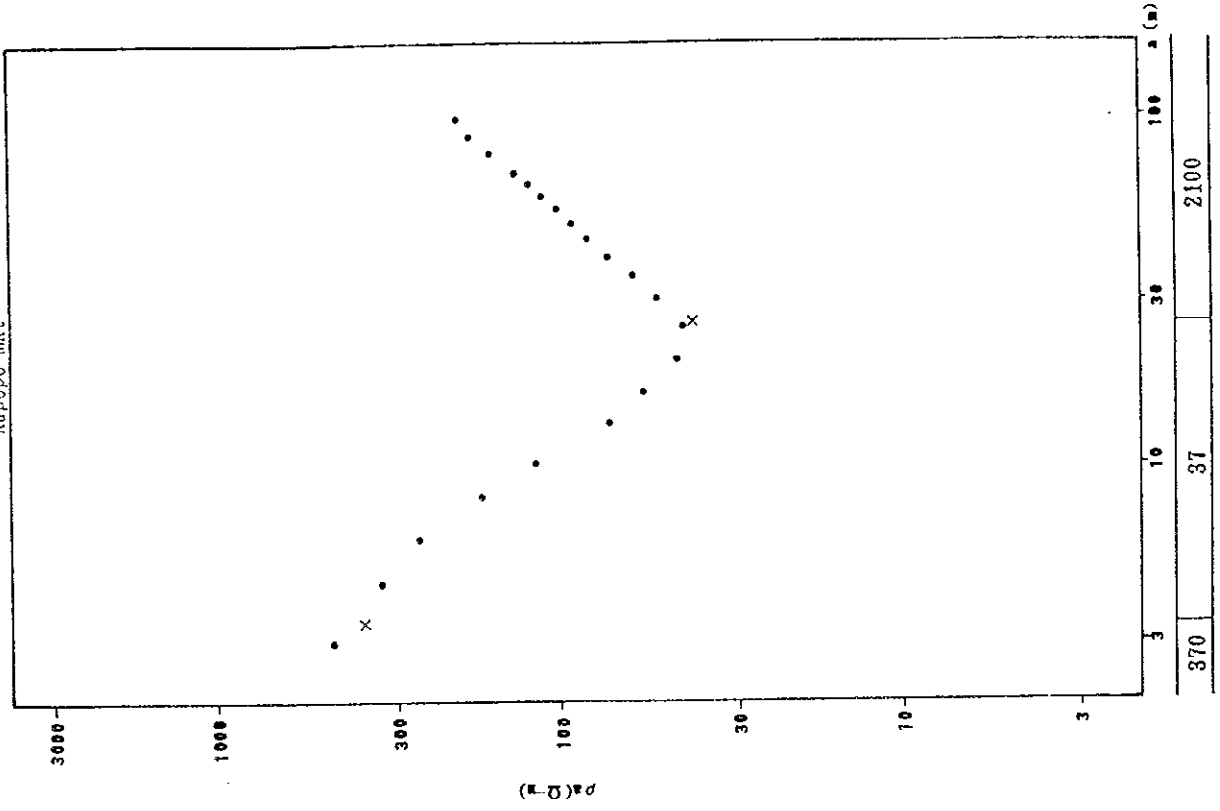
M' mbelwa Farm Institute



M' MBELWA

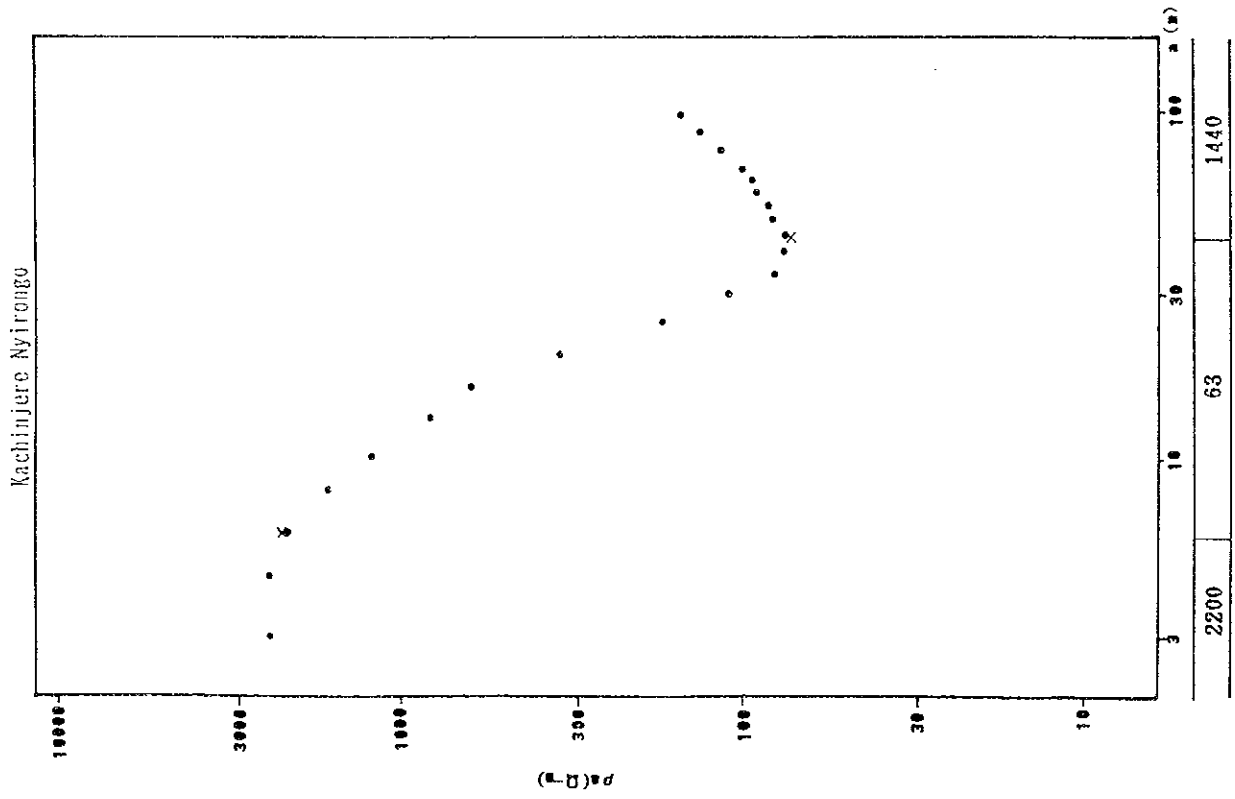
No 4.5

Kapopo Mkt



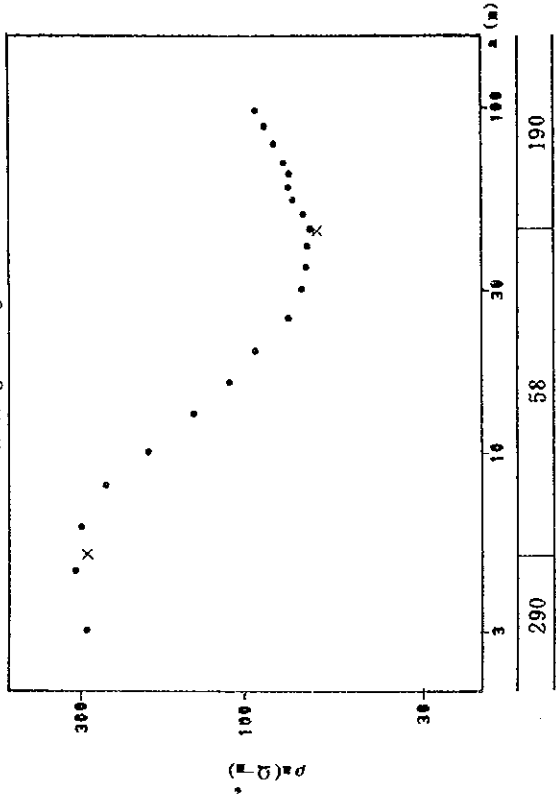
A - 5 (20)  $\rho$  -  $a$  Curve

No. 4 6.



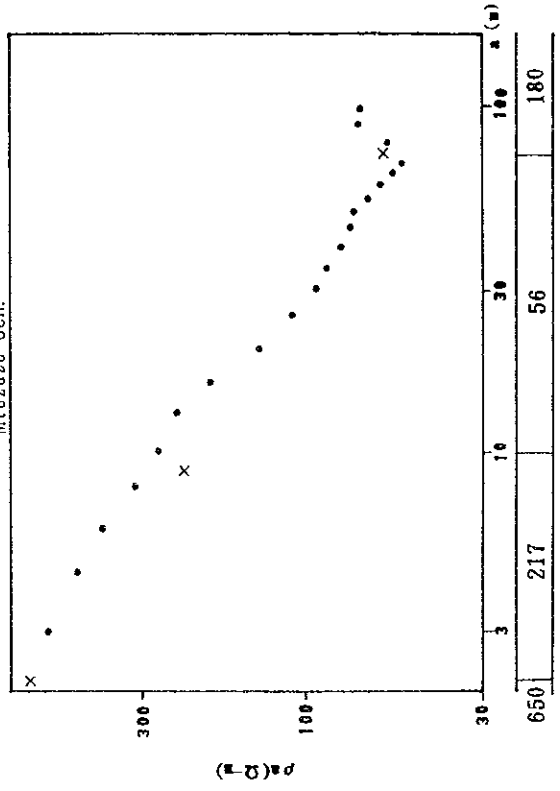
No. 4 7.

Malanga Mlonga

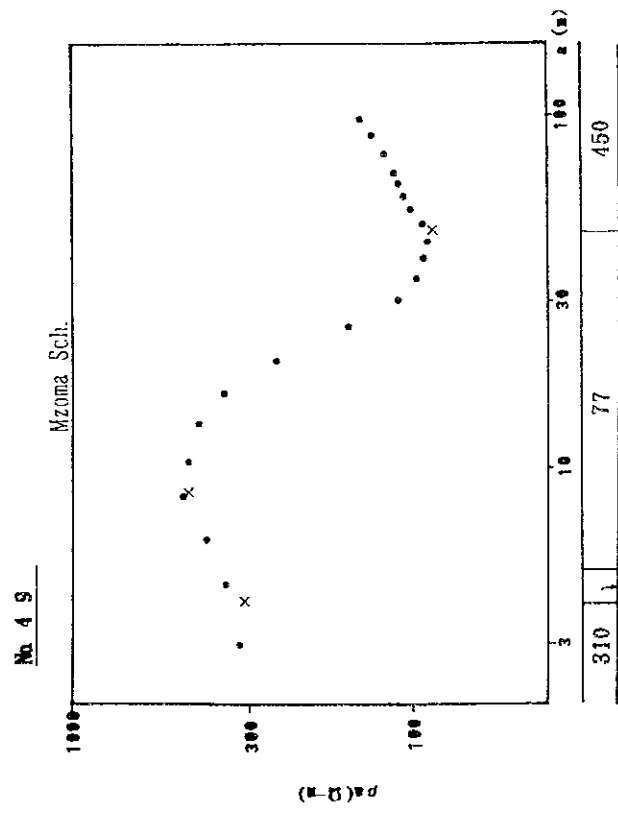


No. 4 8.

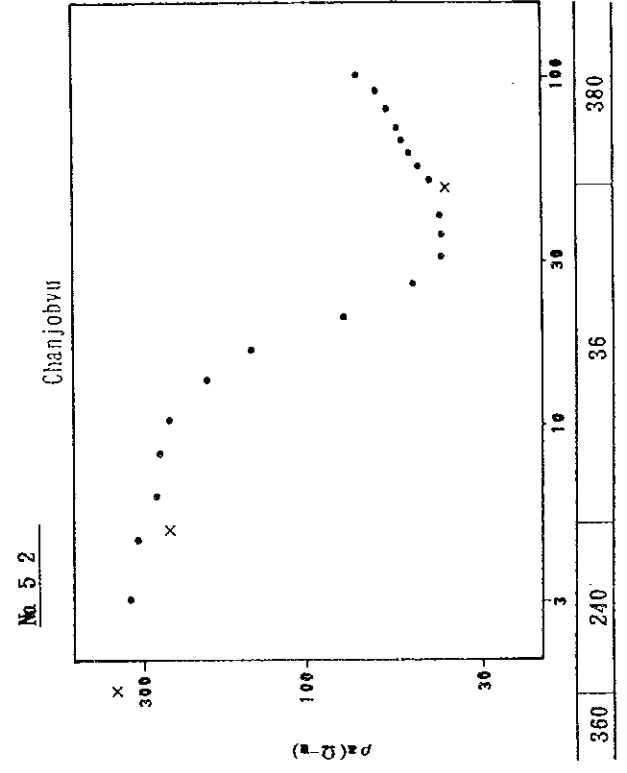
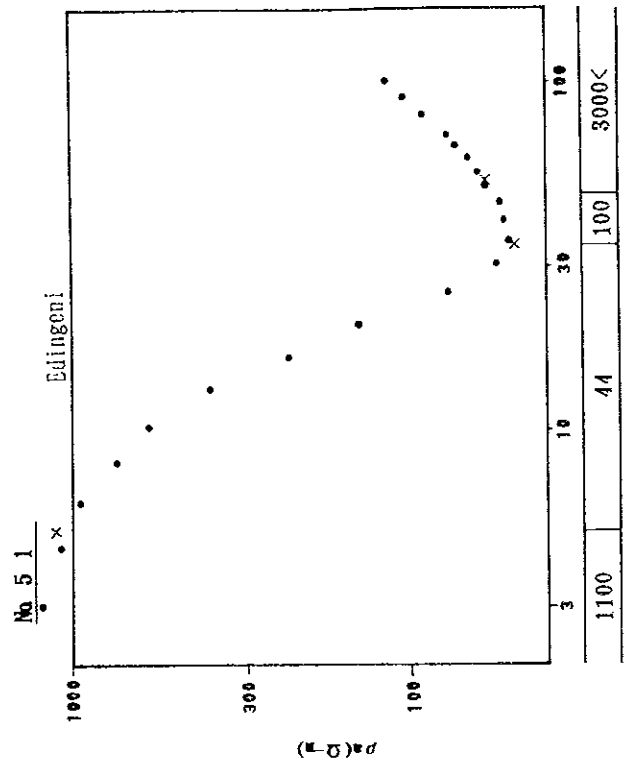
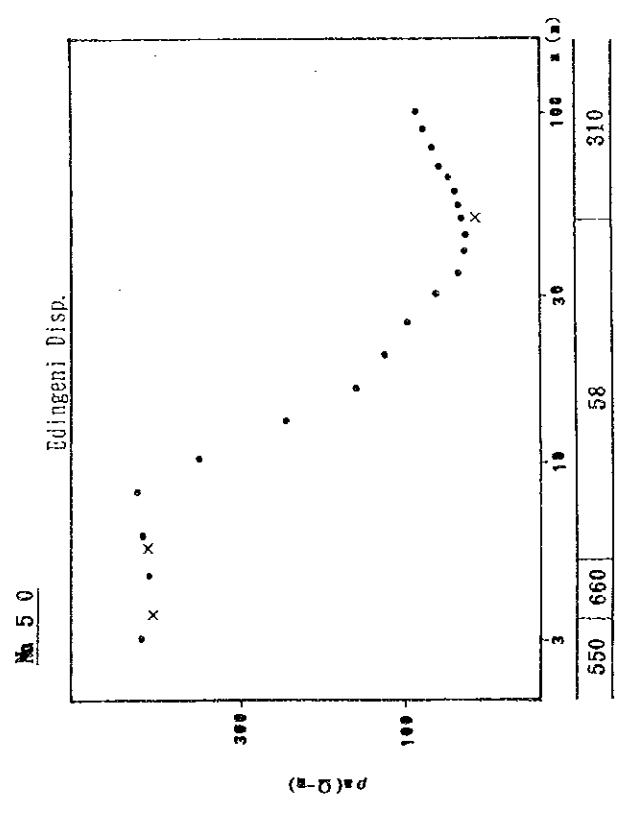
Muzuzu Sch.



