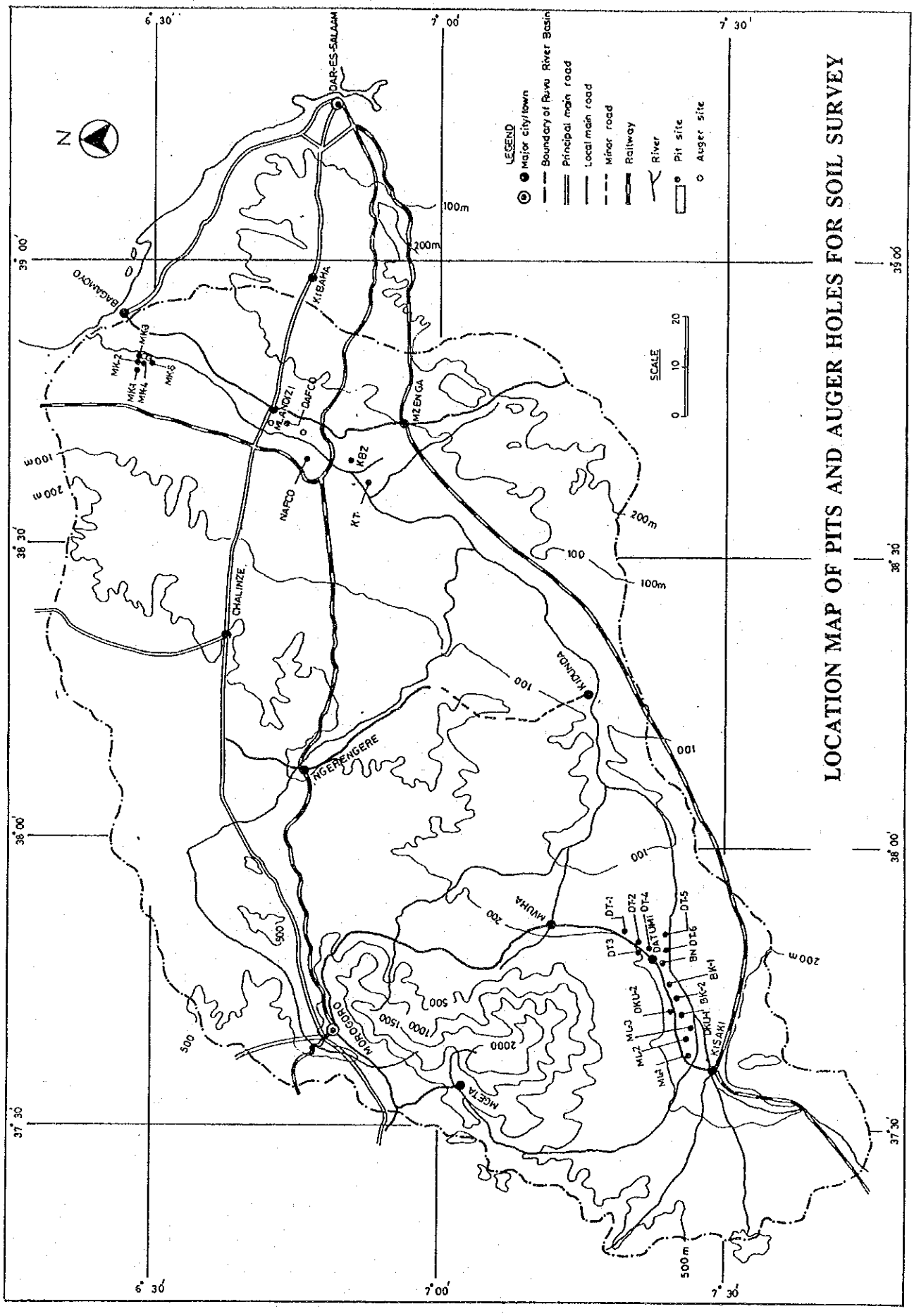
DATA ON SOIL ANALYSIS

1. SUMMARY OF SOIL ANALYSIS


LOCATION MAP OF PITS AND AUGER HOLES FOR SOIL SURVEY
LEGEND
Major city/town
Boundary of Ruvu River Basin
Principal main road
Local main road
Minor road
Railway
River
Pit site
Auger site
SCALE
0 10 20
N
DAR-ES-SALAAM
BAGAMOYO
KIBAHA
MZENGA
MAANDZI
DAFCO
NAPCO
KBZ
KT
CHALINZE
NGERENGERE
MKUNDA
MWUHA
MOROGORO
MGETA
KISARI
MK1
MK2
MK3
MK4
MK5
DT1
DT2
DT3
DT4
DT5
DT6
BN DT6
BK1
BK2
OKU2
MU1
MU2
MU3
100m
200m
500m
6° 30'
7° 00'
7° 30'
36° 30'
37° 00'
37° 30'
38° 00'
38° 30'
39° 00'

Analytical data for the soil samples

Location: Makurunge Village, Bagamoyo District
Pit No. MK1

Soil depth (cm)		0-14	14-35	36-57	57-94	94-125
Texture:	Clay(%)	18	31	39	39	45
	Silt(%)	14	13	11	15	21
	Sand(%)	68	56	50	47	34
Textural class*		SL	SCL	SC	SC	C
pH 1:2.5 H_2O		7.4	7.2	6.3	6.9	6.7
Carbonates ($CaCO_3$) (%)		trace	13.1	3.0	4.0	4.4
Electr. Conduct. (mmho/cm)		0.05	0.06	0.06	0.04	0.05
Total N (%)		0.09	0.05	0.03	0.03	0.04
Available P (mg/kg)**		1.0	1.50	3.8	3.0	3.0
CEC-NH_4OAc (me/100g)		13.9	19.2	35.6	19.3	43.8
Exch. Ca^{2+} (me/100g)		8.94	10.84	16.57	12.77	24.94
Exch. Mg^{2+} (me/100g)		3.83	5.60	9.60	4.04	10.50
Exch. K^+ (me/100g0		0.34	0.56	3.58	1.04	5.15
Exch. Na^+ (me/100g0		0.29	0.17	0.10	0.13	0.10
S.A.R.		2.5	1.6	1.0	1.4	1.0

* SL = Sandy Loam, SCL = Sandy Clay Loam, SC = Sandy Clay C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Makurunge Village, Bagamoyo District
Pit No. MK2

Soil depth (cm)		0-10	10-30	30-60	60-100	100+
Texture:	Clay(%)	40	59	59	61	59
	Silt(%)	14	15	15	17	12
	Sand(%)	46	26	26	22	29
Textural class*		SC	C	C	C	C
pH 1:2.5 H_2O		6.6	6.3	7.7	7.9	6.5
Carbonates ($CaCO_3$) (%)		2.0	2.2	5.1	5.0	1.4
Electr. Conduct. (mmho/cm)		0.06	0.14	0.28	1.21	1.52
Total N (%)		0.08	0.05	0.03	0.01	0.05
Available P (mg/kg)**		1.0	1.0	3.7	2.5	2.2
CEC-NH_4OAc (me/100g)		20.0	25.6	32.7	40.1	39.8
Exch. Ca^{2+} (me/100g)		6.07	12.63	12.95	21.98	15.84
Exch. Mg^{2+} (me/100g)		4.84	0.38	14.55	7.96	9.96
Exch. K^+ (me/100g0		0.92	4.19	3.50	8.54	4.37
Exch. Na^+ (me/100g0		0.23	0.32	0.18	0.15	0.13
S.A.R.		2.4	2.5	1.25	1.2	1.2

* SC = Sandy Clay, C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Makurunge Village, Village Bagamoyo District
Pit No. MK3

Soil depth (cm)		0-15	15-60	60-75	75-110	110-125	125-145	145+
Texture:	Clay(%)	77	87	64	n.c.	n.c.	n.c.	n.c.***
	Silt(%)	13	5	13	n.c.	n.c.	n.c.	n.c.
	Sand(%)	10	8	10	n.c.	n.c.	n.c.	n.c.
Textural class		C	C	C	n.c.	n.c.	n.c.	n.c.
pH 1:2.5 H_2O		7.2	5.9	5.4	4.4	4.8	4.4	5.8
Carbonates ($CaCO_3$) (%)		0.0	0.0	0.0	n.c.	n.c.	n.c.	n.c.
Electr. Conduct. (mmho/cm)		0.08	0.06	1.56	4.27	4.30	4.47	3.35
Total N (%)		0.09	0.06	0.04	0.02	0.05	0.02	0.05
Available P (mg/kg)**		1.5	1.5	2.5	n.c.	n.c.	n.c.	n.c.
CEC-NH_4OAc (me/100g)		32.1	48.2	35.0	n.c.	n.c.	n.c.	n.c.
Exch. Ca^{2+} (me/100g)		14.68	12.15	10.8	n.c.	n.c.	n.c.	n.c.
Exch. Mg^{2+} (me/100g)		15.20	11.10	10.10	n.c.	n.c.	n.c.	n.c.
Exch. K^+ (me/100g0		0.01	3.50	6.28	n.c.	n.c.	n.c.	n.c.
[illegible]		0.56	0.51	0.56	n.c.	n.c.	n.c.	n.c.
S.A.R.		n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.