A - 5 (21)  $\rho - a$  Curve



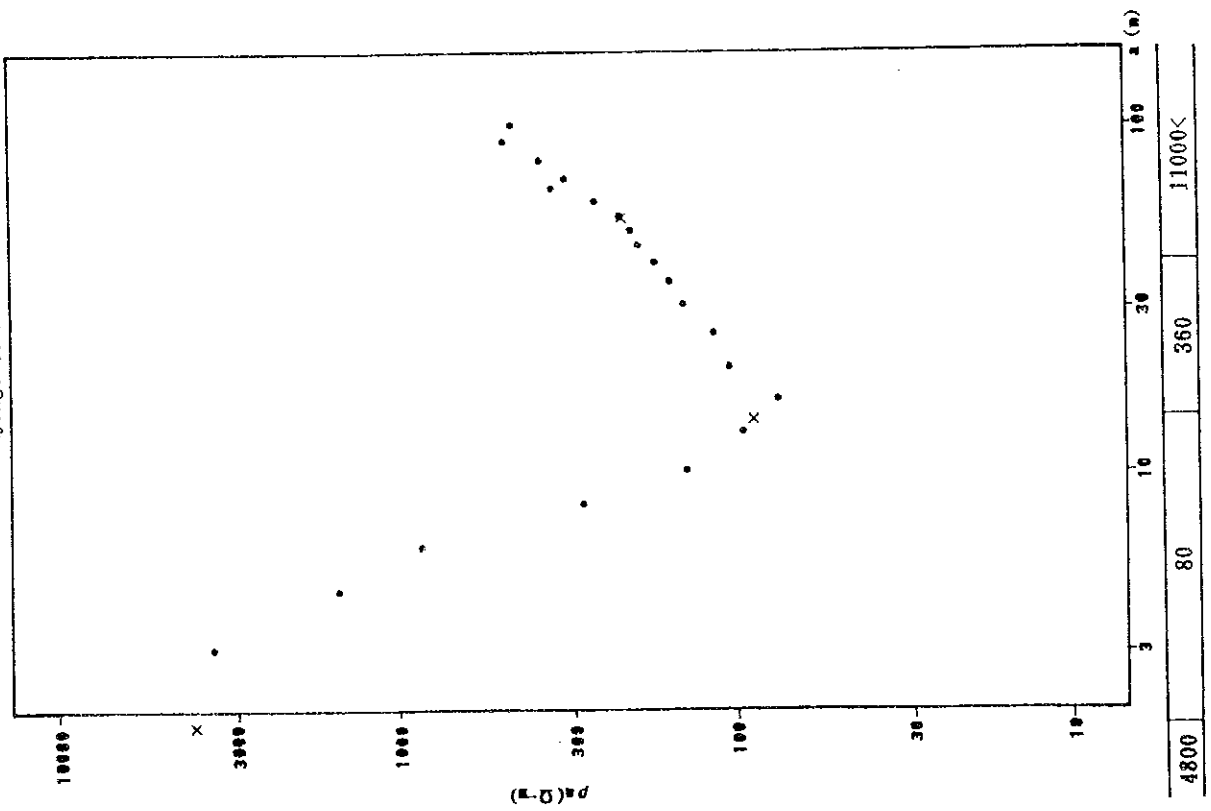
M MBELEWA



A - 5 (22)  $\rho - a$  Curve

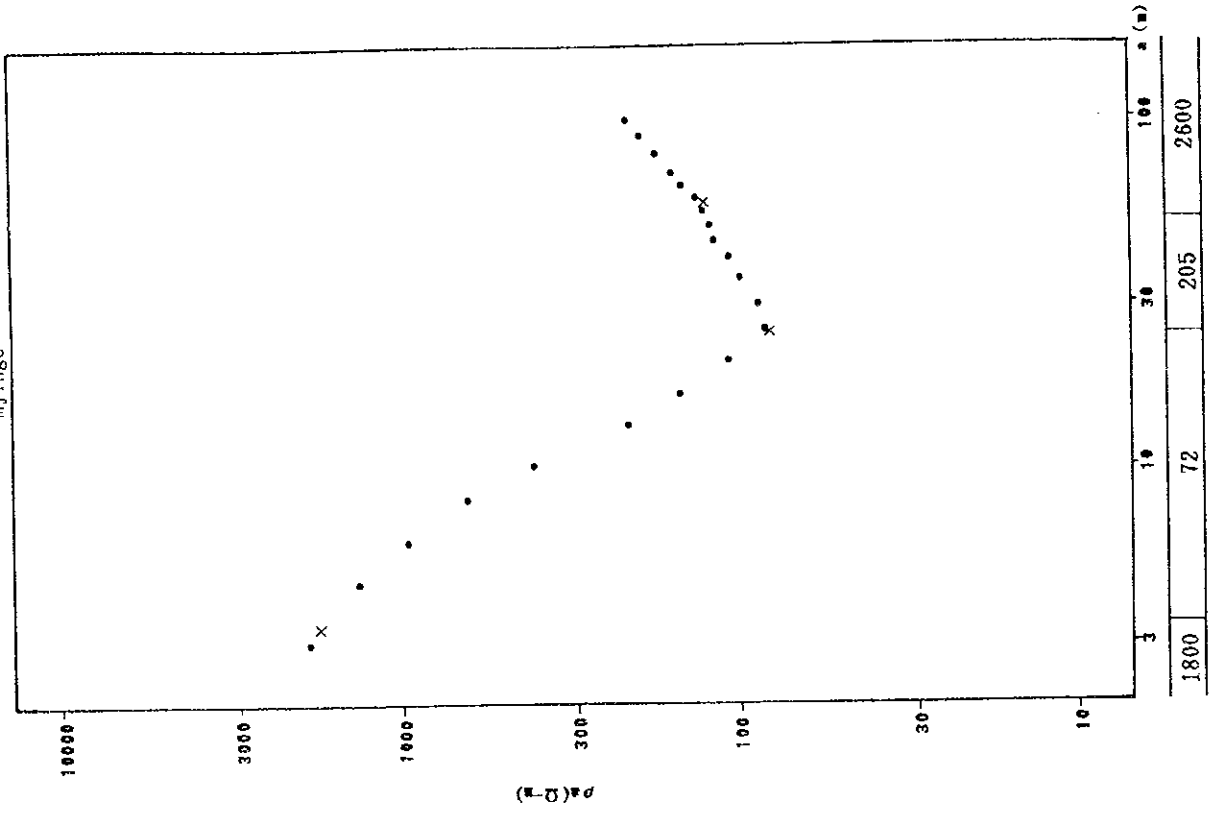
№ 5 3

Mjinge Sch.



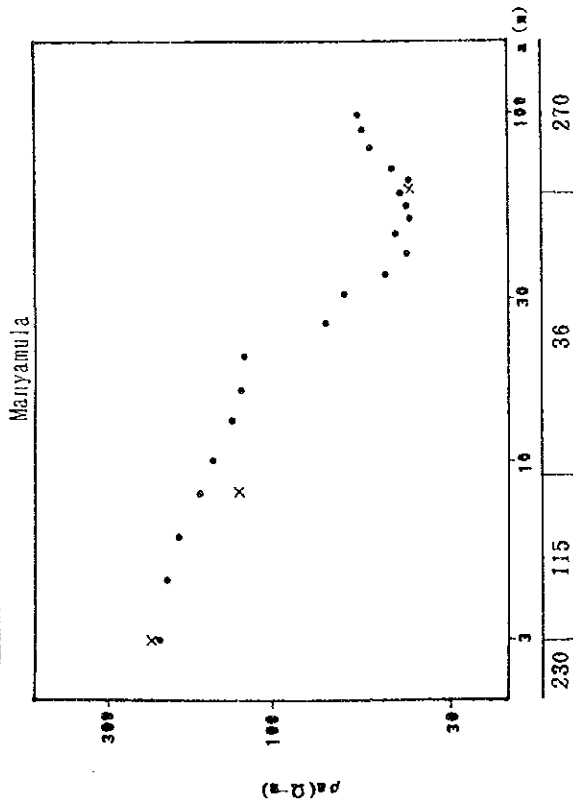
№ 5 4

Mjinge

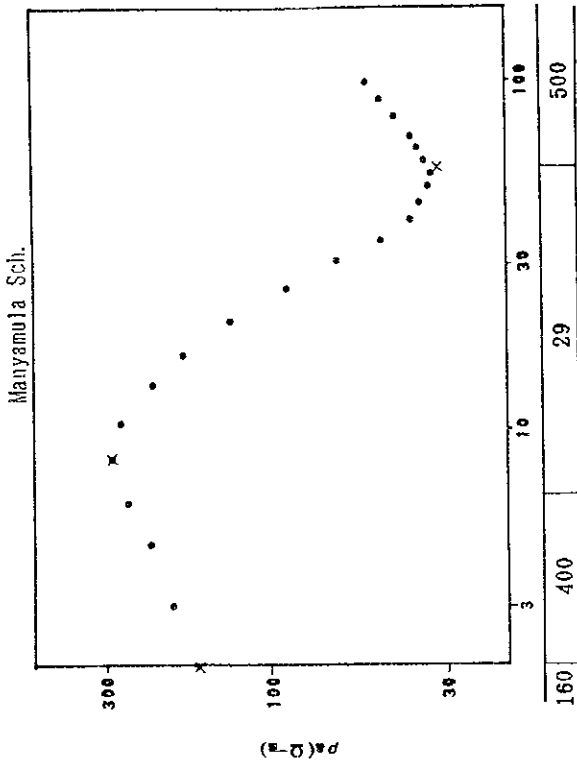


A - 5 (23)  $\rho - a$  Curve

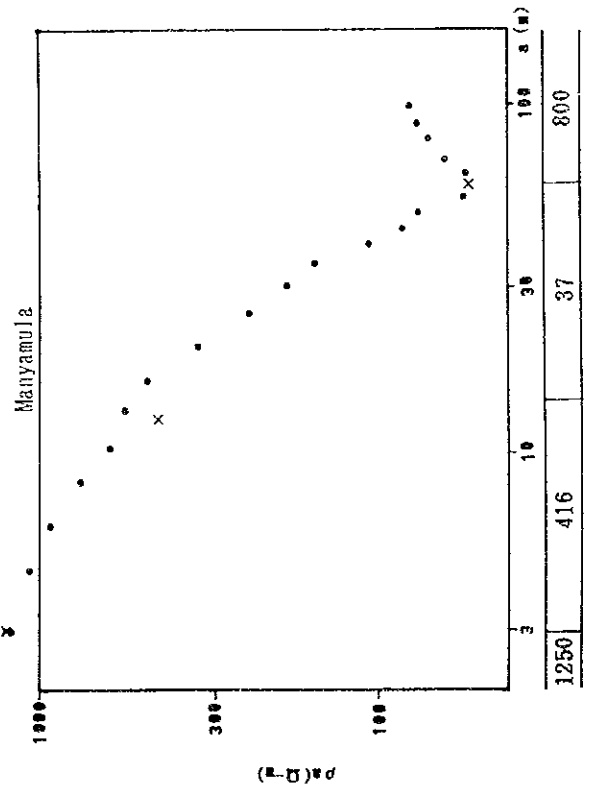
No. 5 5



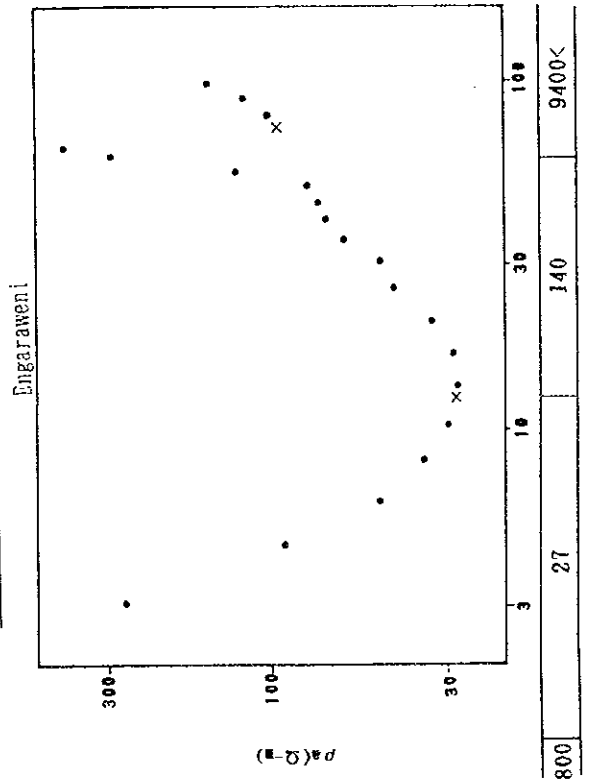
No. 5 7



No. 5 6

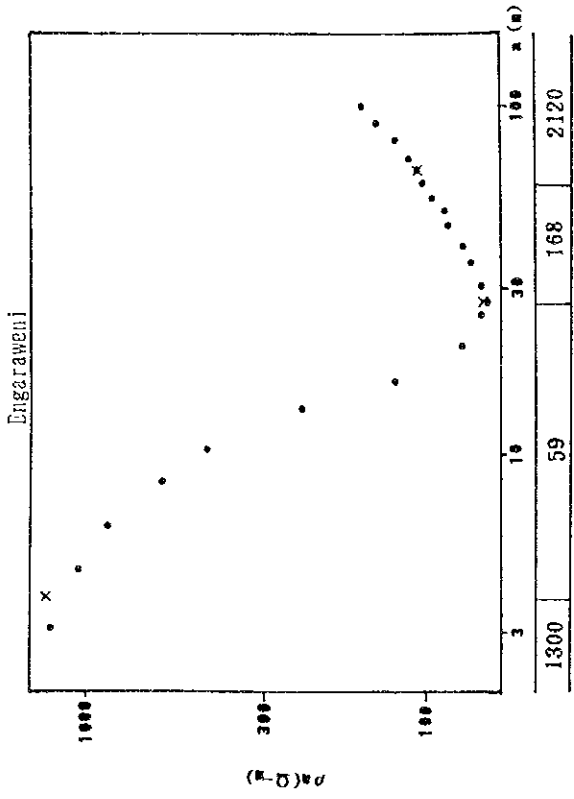


No. 5 8

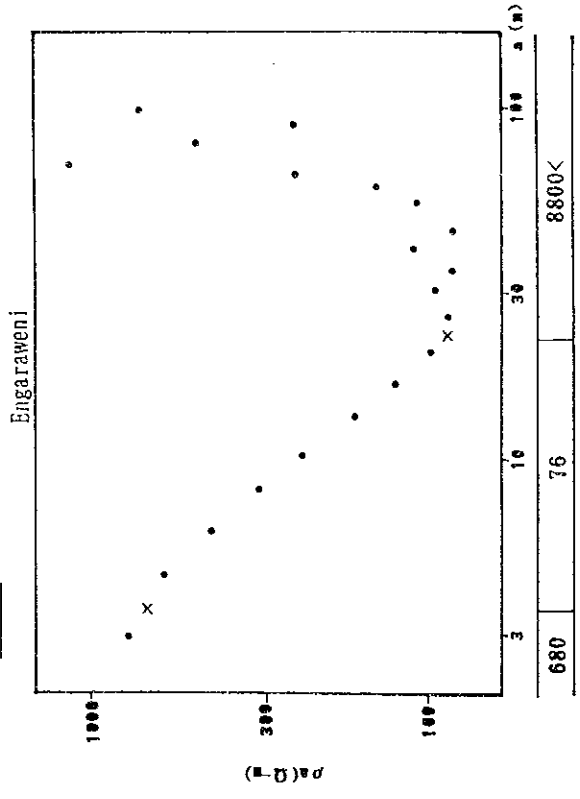


A - 5 (24)  $\rho - a$  Curve

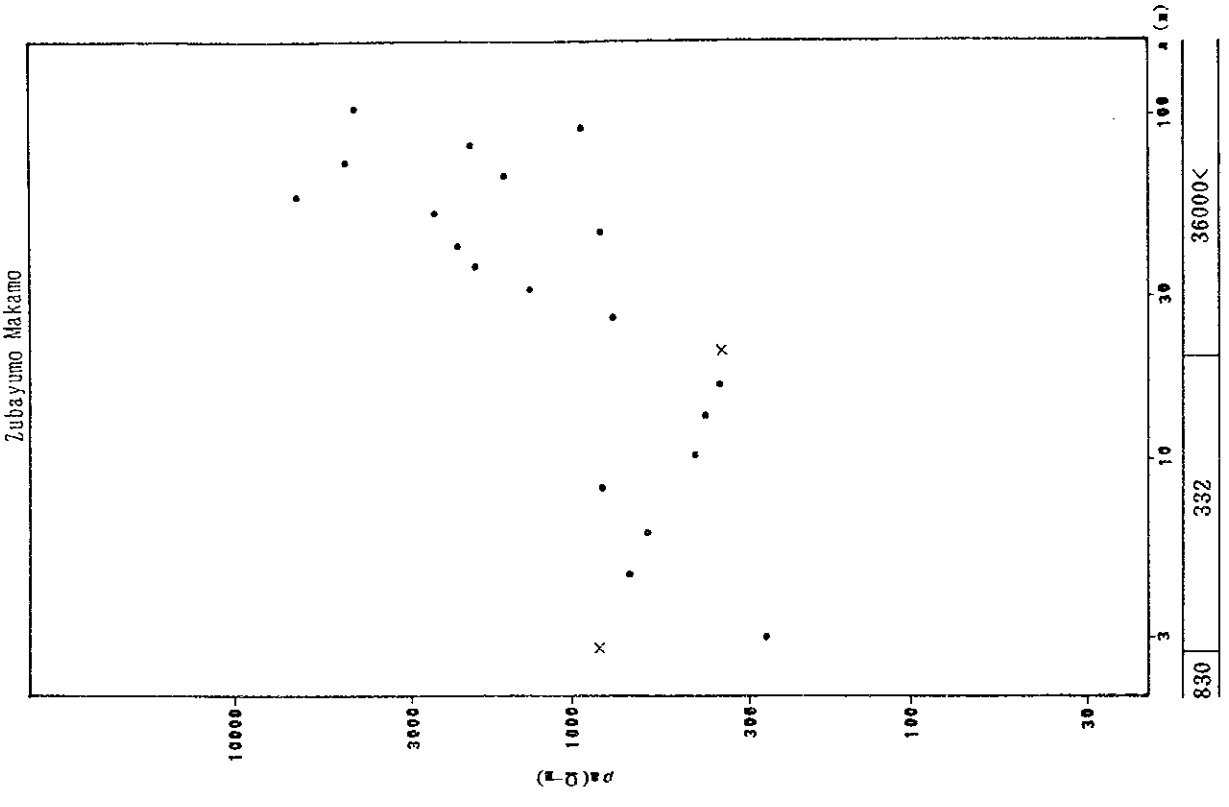
No 59



No 60



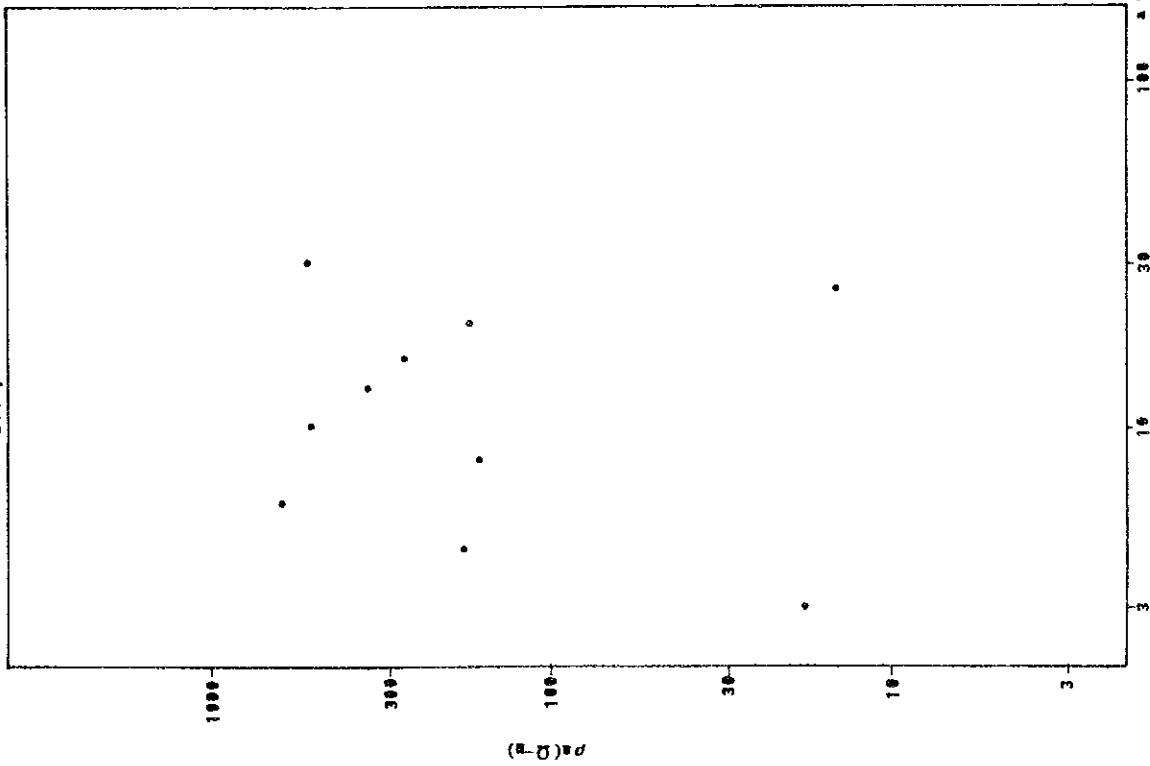
No 61



A -- 5 (25)  $\rho$  ... a Curve

No. 6 2

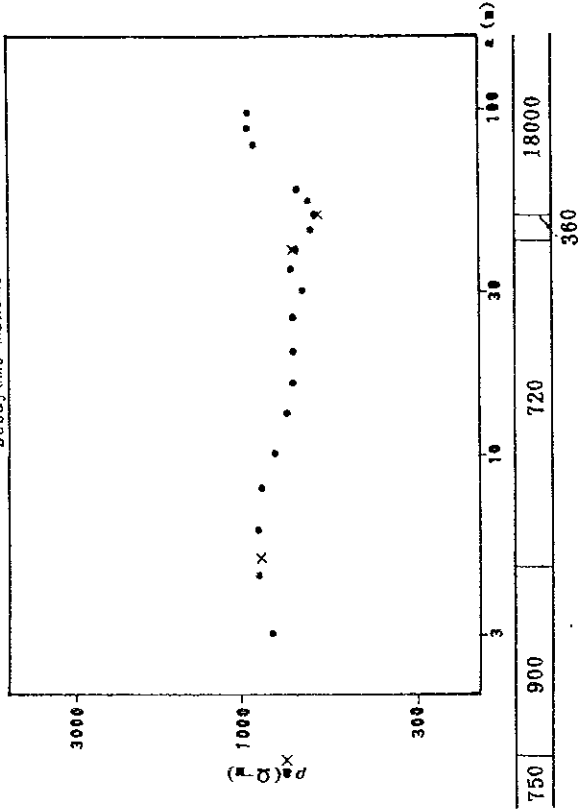
Zubayuno Makamo



Not Analyzable

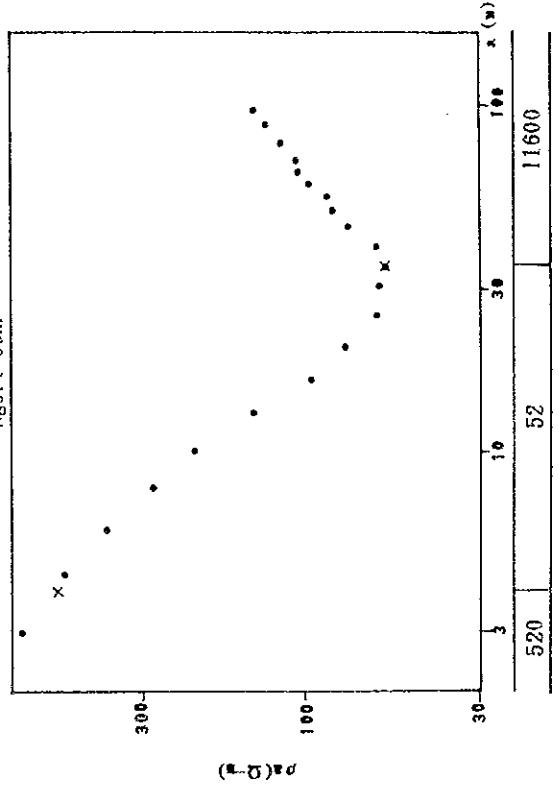
No. 6 3

Zubayuno Makamo



No. 6 4

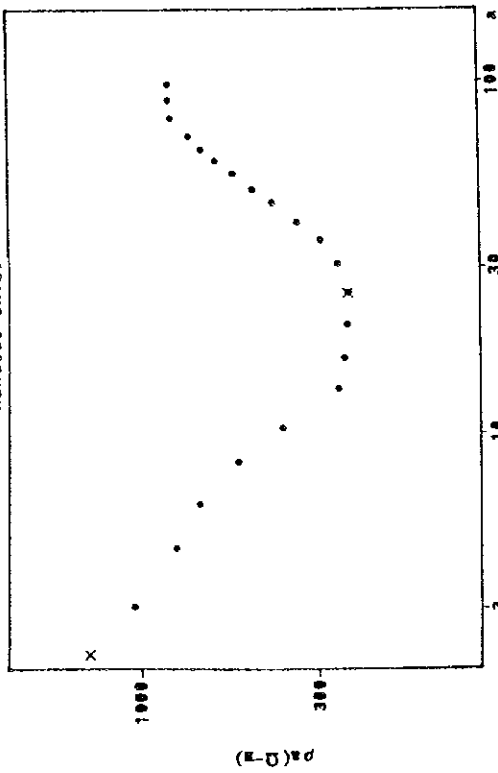
Ngori Sch.