* C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.
*** n.c. = not conclusive - soil high in gypsum content.

Analytical data for the soil samples

Location: Makurunge Village, Bagamoyo District
Pit No. MK4

Soil depth (cm)		0-10	10-37	37-65	65-95	95-105
Texture:	Clay(%)	63	66	73	75	71
	Silt(%)	19	10	13	10	11
	Sand(%)	18	24	14	15	18
Textural class*		C	C	C	C	C
pH 1:2.5 H_2O		6.6	6.2	6.3	6.5	6.6
Carbonates ($CaCO_3$) (%)		1.2	1.1	1.3	1.7	1.7
Electr. Conduct. (mmho/cm)		0.06	0.06	0.44	0.60	1.11
Total N (%)		0.12	0.02	0.05	0.04	0.04
Available P (mg/kg)**		2.0	0.8	0.0	3.5	2.2
CEC-NH_4OAc (me/100g)		34.2	49.2	46.7	45.9	48.0
Exch. Ca^{2+} (me/100g)		14.55	17.45	17.46	17.09	16.66
Exch. Mg^{2+} (me/100g)		13.65	23.45	20.10	22.05	23.65
Exch. K^+ (me/100g0		1.17	3.58	1.29	1.84	6.02
Exch. Na^+ (me/100g0		0.72	0.54	0.44	0.35	0.48
S.A.R.		2.6	1.9	1.8	1.5	1.7

* C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Makurunge Village, Bagamoyo District
Pit No. MK5

Soil depth (cm)		0-10	10-30	30-70	70-100	100-140
Texture:	Clay(%)	59	77	81	81	79
	Silt(%)	20	11	10	10	15
	Sand(%)	21	12	9	9	6
Textural class*		C	C	C	C	C
pH 1:2.5 H_2O		6.5	6.8	7.2	6.3	6.0
Carbonates ($CaCO_3$) (%)		11.5	0.2	0.5	5.3	0.3
Electr. Conduct. (mmho/cm)		0.05	0.05	0.28	1.13	2.09
Total N (%)		0.13	0.05	0.12	0.03	0.02
Available P (mg/kg)**		2.6	1.2	1.0	2.0	2.7
CEC-NH_4OAc (me/100g)		29.0	35.0	44.1	55.6	48.2
Exch. Ca^{2+} (me/100g)		16.07	17.10	18.27	19.52	28.29
Exch. Mg^{2+} (me/100g)		7.08	14.90	20.65	22.50	7.30
Exch. K^+ (me/100g0		0.41	1.46	3.41	6.54	7.59
Exch. Na^+ (me/100g0		0.64	0.37	0.38	0.50	0.43
S.A.R.		2.7	1.7	1.6	1.7	1.7

* C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Kitomondo Village, Kibaha District
Pit No. KT

Soil depth (cm)		0-20	20-35	35-68	68-110
Texture:	Clay(%)	67	78	55	75
	Silt(%)	33	20	17	15
	Sand(%)	10	12	10	10
Textural class*		C	C	C	C
pH 1:2.5 H_2O		8.0	6.7	6.0	6.8
Carbonates ($CaCO_3$) (%)		5.6	2.2	2.2	10.7
Electr. Conduct. (mmho/cm)		0.10	0.08	0.06	0.17
Total N (%)		0.10	0.06	0.03	0.03
Available P (mg/kg)**		6.1	2.5	2.2	2.7
CEC-NH_4OAc (me/100g)		43.8	36.9	51.6	24.0
Exch. Ca^{2+} (me/100g)		26.64	18.39	22.81	8.54
Exch. Mg^{2+} (me/100g)		14.65	8.88	19.30	4.85
Exch. K^+ (me/100g0		0.90	0.66	1.24	0.14
Exch. Na^+ (me/100g0		0.67	0.36	0.36	0.47
S.A.R.		2.0	1.9	1.4	3.4

* C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Kimboza Village, Kibaha District
Pit No. KB2

Soil depth (cm)		0-20	20-60	60-110
Texture:	Clay(%)	35	43	47
	Silt(%)	21	17	15
	Sand(%)	44	40	38
Textural class*		CL	C	C
pH 1:2.5 H_2O		7.8	7.6	8.2
Carbonates ($CaCO_3$) (%)		0.75	0.5	0.6
Electr. Conduct. (mmho/cm)		0.06	0.04	0.21
Total N (%)		0.09	0.04	0.03
Available P (mg/kg)**		0.5	3.0	1.0
CEC-NH_4OAc (me/100g)		25.9	32.5	29.0
Exch. Ca^{2+} (me/100g)		13.32	16.18	16.85
Exch. Mg^{2+} (me/100g)		9.54	12.70	7.92
Exch. K^+ (me/100g0		0.58	1.18	2.80
Exch. Na^+ (me/100g0		0.15	0.13	0.10
S.A.R.		1.3	1.2	1.1

* CL = Clay Loam C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: NAFCO-Ruvu, Kibaha District
Pit No. NAFCO-2

Soil depth (cm)	0-15	15-30	30-50	50-78	78-105	105-140
Texture: Clay(%)	35	47	51	49	51	55
Silt(%)	31	13	15	19	17	19
Sand(%)	34	40	34	32	32	26
Textural class*	CL	C	C	C	C	C
pH 1:2.5 H_2O	6.3	7.5	6.5	6.2	7.8	7.3
Carbonates ($CaCO_3$) (%)	0.7	12.6	2.5	2.6	2.7	7.3
Electr. Conduct. (mmho/cm)	0.09	0.06	0.26	0.05	0.86	1.07
Total N (%)	0.08	0.06	0.12	0.04	0.02	0.02
Available P (mg/kg)**	2.5	0.2	2.7	2.0	4.0	1.7
CEC-NH_4OAc (me/100g)	34.0	25.0	34.0	36.7	39.7	46.7
Exch. Ca^{2+} (me/100g)	19.01	12.35	14.16	13.98	18.70	20.20
Exch. Mg^{2+} (me/100g)	7.75	8.80	11.30	11.75	13.70	17.25
Exch. K^{+} (me/100g0	1.00	1.15	1.55	2.80	4.54	6.90
Exch. Na^{+} (me/100g0	0.26	0.26	0.22	0.13	0.33	0.21
S.A.R.	1.6	1.7	1.9	1.2	1.6	1.25

* CL = Clay Loam C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: DAFCO Ruvu, Kibaha District
Pit No. DAFCO-R

Soil depth (cm)	0-10	10-35	35-85	85-120
Texture: Clay(%)	39	65	67	69
Silt(%)	16	11	8	5
Sand(%)	45	24	25	26
Textural class*	SC	C	C	C
pH 1:2.5 H_2O	6.5	5.6	6.5	6.6
Carbonates ($CaCO_3$) (%)	0.2	0.1	0.9	0.1
Electr. Conduct. (mmho/cm)	0.09	0.82	1.89	3.04
Total N (%)	0.08	0.04	0.03	0.01
Available P (mg/kg)**	1.2	3.2	2.5	1.5
CEC-NH_4OAc (me/100g)	16.0	29.8	41.2	58.1
Exch. Ca^{2+} (me/100g)	3.22	10.64	17.04	31.84
Exch. Mg^{2+} (me/100g)	4.76	8.52	7.68	20.45
Exch. K^+ (me/100g0	0.82	1.15	6.80	3.15
Exch. Na^+ (me/100g0	0.36	0.14	0.13	0.19
S.A.R.	4.1	1.3	1.2	1.0