A - 5 (26)  $\rho - a$  Curve

No 6 5

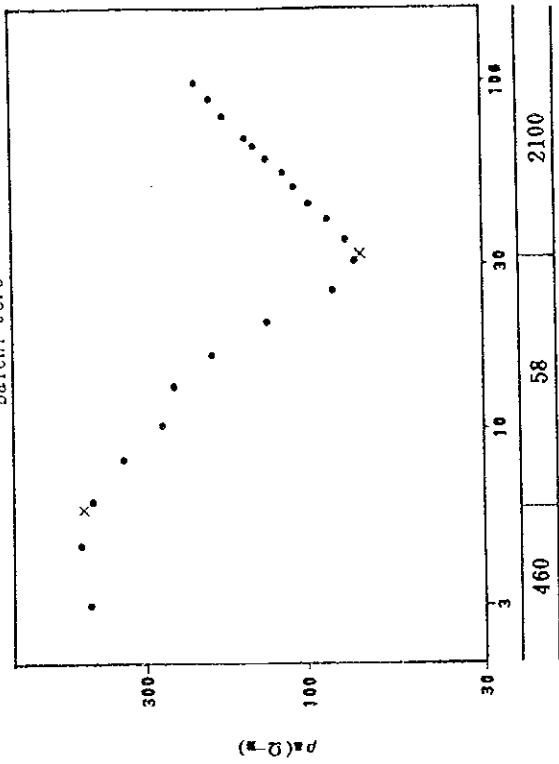
Kandodo Chisi



MZUKUZUKU

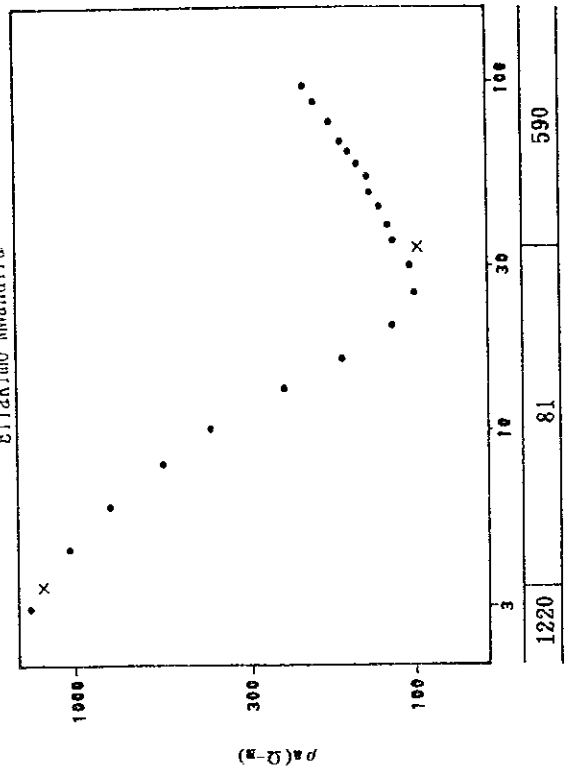
No 6 7

Baleni Jere



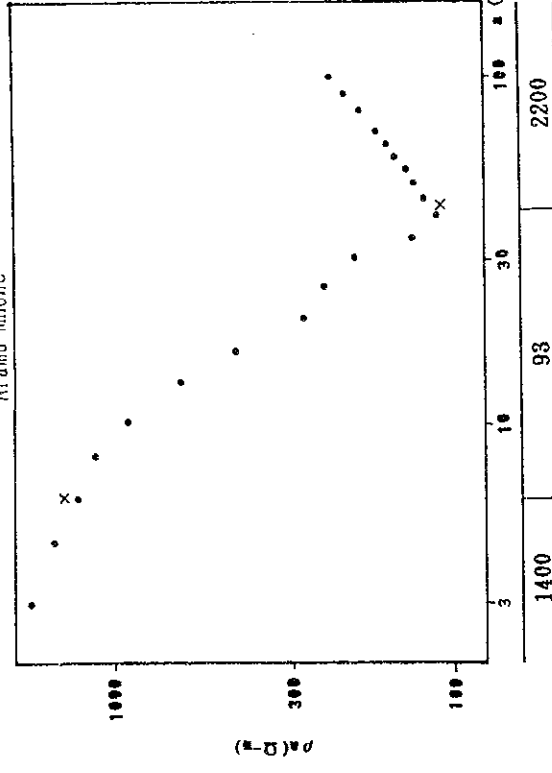
No 6 8

Eliakimo Mwandira



No 6 6

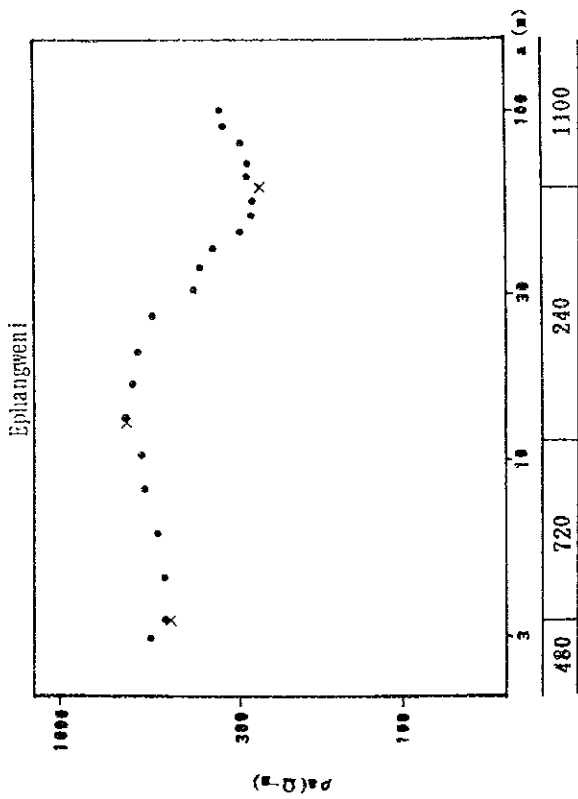
Aramu Mhone



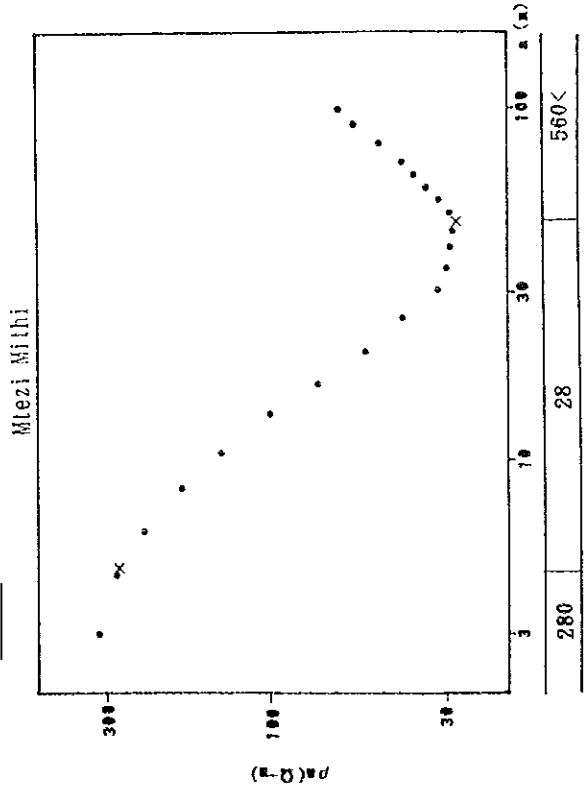


A - 5 (27)  $\rho - a$  Curve

No 69

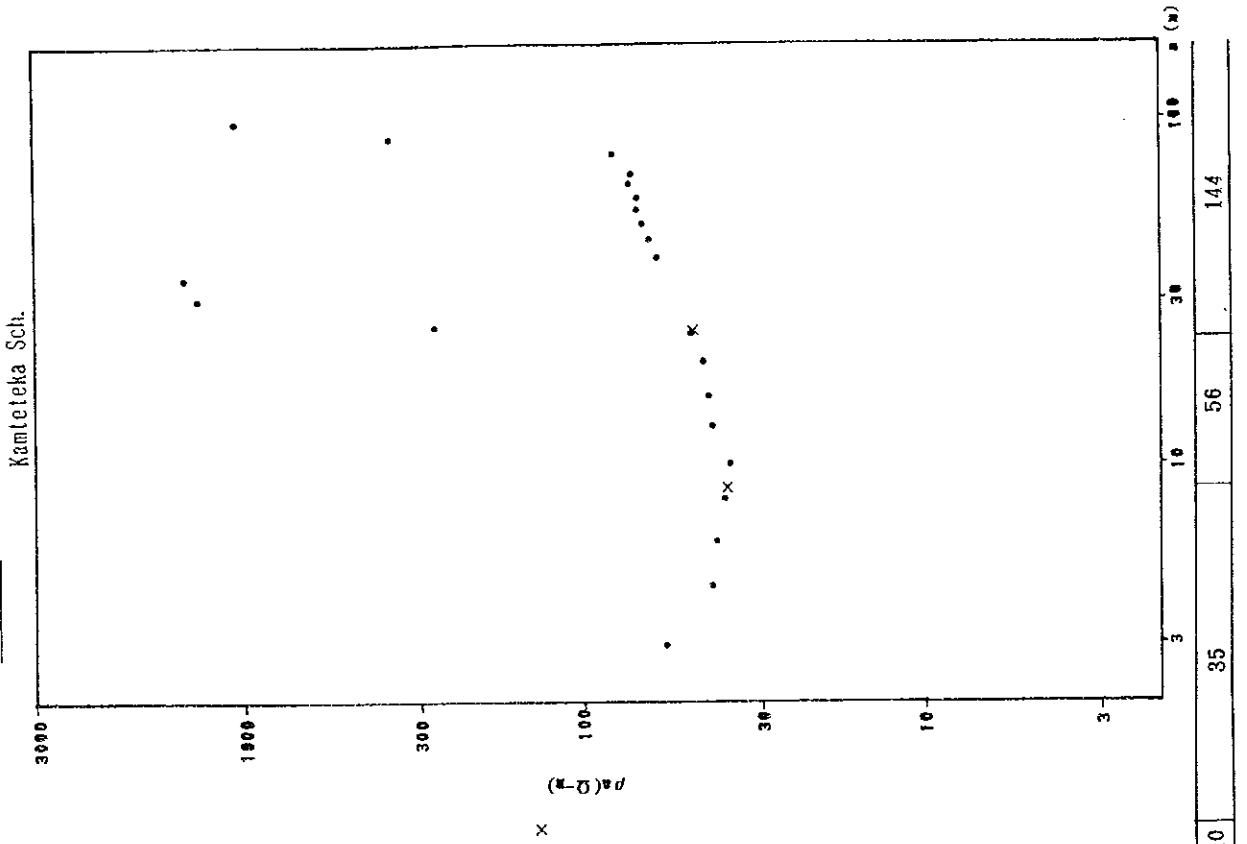


No 70



CHINDI

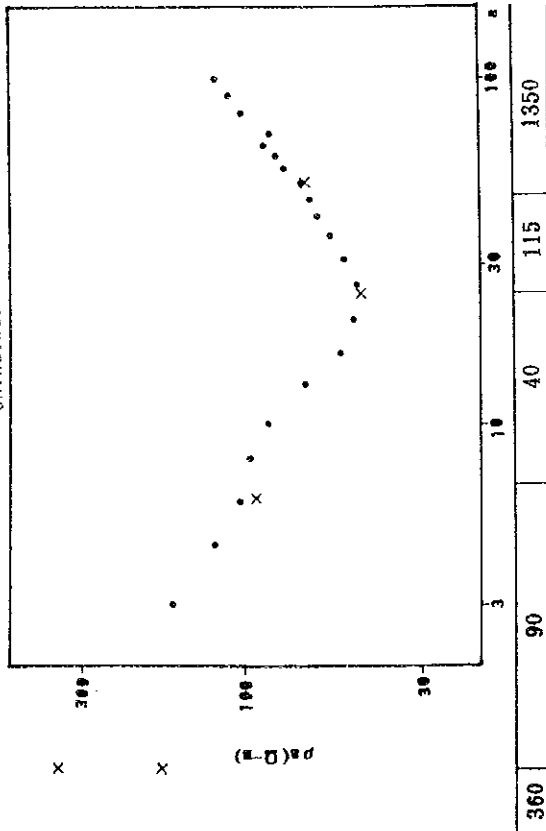
No 71



A - 5 (28)  $\rho - a$  Curve

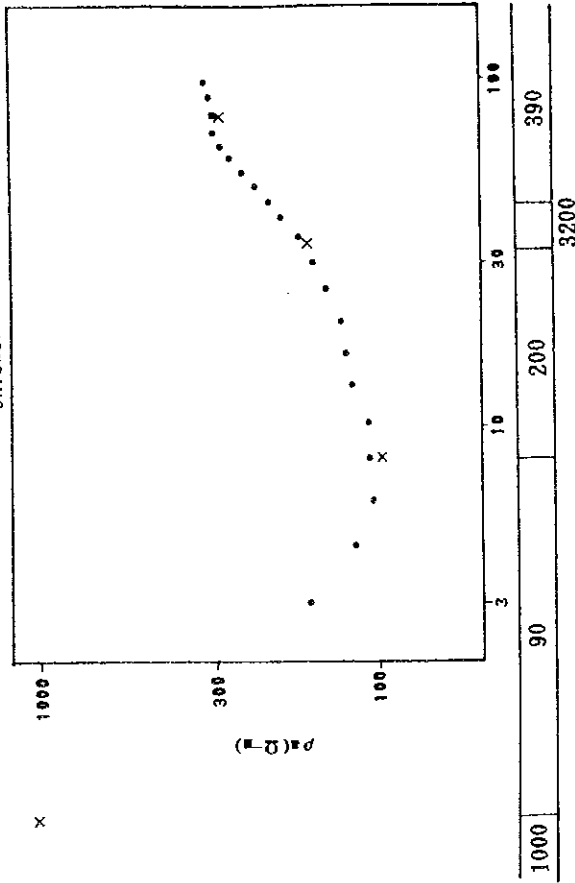
No 7 2

Chindindi



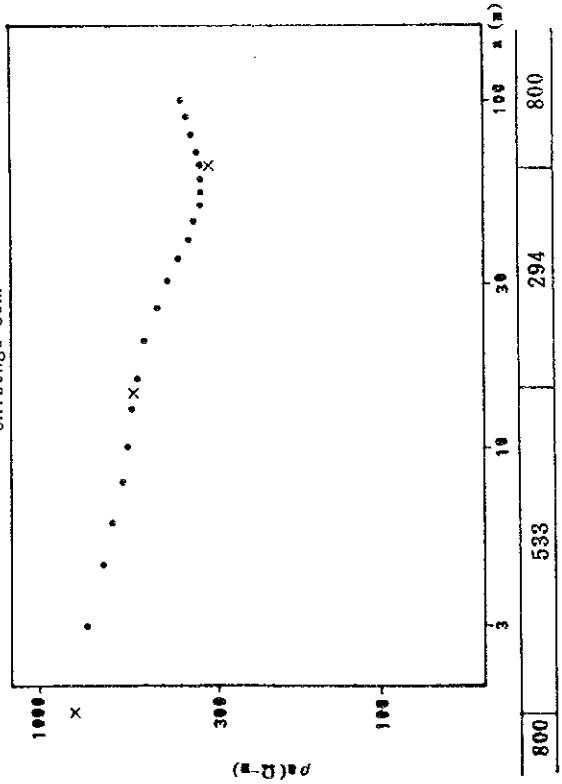
No 7 4

Citisasa ADMARC



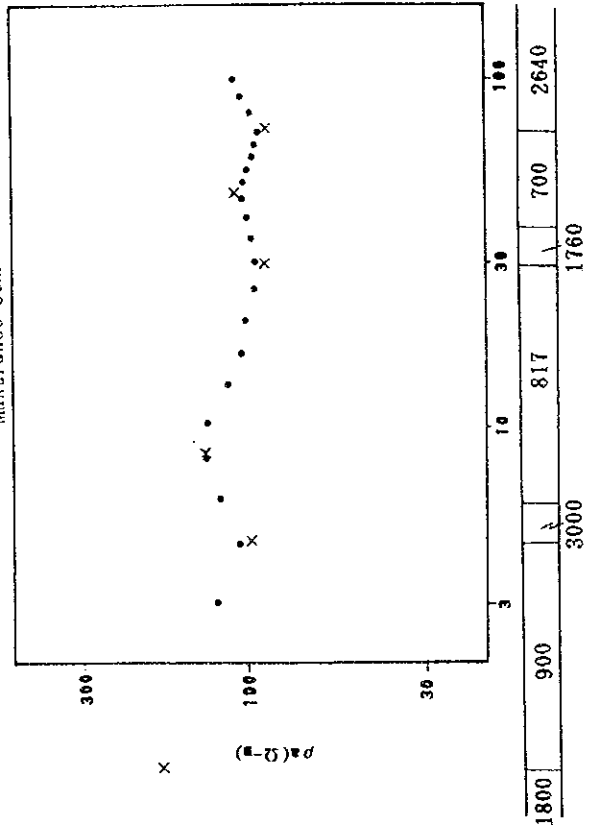
No 7 3

Chizungu Sch.



No 7 5

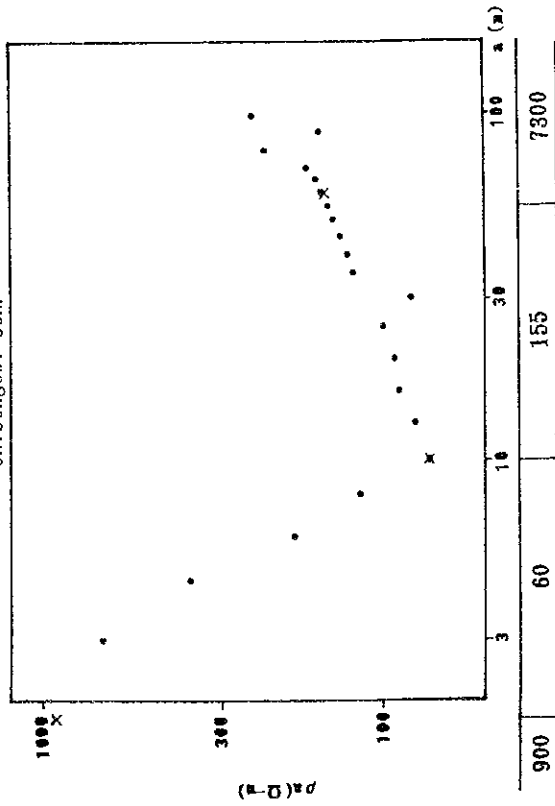
Makurande Sch.



A - 5 (29)  $\rho - a$  Curve

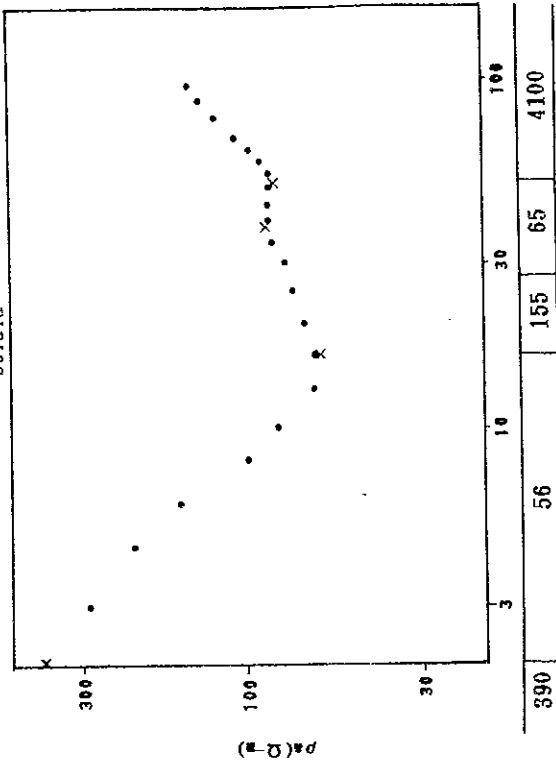
No. 7 6

Chisengezi Sch.



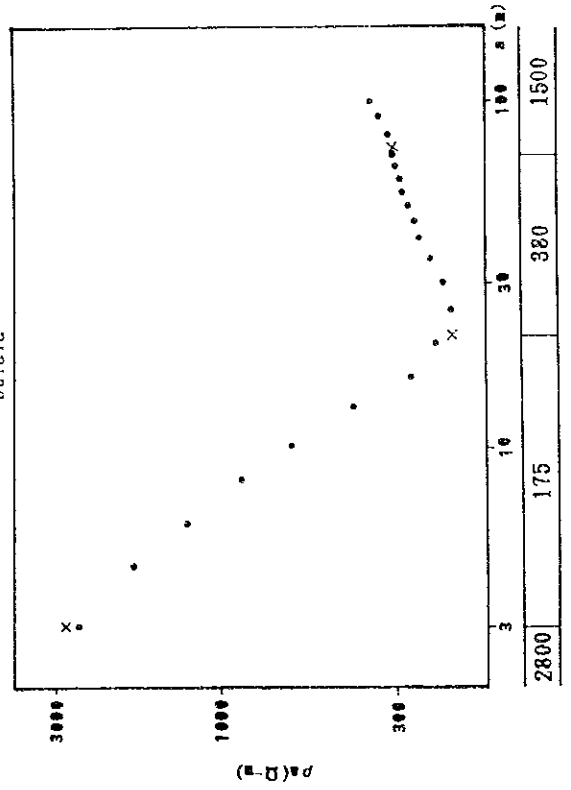
No. 7 8

Bujala



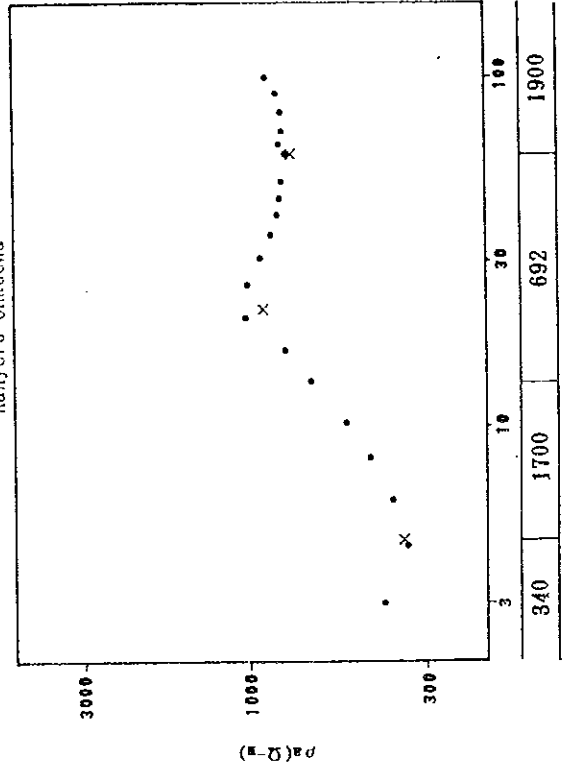
No. 7 7

Bujala



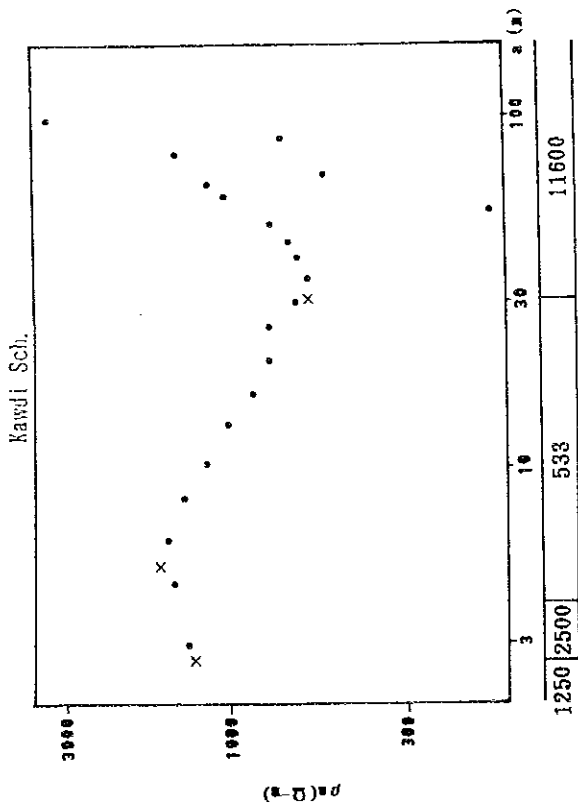
No. 7 9

Kanyeru Chhadewa

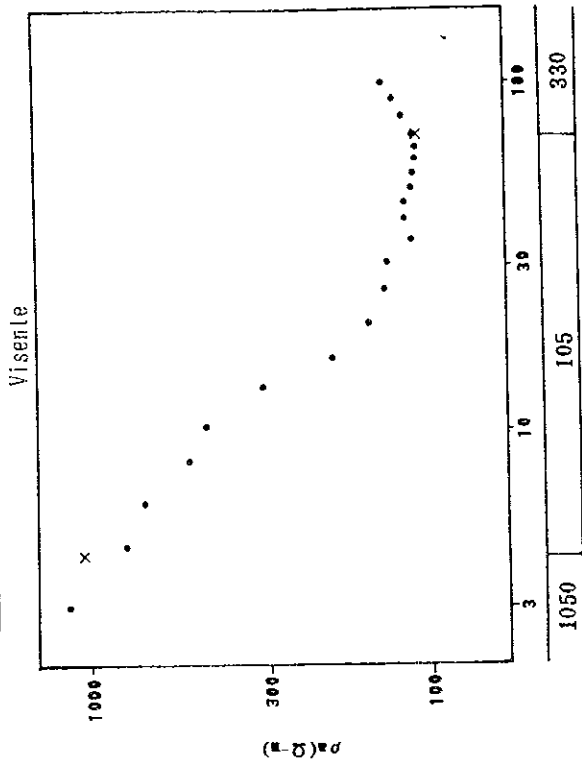


A - 5 (30)  $\rho - a$  Curve

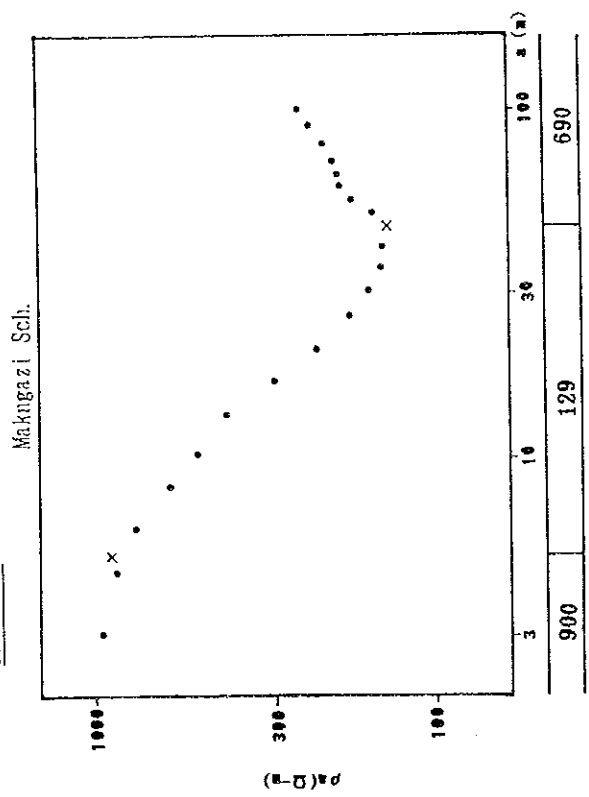
No. 8 0



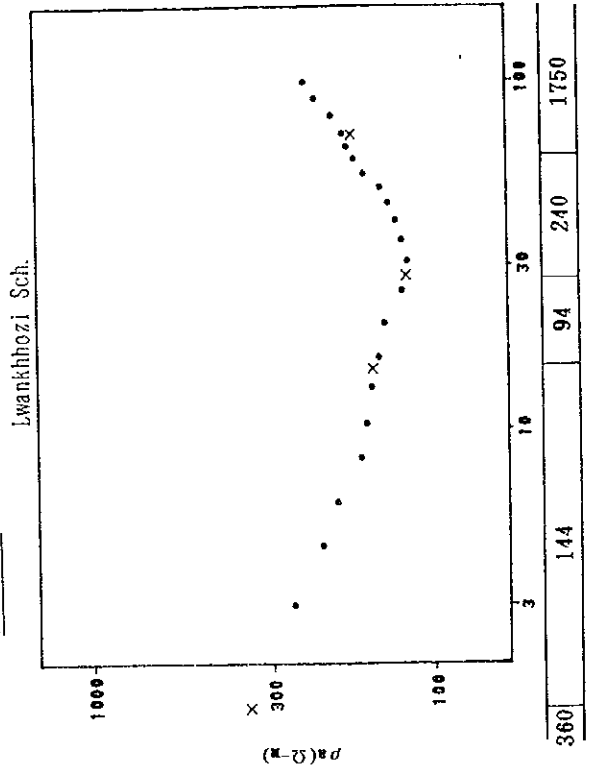
No. 8 2



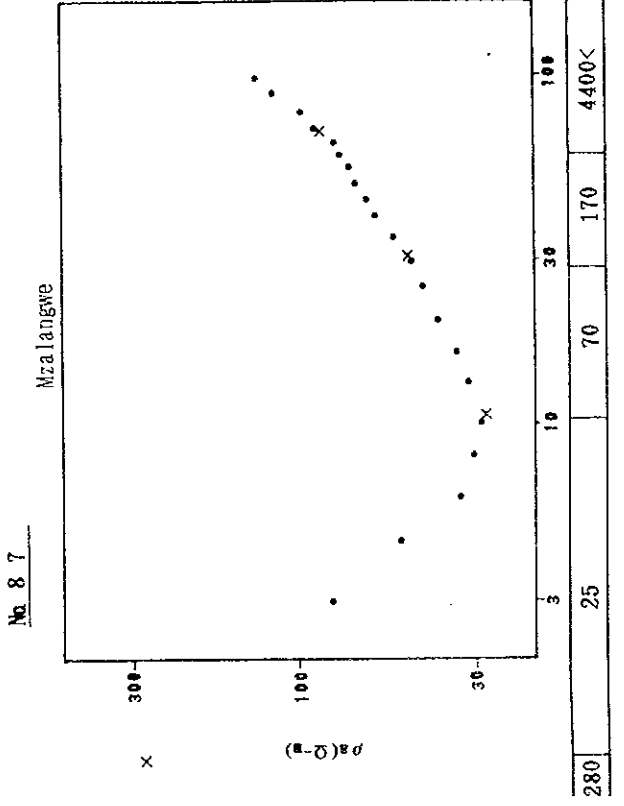
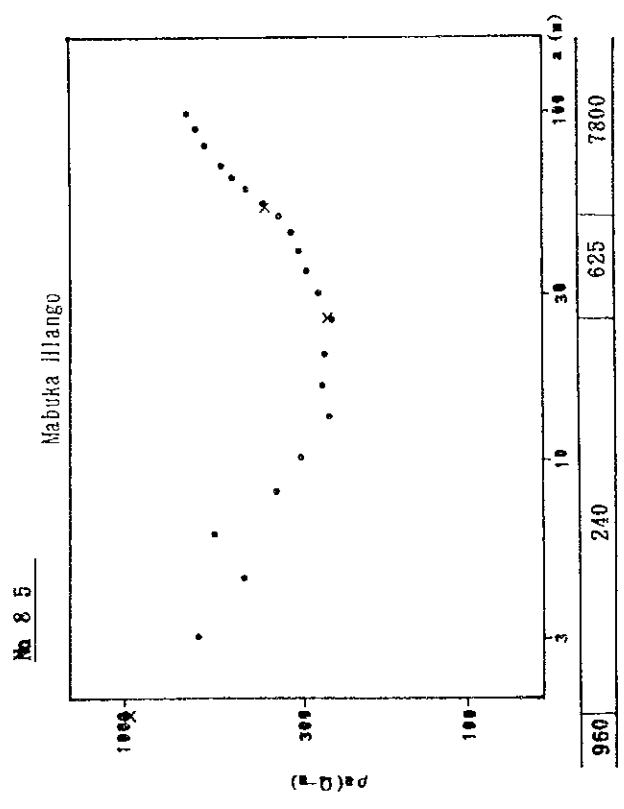
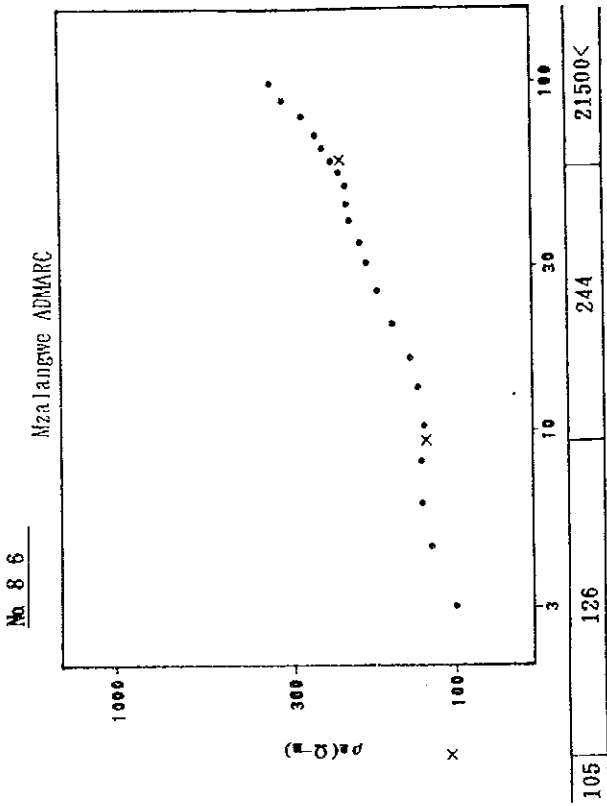
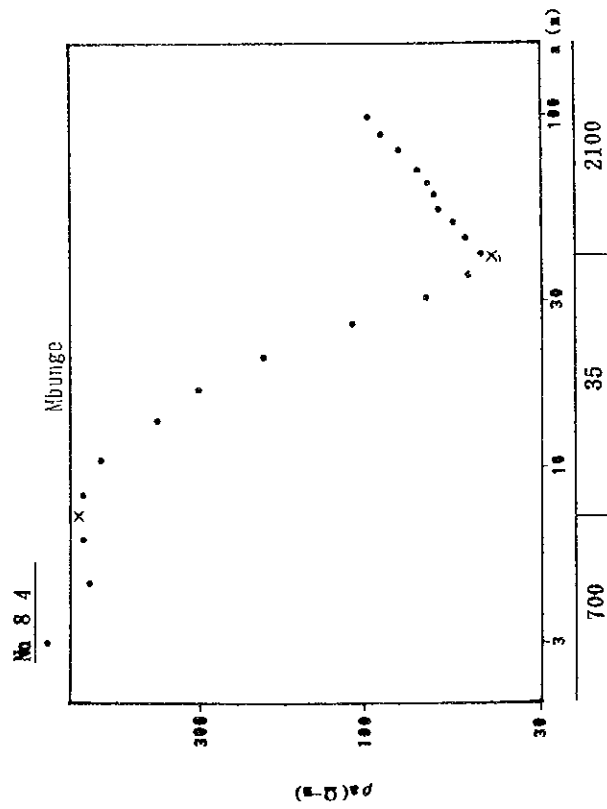
No. 8 1



No. 8 3



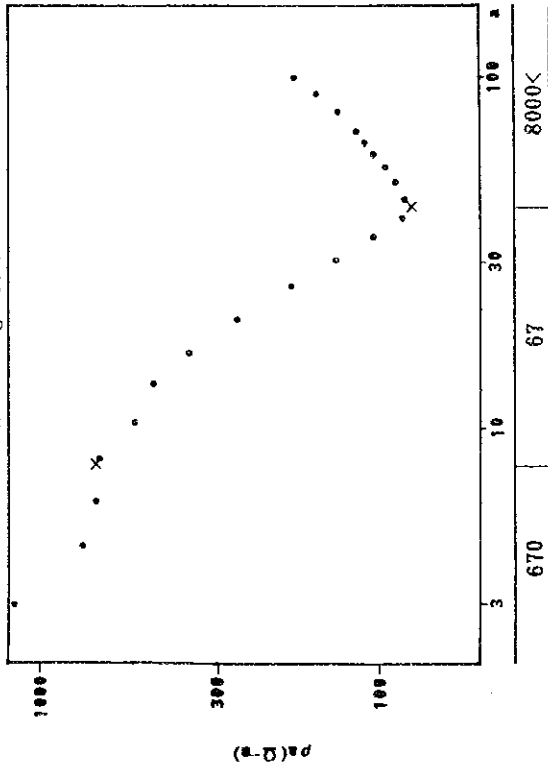
A - 5 (31)  $\rho - a$  Curve



A - 5 (32)  $\rho - a$  Curve

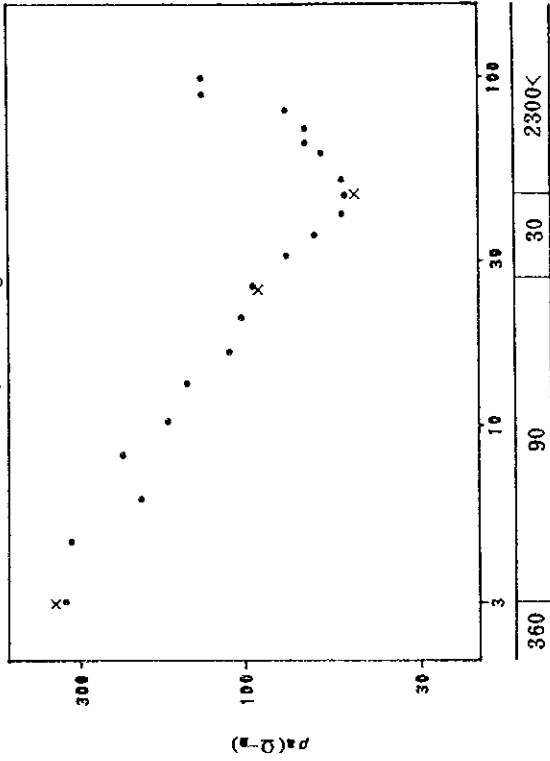
No. 8 8

Kavululanga Sch.



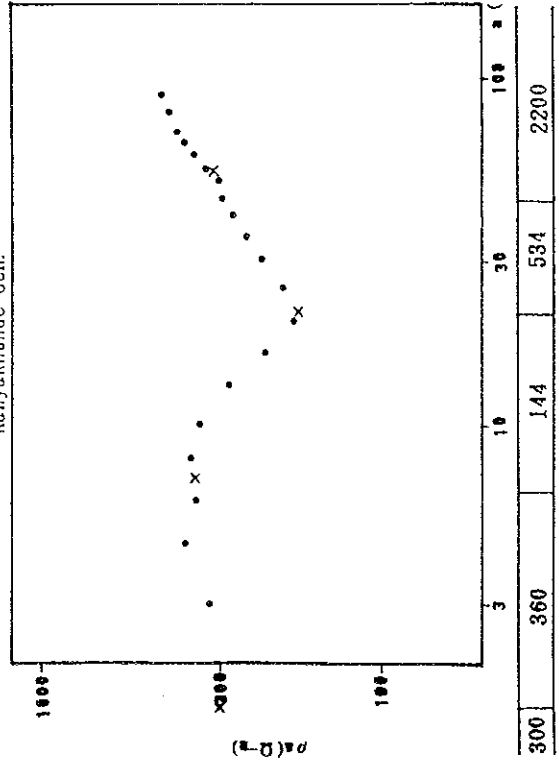
No. 9 0

Rouben Lungu



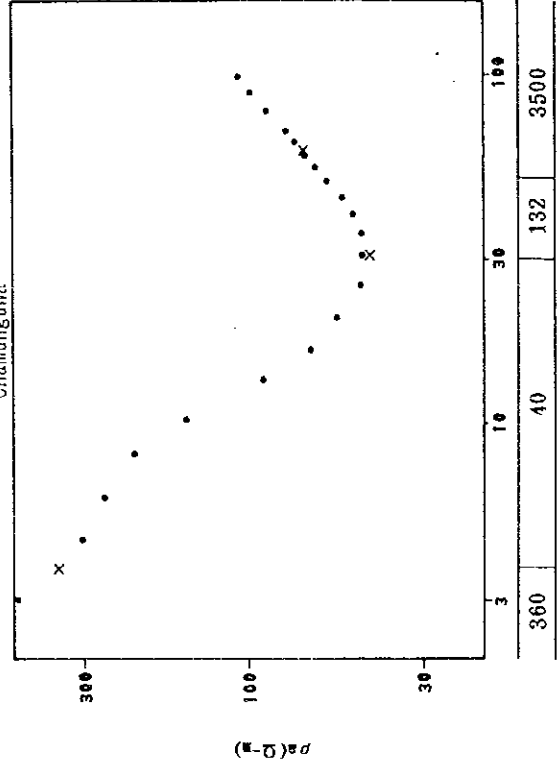
No. 8 9

Kanyakunde Sch.