* C = Clay SC = Sandy Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Milengwelengwe Village, Morogoro Rural District
Pit No. ML1

Soil depth (cm)		0-16	16-30	30-55	55-80	80-95	95-115	115-140
Texture:	Clay(%)	19	17	14	10	7	4	3
	Silt(%)	21	23	10	8	5	1	1
	Sand(%)	60	60	76	82	88	95	96
Textural class*		SL	SL	SL	LS	S	S	S
pH 1:2.5 H_2O		7.5	6.6	6.4	6.6	8.4	8.2	7.2
Carbonates ($CaCO_3$) (%)		0.5	0.6	0.0	0.0	0.6	0.0	0.0
Electr. Conduct. (mmho/cm)		0.07	0.08	0.05	0.03	0.02	0.03	0.02
Total N (%)		0.09	0.08	0.05	0.02	0.01	0.01	0.01
Available P (mg/kg)**		14.5	15.2	11.5	7.0	6.0	6.0	1.2
CEC-NH_4OAc (me/100g)		19.5	15.2	12.5	10.8	3.0	2.8	5.2
Exch. Ca^{2+} (me/100g)		14.47	11.47	8.32	4.60	1.71	1.50	1.16
Exch. Mg^{2+} (me/100g)		2.57	1.89	1.73	1.05	0.63	0.44	3.45
Exch. K^+ (me/100g0		0.52	0.03	0.33	0.20	0.09	0.03	0.11
Exch. Na^+ (me/100g0		0.82	0.42	0.40	0.47	0.24	0.19	0.13
S.A.R.		4.8	3.0	3.7	4.3	8.6	8.2	1.9

* SL = Sandy Loam S = Sand LS = Loamy Sandy

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Milengwelengwe Village, Morogoro Rural District
Pit No. ML2

Soil depth (cm)		0-10	10-17	17-36	36-47	47-65	65-105	105-112	112-120
Texture:	Clay(%)	43	19	27	31	25	4	13	3
	Silt(%)	17	45	19	19	15	6	7	2
	Sand(%)	40	36	54	50	60	90	80	95
Textural class*		C	L	SCL	SCL	SCL	S	SL	S
pH 1:2.5 H_2O		6.5	7.2	6.5	6.8	7.5	7.7	6.8	7.9
Carbonates ($CaCO_3$) (%)		0.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Electr. Conduct. (mmho/cm)		0.07	0.05	0.04	0.03	0.02	0.02	0.02	0.02
Total N (%)		0.16	0.09	0.08	0.06	0.04	0.01	0.01	0.01
Available P (mg/kg)**		14.0	21.0	13.0	11.5	6.7	0.5	3.5	2.0
CEC-NH_4OAc (me/100g)		28.8	21.3	24.3	21.3	15.0	4.1	14.1	4.0
Exch. Ca^{2+} (me/100g)		16.41	13.81	13.70	12.94	9.14	2.21	4.41	2.55
Exch. Mg^{2+} (me/100g)		5.70	4.96	5.20	4.80	3.97	0.87	1.87	1.15
Exch. K^+ (me/100g0		0.99	0.52	0.28	0.20	0.17	0.10	0.11	0.15
Exch. Na^+ (me/100g0		2.27	1.00	0.65	0.41	0.26	0.07	0.18	0.04
S.A.R.		8.7	4.6	3.3	2.5	2.3	2.5	2.8	1.7

* C = Clay L= Loam SCL = Sandy Clay Loam SL = Sandy Loam S = Sand

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Milengwelengwe Village, Morogoro Rural District
Pit No. ML3

Soil depth (cm)		0-9	9-25	25-52	52-65	65-80	80-110	110-145
Texture:	Clay(%)	25	30	33	38	24	29	38
	Silt(%)	33	26	37	12	8	33	28
	Sand(%)	42	44	30	50	68	38	34
Textural class*		L	CL	CL	SC	SCL	CL	CL
pH 1:2.5 H_2O		6.3	6.1	6.6	6.9	6.2	6.9	6.6
Carbonates ($CaCO_3$) (%)		2.2	1.2	3.0	2.6	2.5	3.0	2.6
Electr. Conduct. (mmho/cm)		0.04	0.03	0.03	0.02	0.03	0.07	0.02
Total N (%)		0.13	0.09	0.05	0.05	0.04	0.03	0.01
Available P (mg/kg)**		29.0	25.0	10.0	9.0	8.0	5.2	3.7
CEC-NH_4OAc (me/100g)		29.3	29.3	23.2	15.2	14.7	19.0	25.6
Exch. Ca^{2+} (me/100g)		16.71	13.31	13.78	9.13	8.95	12.55	15.54
Exch. Mg^{2+} (me/100g)		5.10	6.04	3.80	2.26	3.50	3.51	6.70
Exch. K^+ (me/100g0		0.67	0.07	0.15	0.39	0.19	0.54	1.32
Exch. Na^+ (me/100g0		1.66	0.44	0.14	0.89	0.11	0.15	0.10
S.A.R.		6.5	2.5	1.4	6.7	1.5	1.5	1.1

* L = Loam Cl = Clay Loam SC = Sandy Clay SCL = Sandy Clay Loam

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples (13/23)

Location: Gombo Village, Morogoro Rural District
Pit No. DT1

Soil depth (cm)		0-15	15-45	45-100	100-115	115-155
Texture:	Clay(%)	23	25	34	31	37
	Silt(%)	15	17	14	9	11
	Sand(%)	62	58	52	60	52
Textural class*		SCL	SCL	SCL	SCL	SC
pH 1:2.5 H_2O		7.6	6.3	6.2	6.2	6.8
Carbonates ($CaCO_3$) (%)		1.2	1.0	2.3	1.2	1.0
Electr. Conduct. (mmho/cm)		0.04	0.02	0.03	0.02	0.06
Total N (%)		0.70	0.05	0.04	0.05	0.03
Available P (mg/kg)**		1.5	0.8	5.0	4.8	4.5
CEC-NH_4OAc (me/100g)		14.5	15.2	13.2	13.2	16.5
Exch. Ca^{2+} (me/100g)		8.98	6.97	6.55	6.51	8.40
Exch. Mg^{2+} (me/100g)		2.79	3.51	1.67	3.91	5.69
Exch. K^+ (me/100g0		0.57	0.35	0.01	0.22	0.23
Exch. Na^+ (me/100g0		1.71	0.70	0.38	0.31	0.29
S.A.R.		12.1	5.8	4.2	2.9	2.5

* SCL = Sandy Clay Loam SC = Sandy Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Gombo Village, Morogoro Rural District
Pit No. DT2

Soil depth (cm)		0-20	20-35
Texture:	Clay(%)	16	16
	Silt(%)	12	14
	Sand(%)	72	70
Textural class*		SL	SL
pH 1:2.5 H_2O		6.9	6.1
Carbonates ($CaCO_3$) (%)		11.7	12.0
Electr. Conduct. (mmho/cm)		0.02	0.04
Total N (%)		0.04	0.06
Available P (mg/kg)**		4.0	2.1
CEC-NH_4OAc (me/100g)		10.4	12.5
Exch. Ca^{2+} (me/100g)		6.80	5.66
Exch. Mg^{2+} (me/100g)		2.66	1.39
Exch. K^+ (me/100g0		0.03	0.34
Exch. Na^+ (me/100g0		0.18	0.96
S.A.R.		2.3	2.6

* SL = Sandy Loam

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Gombo Village, Morogoro Rural District
Pit No. DT3

Soil depth (cm)		0-20	20-57	57-94
Texture:	Clay(%)	23	39	39
	Silt(%)	11	11	15
	Sand(%)	66	50	47
Textural class*		SCL	SC	SC
pH 1:2.5 H_2O		6.2	6.3	6.9
Carbonates ($CaCO_3$) (%)		0.0	3.0	4.0
Electr. Conduct. (mmho/cm)		0.04	0.06	0.04
Total N (%)		0.08	0.03	0.03
Available P (mg/kg)**		5.0	3.8	3.0
CEC-NH_4OAc (me/100g)		13.0	35.6	19.3
Exch. Ca^{2+} (me/100g)		7.7	16.57	12.77
Exch. Mg^{2+} (me/100g)		2.25	9.60	4.04
Exch. K^+ (me/100g0		0.15	3.58	1.04
Exch. Na^+ (me/100g0		1.46	0.10	0.13
S.A.R.		12.3	2.0	1.4

* SCL = Sandy Clay Loam

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Gombo Village, Morogoro Rural District
Pit No. DT4

Soil depth (cm)		0-20	20-53	53-80
Texture:	Clay(%)	17	39	12
	Silt(%)	5	19	12
	Sand(%)	78	52	76
Textural class*		SL	SC	SL
pH 1:2.5 H_2O		6.3	6.8	6.2
Carbonates ($CaCO_3$) (%)		0.0	0.0	0.2
Electr. Conduct. (mmho/cm)		0.04	0.02	0.02
Total N (%)		0.10	0.05	0.02
Available P (mg/kg)**		8.2	2.8	2.5
CEC-NH_4OAc (me/100g)		11.5	12.5	9.4
Exch. Ca^{2+} (me/100g)		5.83	6.17	5.76
Exch. Mg^{2+} (me/100g)		2.35	2.91	2.49
Exch. K^+ (me/100g0		0.33	0.12	0.12
Exch. Na^+ (me/100g0		0.96	1.41	0.09
S.A.R.		9.6	13.5	1.7

* SL = Sandy Loam SC = Sandy Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Mbwade Village, Morogoro Rural District
Pit No. DT5

Soil depth (cm)		0-17	17-50	50-85	85-112	112-150
Texture:	Clay(%)	35	45	19	34	33
	Silt(%)	34	31	13	28	29
	Sand(%)	31	24	68	38	38
Textural class*		CL	C	SL	CL	CL
pH 1:2.5 H_2O		7.2	6.8	7.7	6.9	7.2
Carbonates ($CaCO_3$) (%)		trace	trace	trace	3.2	5.4
Electr. Conduct. (mmho/cm)		0.08	0.07	0.02	0.02	0.03
Total N (%)		0.14	0.07	0.02	0.05	0.04
Available P (mg/kg)**		9.0	20.5	4.0	2.0	3.2
CEC-NH_4OAc (me/100g)		28.4	29.5	10.5	25.4	23.7
Exch. Ca^{2+} (me/100g)		19.37	16.39	6.15	16.02	15.17
Exch. Mg^{2+} (me/100g)		3.68	6.68	4.08	8.10	6.05
Exch. K^+ (me/100g0		0.66	0.24	0.05	0.12	0.28
Exch. Na^+ (me/100g0		2.73	0.44	0.13	0.16	0.22
S.A.R.		10.0	2.2	0.9	1.4	1.6

* CL = Clay Loam C = Clay SL = Sandy Loam

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Mbwade Village, Morogoro Rural District
Pit No. DT6

Soil depth (cm)		0-10	10-30	30-50	50-70
Texture:	Clay(%)	33	38	36	37
	Silt(%)	23	18	16	13
	Sand(%)	44	44	48	50
Textural class*		CL	CL	SC	SC
pH 1:2.5 H_2O		6.0	6.5	5.9	6.3
Carbonates ($CaCO_3$) (%)		2.5	2.6	2.0	11.0
Electr. Conduct. (mmho/cm)		0.04	0.03	0.03	0.04
Total N (%)		0.18	0.02	0.04	0.03
Available P (mg/kg)**		18.2	5.5	2.5	1.5
CEC-NH_4OAc (me/100g)		29.0	29.5	28.0	23.0
Exch. Ca^{2+} (me/100g)		14.76	16.25	1431	13.21
Exch. Mg^{2+} (me/100g)		8.16	8.95	7.20	3.66
Exch. K^+ (me/100g0		0.58	0.14	0.45	0.30
Exch. Na^+ (me/100g0		0.84	0.21	0.18	0.13
S.A.R.		3.5	1.4	1.4	1.4

* CL = Clay Loam SC = Sandy Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples (19/23)

Location: Bonye Village, Morogoro Rural District
Pit No. BN

Soil depth (cm)		0-15	15-35	35-55	55-80	80-130	130-138	138-145	145-155
Texture:	Clay(%)	15	22	19	13	2	7	23	37
	Silt(%)	20	22	16	11	2	5	18	13
	Sand(%)	65	56	65	76	96	88	59	50
Textural class*		SL	SCL	SL	SL	S	S	SCL	SC
pH 1:2.5 H_2O		6.3	7.2	7.3	7.3	7.3	7.3	7.2	7.7
Carbonates ($CaCO_3$) (%)		0.2	0.2	1.1	1.0	0.2	0.7	0.4	0.0
Electr. Conduct. (mmho/cm)		0.05	0.04	0.02	0.02	0.01	0.01	0.02	0.02
Total N (%)		0.11	0.19	0.05	0.02	0.01	0.03	0.04	0.00
Available P (mg/kg)**		14.5	19.0	10.5	6.5	4.0	2.8	4.5	2.7
CEC-NH_4OAc (me/100g)		18.6	20.1	14.2	12.3	3.2	5.6	23.4	5.6
Exch. Ca^{2+} (me/100g)		11.04	13.40	9.74	7.35	1.71	3.77	14.66	3.83
Exch. Mg^{2+} (me/100g)		3.86	4.48	3.77	4.12	0.68	1.58	6.46	1.48
Exch. K^+ (me/100g0		0.58	0.16	0.13	0.18	0.42	0.15	0.19	0.08
Exch. Na^+ (me/100g0		0.15	0.74	0.18	0.17	0.05	0.04	0.10	0.02
S.A.R.		1.6	3.8	1.6	1.9	2.4	1.4	1.2	1.8

* SL = Sandy Loam SCL = Sandy Clay Loam, S = Sand SC = Sandy Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Bwakira Chini Village Morogoro Rural District
Pit No. BK1

Soil depth (cm)		0-8	8-20	20-42	42-71	71-90	90-107	107-115	115-130	130-160
Texture:	Clay(%)	15	19	21	11	17	3	15	7	3
	Silt(%)	17	23	32	8	15	1	19	1	1
	Sand(%)	68	58	57	81	68	96	66	92	96
Textural class*		SL	SL	SCL	LS	SL	S	SL	S	S
pH 1:2.5 H_2O		6.5	6.4	7.4	6.9	7.1	8.0	6.8	6.9	7.6
Carbonates ($CaCO_3$) (%)		0.3	1.5	0.0	0.1	0.1	0.1	0.2	0.5	0.2
Electr. Conduct. (mmho/cm)		0.06	0.03	0.02	0.02	0.02	0.03	0.04	0.03	0.03
Total N (%)		0.12	0.09	0.06	0.02	0.05	0.01	0.04	0.01	0.01
Available P (mg/kg)**		2.4	12.0	5.5	2.5	4.0	4.5	3.0	4.5	2.5
CEC-NH_4OAc (me/100g)		16.0	19.2	18.3	10.4	17.6	2.3	16.1	5.2	2.2
Exch. Ca^{2+} (me/100g)		9.75	12.40	12.25	6.88	11.87	1.34	8.91	2.52	1.07
Exch. Mg^{2+} (me/100g)		4.18	3.19	4.46	2.66	4.30	0.72	4.90	1.36	0.74
Exch. K^+ (me/100g0		0.40	0.15	0.12	0.03	0.18	0.10	0.12	0.13	0.15
Exch. Na^+ (me/100g0		0.98	0.41	0.36	0.10	0.12	0.05	0.13	0.11	0.05
S.A.R.		5.9	2.7	2.4	1.6	1.3	2.5	1.5	2.7	2.6

* S = Sand L = Loam C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Bwakira Chini Village, Morogoro Rural District
Pit No. BK2

Soil depth (cm)		8-15	15-35
Texture:	Clay(%)	55	57
	Silt(%)	35	32
	Sand(%)	10	11
Textural class*		C	C
pH 1:2.5 H_2O		6.6	7.4
Carbonates ($CaCO_3$) (%)		0.2	0.6
Electr. Conduct. (mmho/cm)		0.08	0.05
Total N (%)		0.16	0.10
Available P (mg/kg)**		28.0	8.5
CEC-NH_4OAc (me/100g)		44.0	40.0
Exch. Ca^{2+} (me/100g)		22.53	24.13
Exch. Mg^{2+} (me/100g)		15.45	14.20
Exch. K^+ (me/100g0		0.90	0.26
Exch. Na^+ (me/100g0		1.92	0.38
S.A.R.		4.5	1.6