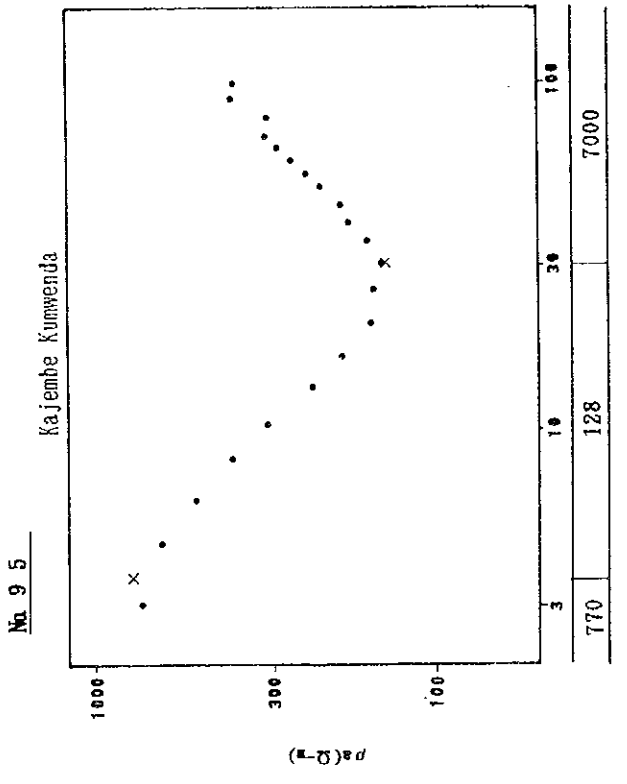
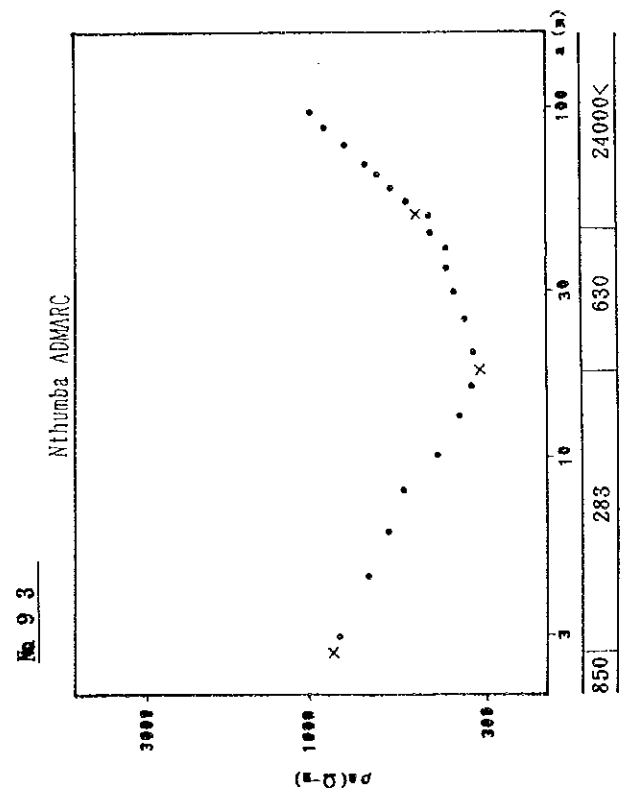
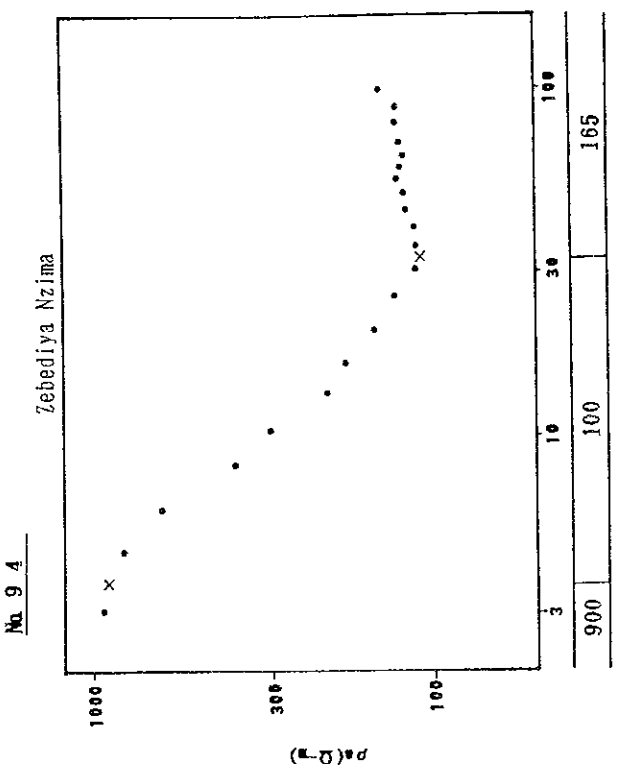
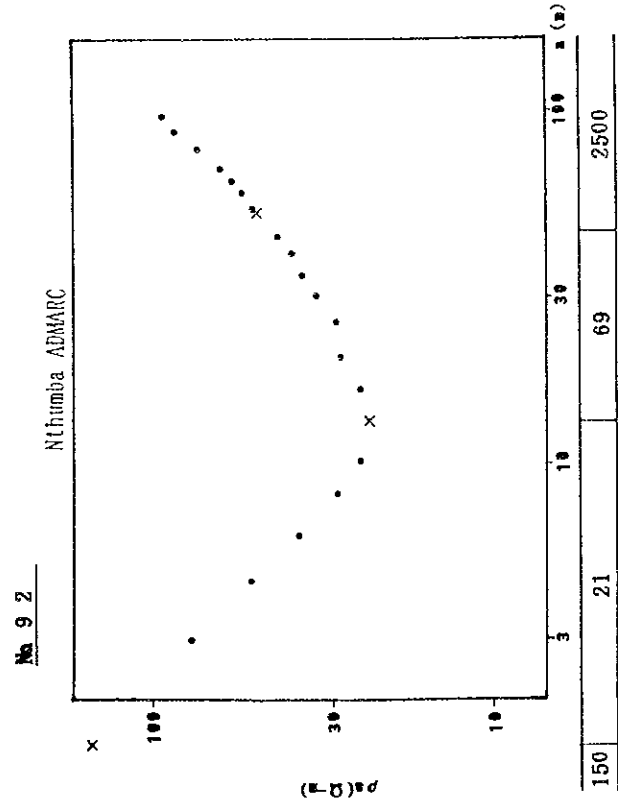


No. 9 1

Chamungwa



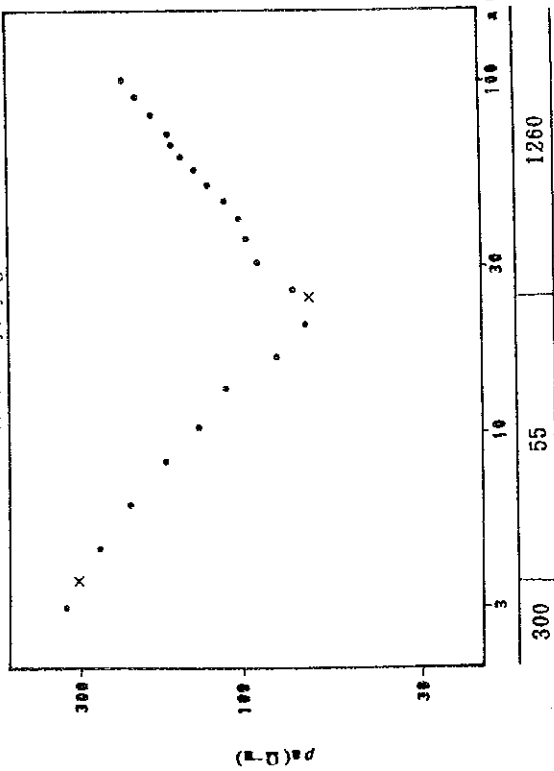
A - 5 (33)  $\rho - a$  Curve



A - 5 (34)  $\rho - a$  Curve

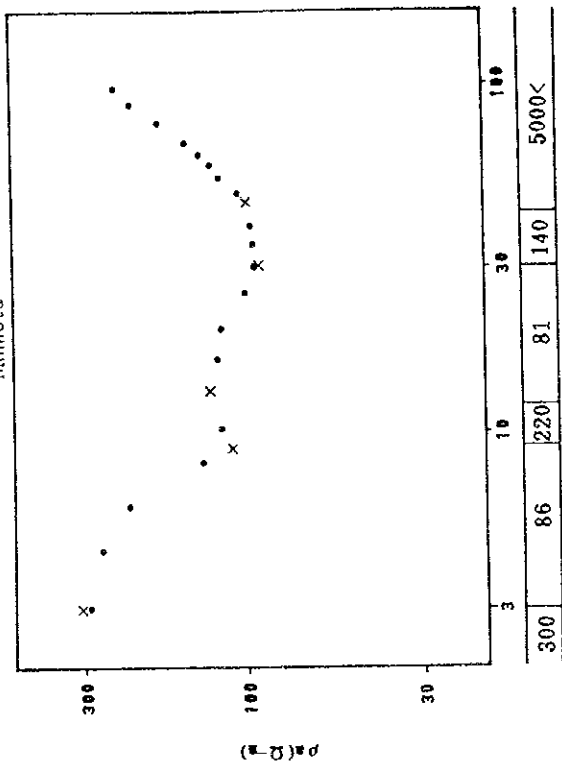
No 9 6

Vavala Nyonyagha



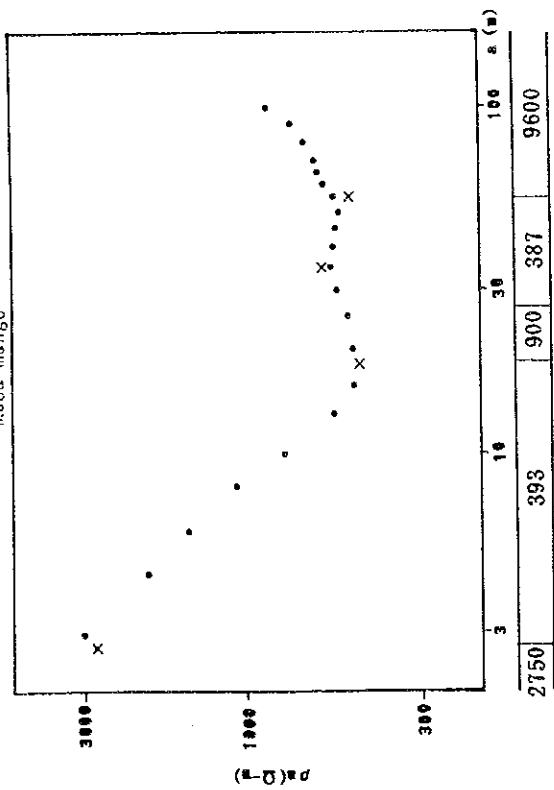
No 9 8

Nkhwela



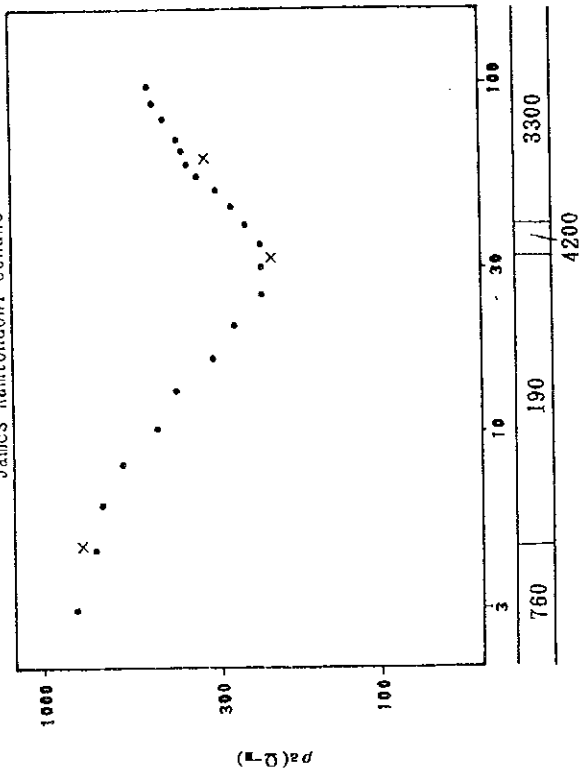
No 9 7

Musa Mango



No 9 9

James Kamtondowi Gondwe

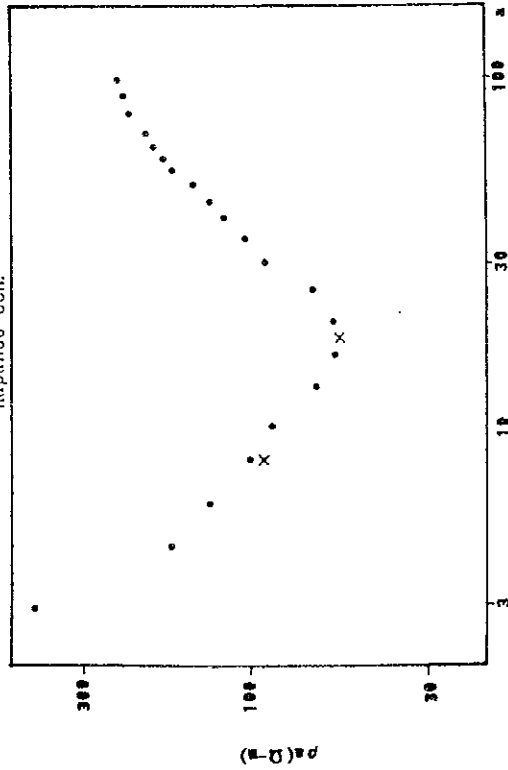




A - 5 (35)  $\rho - a$  Curve

No. 100

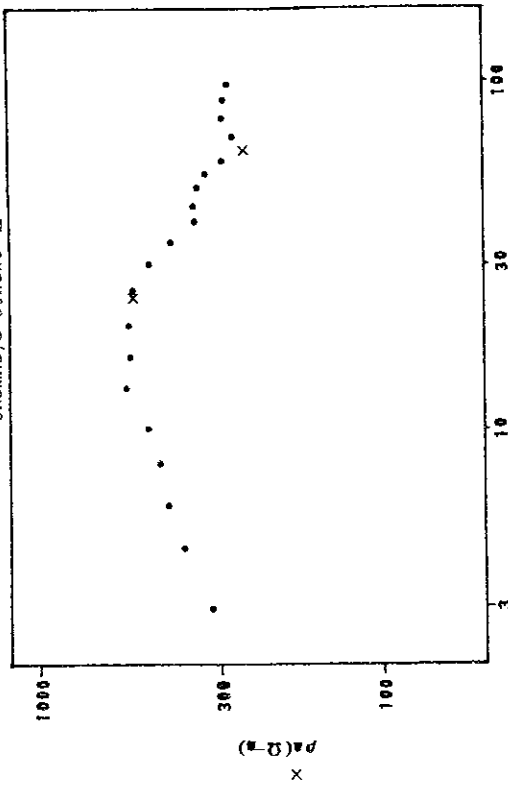
Kapando Sch.