* C = Clay

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples

Location: Dakawa Ukuti Village, Morogoro Rural District
Pit No. DKU1

Soil depth (cm)		0-12	12-25	25-50	50-70	70-90	90-115
Texture:	Clay(%)	33	39	32	28	23	12
	Silt(%)	39	33	34	32	29	20
	Sand(%)	28	28	34	40	48	68
Textural class*		CL	CL	CL	CL	L	SL
pH 1:2.5 H_2O		6.8	6.1	6.9	6.2	6.4	6.7
Carbonates ($CaCO_3$) (%)		1.2	2.7	1.4	1.4	2.1	2.2
Electr. Conduct. (mmho/cm)		0.07	0.03	0.02	0.03	0.03	0.02
Total N (%)		0.03	0.13	0.07	0.05	0.04	0.02
Available P (mg/kg)**		21.0	8.8	6.0	7.0	4.8	6.0
CEC-NH_4OAc (me/100g)		32.0	36.8	26.0	26.0	21.0	13.5
Exch. Ca^{2+} (me/100g)		18.93	18.50	14.73	14.99	11.52	6.33
Exch. Mg^{2+} (me/100g)		8.90	10.75	8.98	6.95	4.22	4.35
Exch. K^+ (me/100g0		0.20	0.10	0.10	0.20	0.16	0.07
Exch. Na^+ (me/100g0		1.82	0.14	0.14	0.18	0.07	0.04
S.A.R.		5.5	0.7	1.2	1.4	1.1	1.1

* CL = Clay Loam, L = Loam, SL = Sandy Loam

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

Analytical data for the soil samples (23/23)

Location: Dakawa Ukuti Village, Morogoro Rural District
Pit No. DKU2

Soil depth (cm)		0-15	15-30	30-55	55-68	68-95	95-140	140-165
Texture:	Clay(%)	19	25	13	19	32	34	21
	Silt(%)	25	39	10	31	34	38	19
	Sand(%)	56	36	77	50	34	28	60
Textural class*		SL	L	SL	L	CL	CL	SCL
pH 1:2.5 H_2O		6.7	6.3	6.8	6.4	6.9	6.8	6.2
Carbonates ($CaCO_3$) (%)		0.3	0.6	0.0	0.0	1.0	0.0	0.7
Electr. Conduct. (mmho/cm)		0.06	0.02	0.02	0.02	0.02	0.02	0.02
Total N (%)		0.11	0.65	0.03	0.04	0.06	0.05	0.04
Available P (mg/kg)**		13.0	7.8	3.5	2.2	5.2	7.8	5.5
CEC-NH_4OAc (me/100g)		22.0	23.0	13.0	18.0	19.0	25.0	23.0
Exch. Ca^{2+} (me/100g)		10.55	13.18	7.01	9.50	13.81	14.31	9.50
Exch. Mg^{2+} (me/100g)		4.95	7.05	4.73	5.15	3.82	8.05	5.30
Exch. K^+ (me/100g0		0.89	0.24	0.16	0.13	0.17	0.32	0.19
Exch. Na^+ (me/100g0		2.38	0.19	0.06	0.06	0.13	0.09	0.06
S.A.R.								

* SL = Sandy Loam, CL = Clay Loam, SCL = Sandy Clay Loam, L = Loam

** Olsen method when soil pH > 7.0 and Bray I method when pH < 7.0.

DATA ON SOIL ANALYSIS

2. SOIL PROFILE DESCRIPTION FORM

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: MK1

Survey area : MAKURUNGE VILLAGE — Mapping Unit :
Region : COAST
District : BAGAMOYO
Location : 1 km from Village Centre and 30 m N of Msata Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nnyiti, Nyumba, Mdamu
Airphoto no :
Date : 7-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Beginning of rainy season
Soil moisture regime :
Soil temperature regime :

Landform : Overflow mantle
Relief intensity : m
Microrelief :
Elevation : m
Macrorelief : nil

Parent material:
Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1
Type of slope : convex
Length of slope(m) : 30
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level: no

Nat. drainage class : well drained
Run off :
Infiltration :
Seepage/spring levels no

FLOODING/PONDING

Frequency : nil times/yr. nil
Duration : days Depth cm
In months:

Erosion : slight water / wind
type : sheet
degree : slight
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	20	Acacia
shrubs	5	
herbs	10	
grasses	65	
bare ground	-	

LAND USE/CROPPING SYSTEM

Open grassland with Scattered trees.

Soil fauna:
Human influences :
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACTERISTICS									
HORIZON	symbol								
	depth (cm)	0-14	14-36	36-57	57-94	94-125+			
	BOUND width	diffuse	Clear	diffuse	clear				
	BOUND topogr.	smooth	smooth	smooth	smooth				
COLOUR	dry								
	moist	10 YR 2/2	10 YR 3/3	2.5 Y 3/1	10 YR 4/1	5Y 4/2			
MOIST. COND.		moist	moist	moist	moist	moist			
MOTTLING	abundance								
	size								
	contrast	nil	nil	nil	nil	nil			
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		Sand Clay Loam	Sand Clay	Sand Clay	Gravelly Sand Clay	Sand Clay			
CONSIST.	dry								
	moist	friable	friable	firm	firm	firm			
	wet	SI Sticky SI Plastic	Sticky Plastic	Sticky Plstic	Sticky SI. Plastic	Sticky Plastic			
STRUCT.	grade	weak	moderate	moderate	weak				
	size	fine	very coarse prismatic	Coarse	Coarse	Massive			
	form	SAB	breaking into Sab	Sab	Sab				
CUTANS.	quantity			patchy	patchy				
	thickness	nil	nil	thin	thin				
	type			clay	Clay				
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity				common	few			
	size				small	small			
	weath	nil	nil	nil	fresh	fresh			
	shape				irregular	iregular			
	nature				gravels	gravels			
CONCRETIONS NODULES	quantity			few	many	few			
	size			small	small	small			
	hardness	nil	nil	hard	soft	soft/hard			
	shape			spherical	irregular	irregular			
	type			Iron/Mn	Lime	Lime			
REACTION HCl.		nil	nil	nil	+	++			
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES					common small soft spherical				
SAMPLE	no.				iron modules				
	depth								
SOIL DEPTH		125 + cm							
REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: MK2

Survey area : MAKURUNGE | Mapping Unit
Region : COAST
District : BAGAMOYO
Location : 1.3 km from ferry along Msata Road

Map sheet no :
Coordinates :
Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu
Airphoto no :
Date : 7-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Beginning of long rainy season
Soil moisture regime :
Soil temperature regime :

Landform : Alluvial Plain
Relief intensity : m
Microrelief : Plain
Elevation : m
Macrorelief : Many gilgai

Parent material:
Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1
Type of slope : Straight
Length of slope(m) : 300
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: fine cracks
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : moderate to poor
Run off :
Infiltration :
Seepage/spring levels no

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	10	Acacia
shrubs	-	
herbs	-	
grasses	90	Hyperrhenea spp
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:
Human influences :
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-10	10-30	30-60	60-100	+ 100			
	BOUND width	Clear	Clear	diffuse	diffuse				
	BOUND topogr.	smooth	smooth	smooth	smooth				
COLOUR	dry								
	moist	10 YR 4/3	10 YR 4/2	2.5 Y 4/3	2.5 Y 4/6	2.5 Y 5/4			
MOIST. COND.					moist	moist			
MOTTLING	abundance	many	many	many		many			
	size	fine	medium	fine		coarse			
	contrast	faint	faint	faint	nil	faint			
	sharpness	diffuse	clear	diffuse		diffuse			
	colour	5YR 4/8	2.5Y 5/6	10 YR 5/8		10 YR 5/8			
TEXTURE & COARSE FRAG.		Sand Clay Loam	Sand Clay	Clay	Clay	clay			
CONSIST.	dry								
	moist	firm	firm	firm	firm	firm			
	wet	SI Sticky SI Plastic	Sticky Plastic	Sticky Plstic	Sticky SI. Plastic	Sticky Plastic			
STRUCT.	grade	moderate	moderate	weak					
	size	fine to med.	very coarse colum nar	Coarse	Massive	Massive			
	form	Sab	breaks to coarse Sab	Sab					
CUTANS.	quantity	patchy	broken	broken	continuous	continuous			
	thickness	thick	thick	thick	thick	thick			
	type	clay	clay	clay	clay	clay			
PORES	quantity	many	common	few	nil	nil			
	size	fine	fine	fine					
PRIM. MIN ROCK FRAGM.	quantity				few				
	size				fine	small			
	weath	nil	nil	nil	hard	nil			
	shape				sphencial				
	nature				Mn				
CONCRETIONS NODULES	quantity		few	Very few	few	common	few		
	size		small	small	coarse	small	medium		
	hardness	nil	hard	hard	hard	hard	hard		
	shape		spherical	spherical	iregular	spherical	irregular		
	type		Fe/Mn	Fe/Mn	lime	Mn	lime		
REACTION HCI.			nil	nil	+++	+++			
ROOTS	quantity	many, few	many	very few					
	size	fine, med	fine	very fine	nil	nil			
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4	5			
	depth	0-10	10-30	30-60	60-100	100+			
SOIL DEPTH		100+ cm							
REMARKS:		Cracks open from 10 cm to 55 cm 2 to 2.5 cm wide.							

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: MK3

Survey area : MAKURUNGE — Mapping Unit

Region : COAST

District : BAGAMOYO

Location : 300 m W of Ruvu River and 10 m S of road to Msata

Map sheet no :

Coordinates :

Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu

Airphoto no :

Date : 7-4-93

Soil name : Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:

Soil moisture regime :

Soil temperature regime :

Landform : Flood Plain — Relief intensity : m

Microrelief : Plain — Elevation : m

Macrorelief : nil

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1

Type of slope : Slight

Length of slope(m) : 200

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking:

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : poor

Run off :

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.

Duration : days Depth cm

In months:

Erosion : nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	8	
grasses	90	Hyperheanea sp.
bare ground	2	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences : nil

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-15	15-60	60-75	75-110	110-125	125-145	145 +	
	BOUND width	clear	clear	clear	diffuse	diffuse	diffuse		
	BOUND topogr.	smooth	broken	wavy	Sl. wavy	smooth	smooth		
COLOUR	dry								
	moist	10 YR 2/3	10 YR 4/3	10 YR 3/1	10 YR 4/2	10 YR 4/1	10 YR 5/1	10 YR 5/1	
MOIST. COND.		moist	moist	moist	moist	moist	moist	moist	
MOTTLING	abundance		many	few	many	few	few		
	size		med.	fine	coarse	coarse	fine		
	contrast	nil	distinct	distinct	prominent	faint	prominent	nil	
	sharpness		diffuse	sharp	sharp	diffuse	sharp		
	colour		5 YR 4/4	2.5 YR 4/6	2.5 YR 4/6	5 YR 3/6	2.5 YR 3/6		
TEXTURE & COARSE FRAG.		Clay	Clay	Clay	Clay	Clay	Clay	Clay	
CONSIST.	dry								
	moist	firm	firm	firm	firm	firm	firm	firm	
	wet	Stick & Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	
STRUCT.	grade	moderate	weak	weak					
	size	coarse	coarse	coarse	massive	massive	massive	massive	
	form	Sab	prismatic breaking to Sab	Sab					
CUTANS.	quantity		continuous	continuous	broken	continuous	continuous	patchy	
	thickness	nil	thick	thick	thick	thick	thick	thick	
	type		clay	clay	clay	clay	clay	broken	
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity						frequent	very frequent	
	size						mexium	medium	
	weath	nil	nil	nil	nil	nil	weathered	weathered	
	shape						iregular	iregular	
	nature						sulphuir	sulphuir	(2.5 Y 6/)
CONCRETIONS NODULES	quantity				many	common			
	size				pockets	pockets			
	hardness	nil	nil	nil	of gypsum	of gypsum	nil	nil	
	shape				crystals	crystals			
	type								
REACTION HCl.		nil	nil	nil	nil	nil	nil	nil	
ROOTS	quantity	many	very few	very few	nil	nil	nil	nil	
	size	fine/very fine	fine	very fine					
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4	5	6	7	
	depth	0-15	15-60	60-75	75-110	110-125	125-145	145+	
SOIL DEPTH		1145+ cm							
REMARKS:		Cracks extend from 5 cm to 65 cm							

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: MK4

Survey area : MAKURUNGE — Mapping Unit

Region : COAST

District : BAGAMOYO

Location : 1.3 km S of road to Msata from Matsushita Camp.

Map sheet no :

Coordinates :

Author (s) : Mirisho, Nnyiti, Nyumba, Mdamu

Airphoto no :

Date : 8-4-93

Soil name : Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:
Beginning of rainy season

Soil moisture regime :

Soil temperature regime :

Landform : Flood Plain — Relief intensity : m

Microrelief : Plain — Elevation : m

Macrorelief : nil

Parent material: Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1

Type of slope :

Length of slope(m) :

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking: few large cracks

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level: no

Nat. drainage class : poor

Run off :

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.

Duration : days Depth cm

In months:

Erosion : nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	-	
grasses	95	Hyperrhenea sp.
bare ground	5	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences : burning

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-10	10-37	37-65	65-95	95-105 +			0-10
	BOUND width	clear	diffuse	diffuse	diffuse				
	BOUND topogr.	smooth	smooth	smooth	smooth				
COLOUR	dry								
	moist	10 YR 2/1	10 YR 4/2	2.5 Y 4/1	10 YR 3/1	2.5 Y 4/1			
MOIST. COND.		moist	moist	moist	moist	moist			
MOTTLING	abundance		many	few	few	many			
	size		fine	fine	fine	fine			
	contrast	nil	faint	very faint	faint	faint			
	sharpness		diffuse	diffuse	diffuse	diffuse			
	colour		10 YR 4/6	10 YR 4/6	10 YR 3/4	10 YR 4/4			
TEXTURE & COARSE FRAG.		Silt Clay	Clay	Clay	Clay	Clay			
CONSIST.	dry								
	moist	friable	firm	firm	firm	firm			
	wet	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic			
STRUCT.	grade	strong	weak						
	size	fine/med	coarse	massive	massive	massive			
	form	Sab	Sab						
CUTANS.	quantity		patchy	patchy	broken	continuous			
	thickness	nil	thick	thick	thick	thick			
	type		clay	clay	clay	clay			
PORES	quantity	few	nil	nil	nil	nil			
	size	fine							
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath	nil	nil	nil	nil	nil			
	shape								
	nature								
CONCRETIONS NODULES	quantity				very few				
	size				small				
	hardness	nil	nil	nil	hard	nil			
	shape				spherical				
	type				Mn				
REACTION HCl.		nil	nil	nil	nil	nil			
ROOTS	quantity	many	few	very few	very few	nil			
	size	very fine	very fine	very fine	very fine				
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4	5			
	depth	0-10	10-37	37-65	65-95	95-105			
SOIL DEPTH		105 cm							
REMARKS:		Cracks extend from 10 cm to 75 cm, 3 to 4 cm wide.							

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: MK5

Survey area : MAKURUNGE — Mapping Unit
Region : COAST
District : BAGAMOYO
Location : 2.5 dm S of Msata Road from Matsushita Camp.

Map sheet no :
Coordinates :
Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu
Airphoto no :
Date : 8-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Beginning of rainy season
Soil moisture regime :
Soil temperature regime :

Landform : Flood Plain
Microrelief : flat
Macrorelief : nil
Relief intensity : m
Elevation : m

Parent material: Alluvium
Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1
Type of slope : Straight
Length of slope(m) : 100
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting:
thickness: mm, consist.: (d) (m)
Cracking:
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level: no

Nat. drainage class : Poor
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	-	
grasses	100	Elephant grass
bare ground	-	Hyperrhenea sps.

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:
Human influences : nil
Photograph/slide no:

Remarks: Pit located 150 m S of boundary with upland area.