MTWALO II

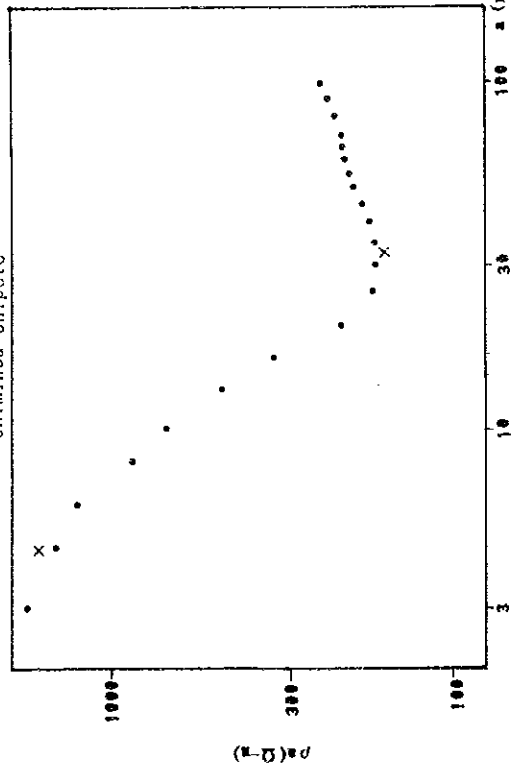
No. 102

Chamhaya Gondwe II



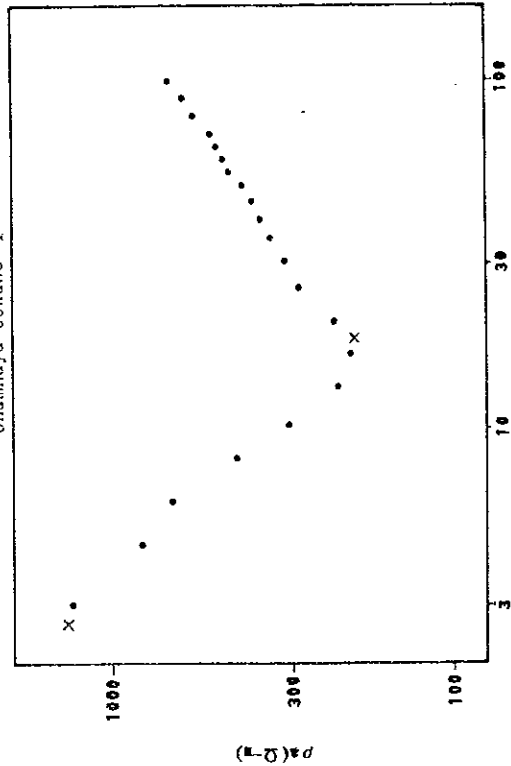
No. 101

Chimimba Chipete



No. 103

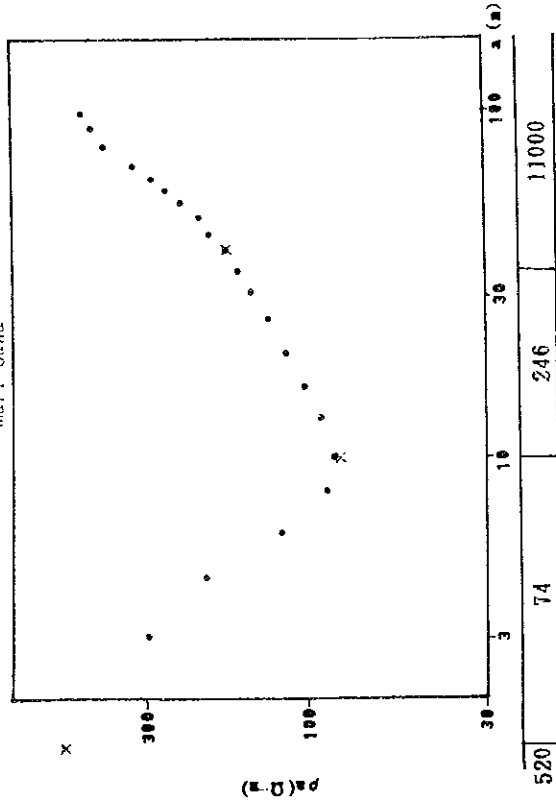
Chamhaya Gondwe I



A - 5 (36)  $\rho - a$  Curve

No. 104

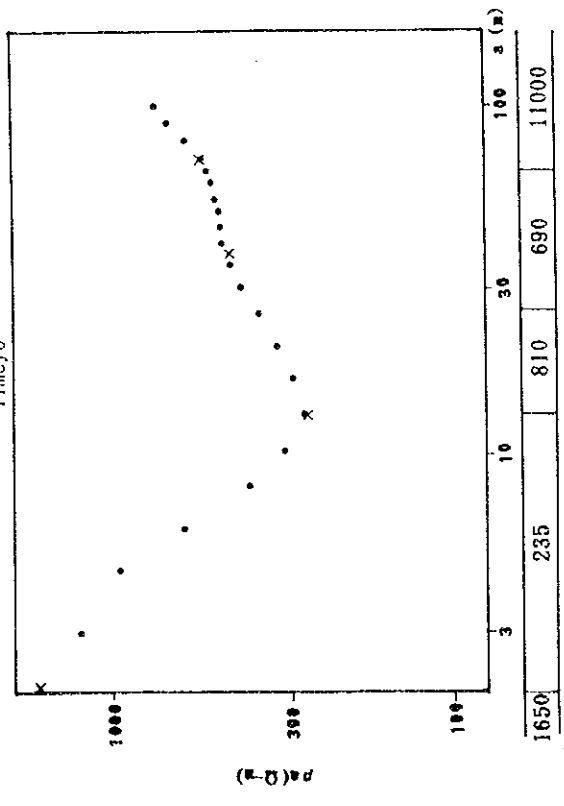
Mari Sava



MPHEREMBE

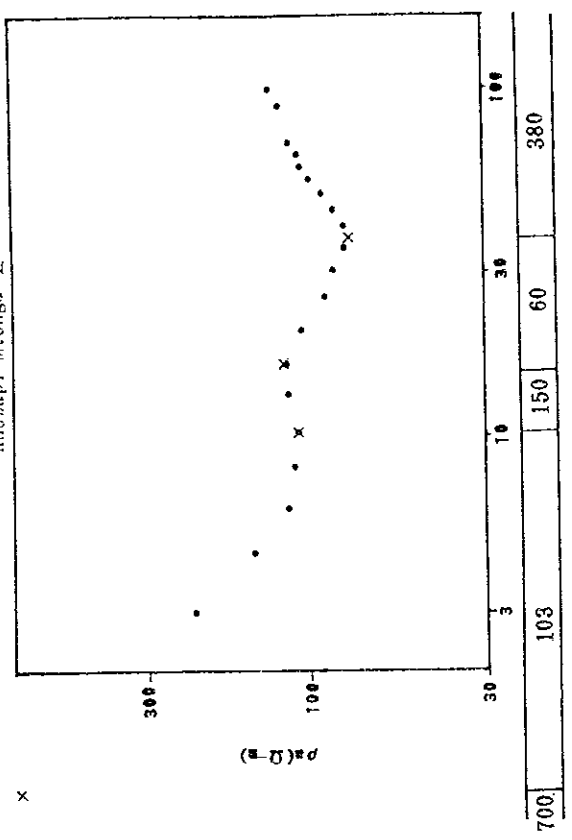
No. 105

Timeyo



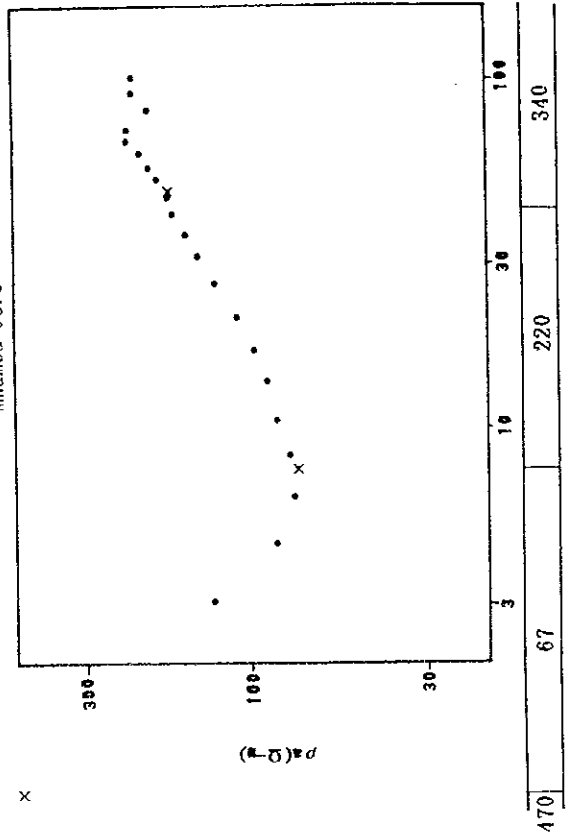
No. 106

Khozapi Mlenga II



No. 107

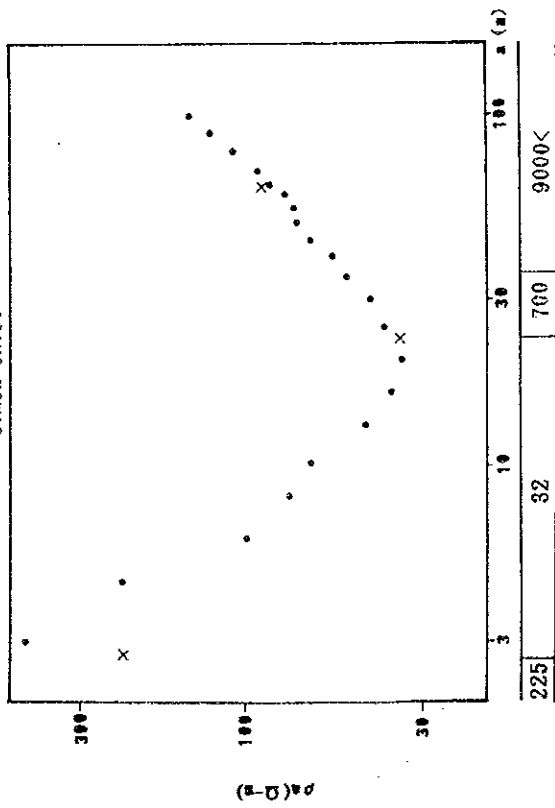
Mwamba Jere



A - 5 (37)  $\rho - a$  Curve

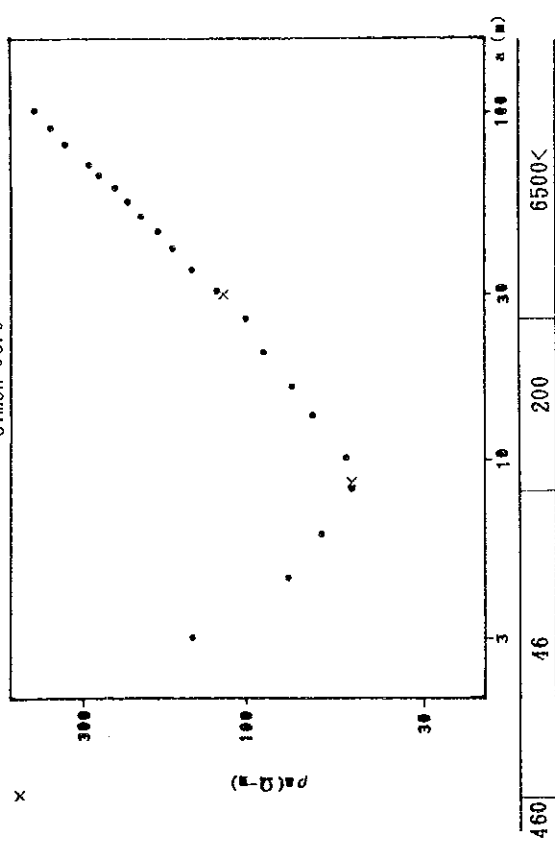
No. 108

Simon Chisi



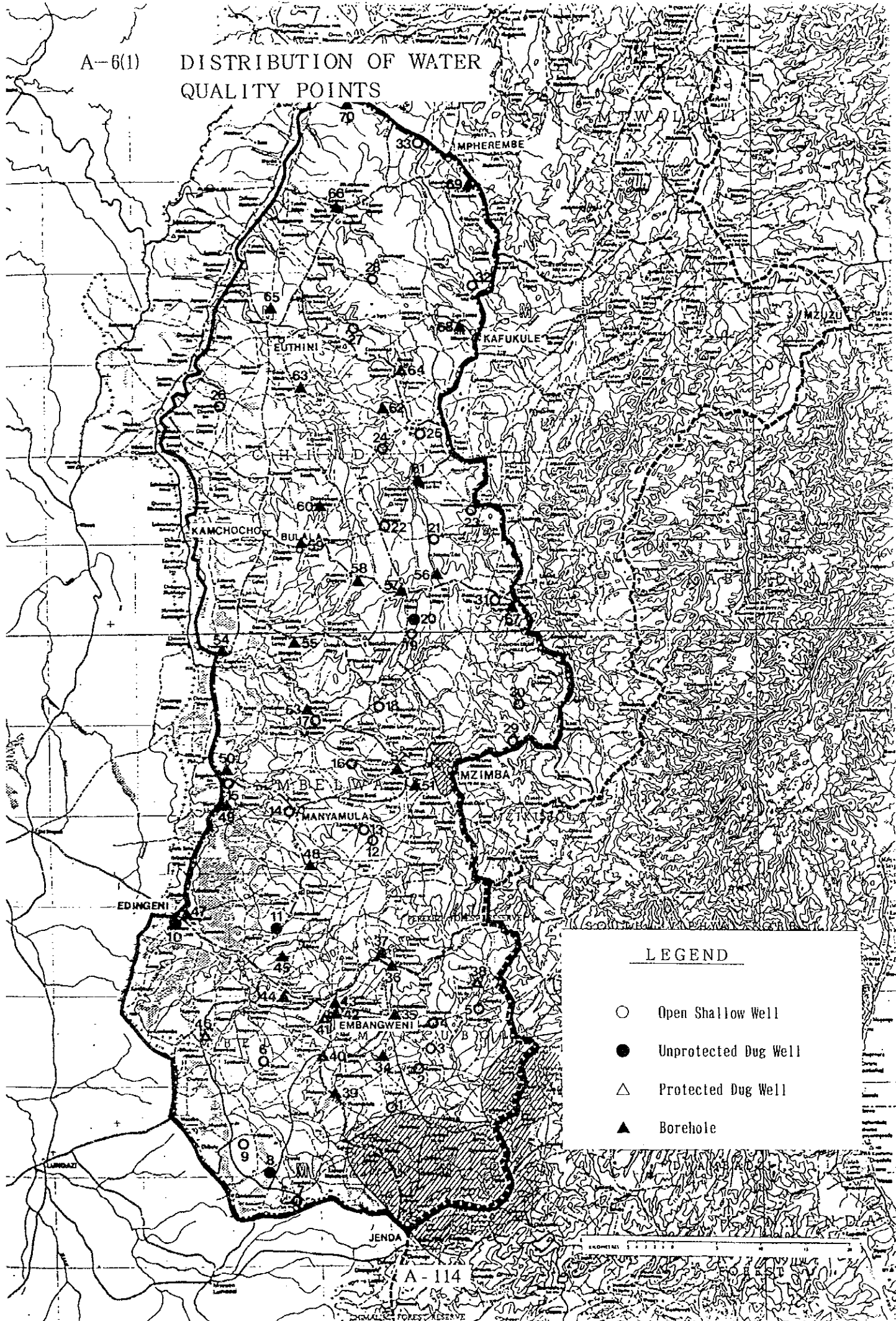
No. 109

Simon Jere



A-6(1)

# DISTRIBUTION OF WATER QUALITY POINTS



## LEGEND

- Open Shallow Well
- Unprotected Dug Well
- △ Protected Dug Well
- ▲ Borehole

A - (12) Results of Water Quality Analysis

No	Zone	T. A.	Village Name	Water Source	Turbidity	Temperature (°C)	Electric Conductivity (µS/cm)	pH	Total Hardness	Cl <sup>-</sup> (ppm)	NO <sub>3</sub> (ppm)	Fe (ppm)	SO <sub>4</sub> (ppm)	Mn (ppm)	Bacteria	Coliform Group	Remarks	
1	1	MZIKURULA	Musemaphira Muzi	Open Shallow Well	muddy	25.2	120.0	6.30	5	15	< 1	1.5	400	< 0.5	slightly existed	existed		
2	1		Zoleza Moyo	Open Shallow Well	muddy	19.2	180.0	6.54	20	20	< 1	1	300	< 0.5	existed	existed		
3	1		Sumel Kamanga	Open Shallow Well	muddy	23.8	90.0	6.03	20	20	0.1	< 1	3	300	< 0.5	slightly existed	existed	
4	1		Machowanji Nkloswe	Open Shallow Well	muddy	22.6	1,693.0	6.53	30	15	0.1	< 1	0.2	300	< 0.5	slightly existed	existed	
5	1		Chinjoka Nyirenda	Open Shallow Well	muddy	25.8	46.3	5.90	0	15	0.1	< 1	2	300	< 0.5	existed	existed	
6	2	MZIKUZUKU	Eliakimo Mwandira	Open Shallow Well	slightly muddy	22.6	80.0	6.15	8	25	< 1	< 0.2	300	< 0.5	existed	existed		
7	2		Ezueguleni	Open Shallow Well	muddy	25.5	163.3	6.54	10	475	0	< 1	2	600	< 0.5	not existed	not existed	
8	2	MANGELWA	Kachinjere Nyirengo	Unprotected Dug Well	muddy	26.3	53.9	4.70	20	40	0	< 1	2	600	< 0.5	existed	existed	
9	2		Mukosa	Open Shallow Well	slightly muddy	17.8	154.6	7.09	20	30	0	< 1	< 0.2	< 200	< 0.5	existed	existed	
10	2		Edingeni	Unprotected Dug Well	slightly muddy	27.9	248.0	6.58	50	25	0	5	0.2	250	< 0.5	existed	existed	
11	1		Handle Ndikton 1	Unprotected Dug Well	muddy	23.4	156.7	6.36	5	20	0.5	< 1	3	< 200	< 0.5	existed	existed	
12	1		Yoban Chisi	Open Shallow Well	muddy	24.6	30.0	5.52	0	10	0	< 1	0.5	300	< 0.5	slightly existed	slightly existed	
13	1		Yesaya Shumba	Open Shallow Well	slightly muddy	21.5	170.0	6.53	1	20	0	< 1	3	300	< 0.5	slightly existed	existed	
14	2		Manyamula	Open Shallow Well	clear	25.7	110.0	6.34	10	25	0	< 1	< 0.2	300	< 0.5	existed	not existed	
15	2		Engaraweni	Open Shallow Well	muddy	27.0	191.4	7.13	10	20	0	2.5	0.8	300	< 0.5	existed	existed	
16	2		Ngori Sch.	Open Shallow Well	slightly muddy	23.7	110.0	6.40	20	30	0	< 1	< 0.2	300	< 0.5	existed	existed	
17	2		Zubayamo Makamo	Open Shallow Well	muddy	26.7	225.0	7.08	20	30	0.3	< 1	1	200	< 0.5	existed	existed	
18	1	CHINDI	Bokola Sch.	Open Shallow Well	muddy	23.7	550.0	6.31	50	30	0.2	< 1	0.2	300	< 0.5	slightly existed	slightly existed	
19	1		Endindeni Disp.	Open Shallow Well	slightly muddy	20.9	174.7	6.25	35	20	0.2	< 1	1	300	< 0.5	existed	not existed	
20	1		Paulosi Nkoshi	Unprotected Dug Well	slightly muddy	21.4	158.0	5.08	10	20	0	45	0.4	300	< 0.5	not existed	not existed	
21	1		Ndabambo Gausi	Open Shallow Well	slightly muddy	26.7	170.0	6.70	20	20	0.2	< 1	0.3	300	< 0.5	existed	not existed	
22	3		Visente	Open Shallow Well	muddy	24.6	700.0	5.95	0	25	0	< 1	1	400	< 0.5	existed	not existed	
23	1		Mamlewa Farm Institute	Open Shallow Well	slightly muddy	28.1	400.0	6.05	40	30	0.2	2	0.5	300	< 0.5	existed	existed	
24	3		Mabuka Hlanga	Open Shallow Well	muddy	21.0	153.1	6.50	5	20	0.1	< 1	0.5	300	< 0.5	not existed	not existed	
25	3		Kavululaura Sch.	Open Shallow Well	very muddy	20.2	70.0	6.40	5	15	0.1	< 1	5	300	< 0.5	not existed	not existed	
Proposed Standard in Malawi																		
									6.0-9.5	800	750	100	3.0	800	0.5			