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-10	10-30	30-70	70-100	100-140+			0-10
	BOUND width	clear	clear	diffuse	diffuse				
	BOUND topogr.	smooth	smooth	smooth	wavy				
COLOUR	dry								
	moist	10 YR 3/2	10 YR 3/2	10 YR 4/2	10 YR 5/2	10 YR 5/2			
MOIST. COND.		moist	moist	moist	moist	moist			
MOTTLING	abundance		many	many	many	many			
	size		fine	fine	fine	fine			
	contrast	nil	faint	very faint	faint	distinct			
	sharpness		diffuse	diffuse	diffuse	clear			
	colour		2.5 YR 4/3	10 YR 4/3	10 YR 4/4	10 YR 4/6			
TEXTURE & COARSE FRAG.		Silt Clay	Clay	Clay	Clay	Clay			
CONSIST.	dry								
	moist	friable	firm	firm	firm	SI firm			
	wet	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic			
STRUCT.	grade	strong	moderate	weak					
	size	med.	coarse	coarse	massive	massive			
	form	Sab	Sab	Sab					
CUTANS.	quantity		patchy	broken	continuous				
	thickness	nil	thick	thick	thick	nil			
	type		clay	clay	clay				
PORES	quantity	few	nil	nil	nil	nil			
	size	fine							
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath	nil	nil	nil	nil	nil			
	shape								
	nature								
CONCRETIONS NODULES	quantity			few	few				
	size			small	small	nil			
	hardness	nil	nil	hard	soft to hard				
	shape			spherical	spherical				
	type			Mn	Mn				
REACTION HCl.		nil	nil	nil	nil	nil			
ROOTS	quantity	many	many	few	nil	nil			
	size	fine	fine	fine					
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4	5			
	depth	0-10	10-30	30-70	70-100	100-140			

SOIL DEPTH 140 cm

REMARKS: Common cracks extend from 10 cm to 85 cm.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: KT

Survey area : KITOMONDO VILLAGE | Mapping Unit
Region : COAST
District : KIBAHA
Location : 80 m S of Ruvu River Bank

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nnyiti, Nyumba, Mdamu
Airphoto no :
Date : 14-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season
Soil moisture regime :
Soil temperature regime :

Landform : Flood Plain
Relief intensity : m
Microrelief : Plain
Elevation : m
Macrorelief : nil

Parent material: Alluvium
Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1
Type of slope : Straight
Length of slope(m) : 100
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : moderate
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : once times/yr. once
Duration : 30 days Depth 60 cm
In months: April

Erosion : water / wind
type : sheet
degree : slight
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	Acarcia
shrubs	20	
herbs	10	
grasses	70	Elephant Grass
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:
Human influences : nil
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-20	20-35	35-68	68-110 +				0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist	10 YR 3/2	10 YR 3/3	10 YR 2/3					
MOIST. COND.									
MOTTLING	abundance		few						
	size		fine						
	contrast	nil	faint	nil	nil				
	sharpness		diffuse						
	colour								
TEXTURE & COARSE FRAG.		clay	clay	clay	clay				
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade		weak						
	size		medium	massive	massive				
	form		sab						
CUTANS.	quantity		patchy	continuous	continuous				
	thickness	nil	thick	thick	thick				
	type		clay	clay	clay				
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								
SOIL DEPTH REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: KB2

Survey area : KIMBOZA — Mapping Unit :
Region : COAST
District : KIBAHA
Location : 4 km W of Ruvu Station and 1 km E of Ruvu River

Map sheet no :
Coordinates :
Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu
Airphoto no :
Date : 16-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season
Soil moisture regime :
Soil temperature regime :

Landform : Flood Plain
Microrelief : Slightly Sloping to Ruvu River
Macrorelief : nil
Relief intensity : m
Elevation : m

Parent material: Alluvial / Collavial
Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠2
Type of slope : Concave
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking:
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : moderate
Run off :
Infiltration :
Seepage/spring levels no

FLOODING/PONDING

Frequency : once times/yr. once
Duration : 15 days Depth 5-10 cm
In months: April

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees		
shrubs		
herbs		
grasses	95	Cynodon sps.
bare ground	5	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:
Human influences : Burning
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-20	20-60	60-110 +					0-10
	BOUND width	clear	clear						
	BOUND topogr.	smooth	smooth						
COLOUR	dry								
	moist								
MOIST. COND.		moist	moist	moist					
MOTTLING	abundance								
	size								
	contrast	nil	nil	nil					
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		sandy clay	sandy clay	sandy clay					
CONSIST.	dry								
	moist	friable	firm	firm					
	wet	sticky plastic	sticky plastic	sticky plastic					
STRUCT.	grade	weak	moderate	weak					
	size	coarse	very coarse prismatic	coarse					
	form	sab	Breaking to coarse sab	sab					
CUTANS.	quantity		continuous	weak					
	thickness	nil	thick	coarse					
	type	n	clay	sab					
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath	nil	nil	nil					
	shape								
	nature								
CONCRETIONS NODULES	quantity			many					
	size			small					
	hardness	nil	nil	very hard					
	shape			spherical					
	type			Fe & Fe/Mn					
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3					
	depth	0-20	20-60	60-110					
SOIL DEPTH		110 cm							
REMARKS:		The pit had rain water ponding at the bottom.							

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: RUVU-NAFCO

Survey area : RUVU RICE FARM (NAFCO) | Mapping Unit
Region : COAST
District : BAGAMOYO
Location : 1.5 km W of Farm Piggery Unit

Map sheet no :
Coordinates :
Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 16-4-94

Soil name : Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Flood Plain
Microrelief : Flat
Macrorelief : Nil

Relief intensity : m
Elevation : m

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1
Type of slope : Concave
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking:
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : moderate
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr. Formerly
Duration : days Depth cm
In months: before flood, control ridge was constructed

Erosion : nil water / wind
type :
degree :
Deposition : sand

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	20	Acacia
herbs	15	
grasses	60	H. ruja, cynodon
bare ground	5	

LAND USE/CROPPING SYSTEM

Grazing
Cultivation of rice nearby

Soil fauna:

Human influences : grazing
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-15	15-30	30-50	50-78	78-105	105-140+		0-10
	BOUND width	clear	clear	diffuse	diffuse	diffuse			
	BOUND topogr.	smooth	smooth	smooth	smooth	smooth			
COLOUR	dry								
	moist	10 YR 3/1	10 YR 3/2	10 YR 2/2	5 Y 3/1	2.5 Y 4/1	10 YR 4/2		
MOIST. COND.		moist	moist	moist	moist	moist	moist		
MOTTLING	abundance		common						
	size		coarse						
	contrast	nil	faint	nil	nil	nil	nil		
	sharpness		diffuse						
	colour		10 YR 3/4						
TEXTURE & COARSE FRAG.		sandy clay	clay	clay	clay	clay	sandy clay		
CONSIST.	dry								
	moist	friable	friable	firm	firm	firm	firm		
	wet	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic	Sticky Plastic		
STRUCT.	grade	weak	weak						
	size	coarse	coarse	massive	massive	massive	massive		
	form	sab	sab						
CUTANS.	quantity			patchy	continuous	patchy			
	thickness	nil	nil	thick	thick	thick	nil		
	type			clay	clay	clay			
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath	nil	nil	nil	nil	nil	nil		
	shape								
	nature								
CONCRETIONS NODULES	quantity					few	few		
	size					small	small		
	hardness	nil	nil	nil	nil	hard/soft	hard		
	shape					spherical	spherical		
	type					Mn	Mn		
REACTION HCl.									
ROOTS	quantity	common, few	few	few	very few	nil	nil		
	size	very fine, med	very fine	very fine	very fine				
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4	5	6		
	depth	0-15	15-30	30-50	50-78	78-105	105-140+		
SOIL DEPTH		140 cm							
REMARKS:		few cracks extend from 10 cm to 50 cm.							