A - 6(3) Results of Water Quality Analysis

No	Zone	T. A.	Village Name	Water Source	Turbidity	Temperature (°C)	Electric Conductivity (µS/cm)	pH	Total Hardness	Cl <sup>-</sup> (ppm)	NO <sub>3</sub> <sup>-</sup> (ppm)	NO <sub>2</sub> <sup>-</sup> (ppm)	Fe (ppm)	SO <sub>4</sub> <sup>-2</sup> (ppm)	Mn (ppm)	Bacteria	Coliform Group	Remarks												
26	3	CHINDI	Kanyakhunde Sch.	Open Shallow Well	muddy	22.1	426.0	6.68	10	40	0.8	< 1	4	350	< 0.5	not existed	existed													
27	3		Varela Nyonyagha	Open Shallow Well	slightly muddy	25.5	1,125.0	7.21	100	205	0.1	< 1	1.5	300	< 0.5	existed	existed													
28	3		Chiminka Chipete	Open Shallow Well	very muddy	24.1	42.8	5.66	0	20	0.1	< 1	1.5	300	< 0.5	slightly existed	existed													
29	1	KAMPINGO SIBANDE	Mzondi Kuditovu	Open Shallow Well	very muddy	27.3	78.8	6.55	5	20	0.1	5	0.4	300	< 0.5	slightly existed	slightly existed													
30	1		Tadexo Chakwira	Open Shallow Well	muddy	28.4	151.6	6.90	20	25	0.4	< 1	0.3	300	< 0.5	existed	existed													
31	1		Karoli Sch.	Open Shallow Well	muddy	26.7	63.8	5.76	0	15	0	< 1	0.5	300	< 0.5	slightly existed	existed													
32	3	MTWALO II	Marl Sawa	Open Shallow Well	muddy	27.9	237.0	6.63	10	30	0.2	< 1	4	300	< 0.5	slightly existed	slightly existed													
33	3	MPIHEREAGE	Simon Chisi	Open Shallow Well	muddy	24.0	77.6	6.21	10	15	0	< 1	0.3	300	< 0.5	slightly existed	existed													
34	1	MZIKUBOLA	Chikomawanga II Lusale	Protected Dug Well	clear	26.0	116.0	6.20	5	15	0.3	< 1	< 0.2	300	< 0.5	existed	not existed													
35	1		Enchakachakani Sch.	Borehole	clear	23.9	242.0	6.39	0	15	0	< 1	9	600	< 0.5	not existed	not existed	PP 7												
36	1		Chikomani Thole	Borehole	clear	26.7	111.2	5.72	8	20	0	< 1	1.5	400	< 0.5	slightly existed	existed	W 205												
37	1		Thozza Sch.	Borehole	clear	27.9	188.9	6.50	10	25	0.3	< 1	0.3	400	< 0.5	existed	existed	JT 210												
38	1		Mpanjila Sch.	Protected Dug Well	clear	24.6	193.0	6.30	50	25	0	< 1	0.5	300	< 0.5	not existed	not existed													
39	2	MZUNZUKU	Baleni Jere	Borehole	clear	26.5	146.7	6.31	15	35	0.3	< 1	0.7	350	< 0.5	not existed	existed	HC 3												
40	1		Ehlangweni	Borehole	clear	26.0	180.0	6.16	30	20	0.3	< 1	0.5	< 300	< 0.5	not existed	not existed	W 214												
41	1		Ehangweni	Protected Dug Well	clear	23.4	221.0	6.71	18	25	0.3	1.5	< 0.2	200	< 0.5	not existed	not existed													
42	1		Ehangweni	Borehole	clear	23.6	236.0	6.56	25	20	0	1.5	0.2	300	< 0.5	not existed	not existed	CSC												
43	1		Ehangweni Distance Sch.	Borehole	clear	26.1	165.7	6.60	5	15	0.3	< 1	0.8	200	< 0.5	slightly existed	existed	JT												
44	2		Miezi Mithi	Borehole	clear	26.9	309.0	6.78	20	25	0.6	< 1	0.3	300	< 0.5	not existed	slightly existed	tt 81												
45	1		Etebweni Sch.	Borehole	clear	25.1	134.2	5.89	5	30	0.2	< 1	1.5	< 200	< 0.5	not existed	existed	JT 195												
46	2	M MBELEKA	Mama Sch.	Protected Dug Well	muddy	22.0	57.2	4.00	0	20	0	< 1	0.5	600	< 0.5	existed	not existed													
47	2		Etebweni Disp.	Borehole	clear	28.0	866.0	5.85	50	90	0.2	8	3	300	< 0.5	slightly existed	not existed	IR 84												
48	1		Mpanjavisoti	Borehole	clear	26.6	107.8	6.38	15	10	0.2	2	1	300	< 0.5	existed	not existed	tt 12												
49	2		Mjinge	Borehole	clear	27.8	455.0	6.53	50	30	0.1	5	0.8	300	< 0.5	not existed	existed	GX 153												
50	2		Ehangweni	Borehole	clear	26.3	694.0	6.93	50	65	0	1.5	< 0.2	< 200	< 0.5	not existed	not existed	tt 27												
Proposed Standard in Malawi														750	100	3.0	800	0.5												

A - G(4) Results of Water Quality Analysis

No	Zone	T. A.	Village Name	Water Source	Turbidity	Temperature (°C)	Electric Conductivity (µS/cm)	pH	Total Hardness	Cl <sup>-2</sup> (ppm)	NO <sub>3</sub> (ppm)	Fe (ppm)	SO <sub>4</sub> <sup>-2</sup> (ppm)	Mn (ppm)	Bacteria	Coliform Group	Remarks
51	1	M'MBELWA	Peter Mdarandaba	Borehole	clear	24.6	170.0	6.40	0	15	< 1	6	400	< 0.5	not existed	not existed	PM 302
52	1		Munyehle Chipeta	Borehole	clear	25.4	81.4	5.95	5	10	< 1	1	300	< 0.5	not existed	not existed	PM 535
53	2		Emathuzini	Borehole	clear	26.0	152.7	6.03	20	20	5	< 0.2	300	< 0.5	not existed	not existed	CCM 8
54	2	CHINDI	Kamitoteka Sch.	Borehole	clear	25.5	510.0	6.98	35	20	< 1	< 0.2	300	< 0.5	slightly existed	not existed	H 29
55	2		Chizungu Sch.	Borehole	clear	29.5	126.6	5.82	5	20	< 1	2.5	300	< 0.5	existed	not existed	Q 137
56	3		Makngazi Sch.	Borehole	clear	24.9	404.0	7.01	20	30	< 1	3	300	< 0.5	not existed	not existed	RK 192
57	3		Kawji Sch.	Borehole	clear	26.2	68.6	6.03	0	10	0.1	< 0.2	300	< 0.5	slightly existed	not existed	CCM 7
58	3		Kanyeru Chadawa	Borehole	clear	25.1	600.0	6.87	100	50	< 1	0.2	300	< 0.5	not existed	not existed	PC 78
59	2		Bulala	Borehole	clear	27.5	207.0	6.12	20	25	7	0.5	300	< 0.5	existed	slightly existed	PM 122
60	3		Lwanthozzi Sch.	Borehole	clear	28.0	154.0	6.95	6	25	< 1	4	300	< 0.5	not existed	existed	RK 18
61	3		Mzalangwe ADMARC	Borehole	clear	26.5	35.0	7.00	50	30	0.1	< 0.2	300	< 0.5	not existed	not existed	PM 244
62	3		Nthumba ADMARC	Borehole	clear	25.2	860.0	7.36	50	130	< 1	1	200	< 0.5	not existed	not existed	CC 172
63	3		Chamungwa	Borehole	clear	26.9	972.0	6.83	30	45	0.3	0.3	200	< 0.5	existed	existed	IR 114
64	3		Ntende Sch.	Protected Dug Well	muddy	26.7	600.0	6.02	0	20	< 1	0.2	300	< 0.5	not existed	existed	
65	3		Nkhweta	Borehole	clear	28.5	520.0	6.50	80	100	0	0.5	< 200	< 0.5	existed	existed	PP 52
66	3		Kanando Sch.	Borehole	clear	26.0	1,800.0	6.71	200	400	1	1	< 200	< 0.5	existed	existed	PM 341
67	1	KAMPINDO SIBANDE	Eswarjini	Borehole	clear	27.3	238.0	6.98	8	20	2	< 0.2	300	< 0.5	not existed	not existed	FM 20
68	3	MTWALO II	Chambaya Gondwe I	Borehole	slightly muddy	25.2	380.0	6.98	20	20	< 1	0.2	200	< 0.5	not existed	slightly existed	nc number
69	3	MPIHEREMBE	Mwamba Jere	Borehole	clear	26.0	1,600.0	7.12	50	375	0	< 0.2	200	< 0.5	slightly existed	slightly existed	X 163
70	3		Simon Jere	Borehole	clear	28.1	3,110.0	7.22	150	255	0	0.5	< 200	< 0.5			PM 542
Proposed Standard in Malawi																	
										100	2.0	800	0.5				





## **Appendix 7 References**



## APPENDIX 7 References

1. Statement of Development Policies (1987-1996) 1987 O P C
2. The Public Sector Investment Programme 1996/97 1996 E P & D  
Financial Year
3. Mzimba District Physical Development Plan JUN. 1987 O P C / UNDP
4. The International Drinking Water Supply and Sanitation Decade Directory (2nd Edition) 1981 UNDP
5. National Water Resources Master Plan 1986 UNDP  
(Department of Water)
6. Water Services Sector Study NOV. 1994 Ministry of Irrigation and  
• Main Report • Summary Report • Annexes Water Development
7. National Water Development Project JUN. 1995 The World Bank  
(Staff Appraisal Report)
8. Manual for Integrated Project for Rural MALAWI 1982 UNDP  
Groundwater Supplies
9. Development Operation and Maintenance of 1986 Department of Water)  
Low-cost Rural Water Supplies in Malawi
10. The Afridev Hand Pump Designed for 1987 The World Bank  
Community Management
11. PEPALA YA YAKONZADWA KA PAMPU YA AFRIDEV SCF(UK) & UNICEF/MOIWD
12. Maintenance Card for the Afridev Handpump 1987 Ministry of Irrigation and  
Water Development (MOIWD)
13. Community Handbook on Water and Sanitation C B M UNIT
14. Manual for Trainer's Training MO I W D
15. Syllabus For Training Borehole and MO I W D  
Caretaker Committees (Revised Version)

16.	Draft Training Programme for Borehole and Caretaker Committee		CBM UNIT
17.	Evaluation of the Mchinji Water Project (Draft)		Save the Children Fund(UK), Malawi
18.	Intruduction to CBM		Department of Water
19.	Progress Report (1st Apr. - 30th Sep. 1993) on Operation and Maintenance and Monitoring of the Karonga VLOM		Department of Water (North)
20.	Monthly Report on Borehole Operation and Maintenance and Monitoring and Evaluation Activities (Oct. 1992) (Nov. 1992) (Dec. 1992 & Jan. 1993) (Mar. 1993)		Department of Water (North)
21.	Report on Pump Committee and Pump Attendants Training Apr.-Sep. 1992, Karonga		Department of Water (North)
22.	Malawi Population and Housing Census 1987 Preriminary Report	DEC. 1987	National Statistical Office
23.	Malawi Population and Housing Census 1987 Summary of Final Results Volume I	JUL. 1991	National Statistical Office
24.	Malawi Population and Housing Census 1987 Population at Village/place Level <div style="margin-left: 40px;"> <span style="font-size: 2em;">{</span> <span style="display: inline-block; vertical-align: middle;"> T. A. M BELWA, T. A. MTWALO,  S. T. A. KAMPINGO SIBANDE, EUTHINI,  S. T. A. MZIKUBOLA, T. A. MPHEREMBE,  T. A. MZUKUZUKU </span> <span style="font-size: 2em;">}</span> </div>	1995	National Statistical Office
25.	Economic Report 1996	1989	E P & D
26.	Meteorological Data (Mzimba Boma)		Meteorological Department
27.	Climatological Tables	JUL. 1982	Meteorological Department
28.	Mean Annual Rainfall	1983	Meteorological Department
29.	The Geology of Mzimba Area	1973	Geological Survey Department
30.	The Geology of South Viphya Area	1975	Geological Survey Department

- |     |   |             |  |
|-----|---|-------------|--|
| 31. | Hydrogeological Reconnaissance Map<br>(Nkhotakota & Mzuzu) Scale 1:250,000  | 1987        | Department of Surveys  |
| 32. | Groundwater Occurrence in the Weathered<br>Basement Complex Rocks of Dowa West, Malawi  | SEP. 1984   | ROBINSON DAIMONI KAFUNDU   |
| 33. | Groundwater Resources of Malawi   | MAR. 1983   | Department of Lands,<br>Valuation and Water                          |
| 34. | Borehole Data in Mzimba West  |             | Department of Water  |
| 35. | Boreholes Rehabilitation under Contract<br>27/91 in the Northern Region (MZIMBA) [ DRAFT ]  |             |  |
| 36. | The National Atlas of Malawi Scale 1:250,000  |             | Department of Surveys  |
| 37. | Map of Nkhotakota and Muzuzu Scale 1:250,000  | 1984        | Department of Surveys  |
| 38. | Distribution Map of Houses in Mzimba<br>District (DWG No.229, 231~235, 237~240)<br>Scale 1:50,000   | 1987        | National Statistical Office  |
| 39. | Map of Mzimba District<br>Sheet No. 1133 : A <sub>2</sub> , A <sub>3</sub> , A <sub>4</sub> , B <sub>1</sub> , B <sub>3</sub> ,<br>C <sub>1</sub> , C <sub>2</sub> , C <sub>4</sub> , D <sub>1</sub> , D <sub>3</sub><br>No. 1233 : A <sub>2</sub> , A <sub>4</sub> , B <sub>1</sub> , B <sub>3</sub> | 1980 - 1985 | Department of Surveys  |
| 40. | Mzuzu Agricultural Development Division<br>Basic Data Bank  |             | Muzuzu A. D. D.  |
| 41. | Basic Health Statistics 1994 Report 18<br>1993 Report 17<br>1992 Report 16  |             | Community Health Sciences Unit,<br>Ministry of Health and Population |
| 42. | The Story of Medicine and Disease in Malawi   | OCT. 1992   | MICHAEL and ELSPETH KING   |











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