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DAFCO-RUVU

Survey area : DAFCO-RUVU | Mapping Unit

Region : COAST

District : KIBAHA

Location : 500 m E of Ruvu Sec. Girl's Domitory

Map sheet no :

Coordinates :

Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu

Airphoto no :

Date : 17-4-93

Soil name :

Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:

Rainy Season

Soil moisture regime :

Soil temperature regime :

Landform : Flood Plain

Relief intensity : m

Microrelief : Plain

Elevation : m

Macrorelief : nil

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1

Type of slope : Straight

Length of slope(m) : 150

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking: nil

Rock out crops %

Surface stoniness nil % Size cm

Ground water level: actual cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : imperfect

Run off : nil

Infiltration :

Seepage/spring levels no

FLOODING/PONDING

Frequency : once times/yr. once

Duration : 45 days Depth 10 cm

In months: April/May-By rain water

Erosion : nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees		
shrubs		
herbs		
grasses	98	Hyperrhevea ruja & clon's
bare ground	2	Gayana

LAND USE/CROPPING SYSTEM

Grazing

Soil fauna:

Human influences : Grazing

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-10	10-35	35-85	85-120+				0-10
	BOUND width	clear	diffuse	diffuse					
	BOUND topogr.	smooth	smooth	smooth					
COLOUR	dry								
	moist	10 YR 4/2	2.5 Y 4/2	2.5 Y 3/2	2.5 Y 4/3				
MOIST. COND.		moist	moist	moist	moist				
MOTTLING	abundance	common	many	common					
	size	small	small	small					
	contrast	faint	faint	faint	nil				
	sharpness	diffuse	diffuse	diffuse					
	colour	7.5 YR 4/4	2.5 Y 4/6	10 YR 5/6					
TEXTURE & COARSE FRAG.		clay	clay	clay	sandy clay				
CONSIST.	dry								
	moist	friable	firm	firm	firm				
	wet	sticky plastic	sticky plastic	sticky plastic	sticky plastic				
STRUCT.	grade	moderate	weak						
	size	coarse	coarse	massive	massive				
	form	sab	sab						
CUTANS.	quantity		patchy	broken	patchy				
	thickness	nil	thick	thick	thick				
	type		clay	clay	clay				
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath	nil	nil	nil	nil				
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness	nil	nil	nil	nil				
	shape								
	type								
REACTION HCl.									
ROOTS	quantity	many	common	few	very few				
	size	very fine	very fine	very fine	very fine				
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4				
	depth	0-10	10-35	35-85	85-120+				
SOIL DEPTH		120 cm							
REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DAFCO-A01

Survey area : RUVU DAFCO | Mapping Unit
Region : COAST
District : KIBAHA
Location : 300 m NE of DIP site, near the boundary betn basin & ridge

Map sheet no :
Coordinates :
Author (s) : Nnyiti, Mirisho,

Airphoto no :
Date : 6-5-93

Soil name : Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Ridge / basin
Microrelief : Slightly sloping to the natural drainage nearby
Macrorelief : nil

Relief intensity : m
Elevation : m

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) :
Type of slope :
Length of slope(m) :
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : poor
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : once times/yr. once
Duration : 45 days Depth 30 cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	5	
shrubs	-	
herbs	-	
grasses	95	
bare ground	-	

LAND USE/CROPPING SYSTEM

Grazing

Soil fauna:

Human influences :
Photograph/slide no:

Remarks: The basin is 100 m wide

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-25	25-45	45-85	85-95	95-110	110-125		0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist	10 YR 2/1	2.5 Y 4/2	2.5 Y 4/2	2.5 Y 4/2	2.5 Y 4/2	2.5 Y 4/2		
MOIST. COND.		moist	moist	moist	moist	moist	moist		
MOTTLING	abundance		Common						
	size		fine						
	contrast		faint						
	sharpness		diffuse						
	colour		10 YR 4/4						
TEXTURE & COARSE FRAG.		SCL	SC	SC	Gravelly SIC	Gravelly SC	C		
CONSIST.	dry								
	moist								
	wet	Sticky SI Plastic	Sticky Plastic	Sticky Plastic	Sticky SI Plastic	Sticky SI Plastic	Sticky Plastic		
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity				common	many	common		
	size				small	small	small		
	weath				weathered	fresh	weathered		
	shape				sphenrical	spherical	spherical		
	nature				lime				
CONCRETIONS NODULES	quantity		few	common	many	many	common		
	size		small	small	small	small	small		
	hardness	nil	soft	soft/hard	hard	hard	hard		
	shape		spherical	spherical	spherical	spherical	spherical		
	type		Mn	Mn	Mn	Mn	Mn		
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								
SOIL DEPTH									
REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DAFCO-A02

Survey area : DAFCO-RUVU | Mapping Unit

Region : COAST

District : KIBAHA

Location : 0.5 km E of Ruvu Sec. Sch junction & 30 m S of road to Morogoro

Map sheet no :

Coordinates :

Author (s) : Nnyiti, Mirisho

Airphoto no :

Date : 6-5-93

Soil name : Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions: Rainy Season

Soil moisture regime :

Soil temperature regime :

Landform : Basin

Microrelief : Flat

Macrorelief : Nil

Relief intensity : m

Elevation : m

Parent material: Alluvium / Colluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠1

Type of slope : Straight

Length of slope(m) : 300

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking:

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual 50 cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level: no

Nat. drainage class : poor

Run off : nil

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : once times/yr. once

Duration : 30 days Depth 10 cm

In months: April

Erosion : nil water / wind

type :

degree :

Deposition : nil

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	5	
shrubs	-	
herbs	-	
grasses	95	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow
- rice fields nearby

Soil fauna:

Human influences :

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)								0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry	0-55	55-80	80-120+					
	moist	5 Y 4/2	2.5 Y 4/2	2.5 Y 4/2					
MOIST. COND.		moist							
MOTTLING	abundance		common	many					
	size		small	small					
	contrast	nil	faint	faint					
	sharpness		diffuse	diffuse					
	colour		2.5 Y 4/3	10 YR 4/4					
TEXTURE & COARSE FRAG.		gravelly clay	clay	heavy clay					
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity	common		few					
	size	small		small					
	weath	fresh	nil	fresh					
	shape	spherical		spherical					
	nature	gravels		gravels					
CONCRETIONS NODULES	quantity	few		few					
	size	small		small					
	hardness	hard	nil	soft					
	shape	spherical		spherical					
	type	Mn		Mn					
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								
SOIL DEPTH									
REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: ML1

Survey area : MILENAWELENGWE VILLAGE | Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 400 mE of Road of Kisaki & 1 km from Mgeta Road

Map sheet no :
Coordinates :
Author (s) : Nnyiti, Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 21-4-93

Soil name : Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Alluvial Plain
Microrelief : plain
Macrorelief :

Relief intensity : m
Elevation : m

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) :
Type of slope : Concave
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level: no

Nat. drainage class : well drained
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	10	
herbs	20	
grasses	70	
bare ground	nil	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-16	16-30	30-55	55-80	80-95	95-115	115-140+	0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist						10 YR 4/6	10 YR 4/4	
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.							sand	sand	
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.	1	2	3	4	5	6	7	
	depth	0-16	16-30	30-55	55-80	80-95	95-115	115-140	

SOIL DEPTH 140 cm

REMARKS: Described while it was raining.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: ML2

Survey area : MILENGWELENGWE VILLAGE — Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 2 km from Mgeta Road and 300 m E of Kisaki Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nnyiti, Nyumba, Mdamu
Airphoto no :
Date : 21-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season
Soil moisture regime :
Soil temperature regime :

Landform : Alluvial Plain
Microrelief : plain
Macrorelief : nil
Relief intensity : m
Elevation : m

Parent material:
Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : C1
Type of slope : concave
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level: no

Nat. drainage class : well drained
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	10	
herbs	15	
grasses	75	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences : A Secondary School being
Photograph/slide no: Constructed nearby

Remarks:

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-10	10-17	17-36	36-47	47-65	65-105	105-112	112-120
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist								
MOIST. COND.		moist	moist	moist	moist	moist	moist	moist	moist
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay loam	clay loam	clay loam	sandy clay loam	loamy sand	fine sand	loamy sand	sand
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH cm

REMARKS:

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: ML3

Survey area : MILENGWELENGWE VILLAGE — Mapping Unit

Region : MOROGORO

District : MOROGORO RURAL

Location : 3.8 km from Mgeta Riverand 1.5 km E of Kisaki Road

Map sheet no :

Coordinates :

Author (s) :

Airphoto no :

Date :

Soil name : Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:

Rainy Season

Soil moisture regime :

Soil temperature regime :

Landform : Alluvial Plain — Relief intensity : m

Microrelief : Levee — Elevation : m

Macrorelief : nil

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠2

Type of slope : Concave

Length of slope(m) : 100

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking:

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : well drained

Run off : nil

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : once times/yr. once

Duration : 15 days Depth variable cm

In months: rain water in April

Erosion : nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	2	
grasses	98	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow

Rice farms around

Soil fauna:

Human influences :

Photograph/slide no:

Remarks: farms (rice/maize) not levelled

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-9	9-25	25-52	52-65	65-80	80-110	110-145 +	0-10
	BOUND width	clear	clear	clear	clear	clear	clear		
	BOUND topogr.	smootn	smootn	smootn	smootn	smootn	smootn		
COLOUR	dry								
	moist	10 YR 2/1	10 YR 1.7/1	7.5 YR 3/3	7.5 YR 3/2	10 YR 2/2	7.5 YR 3/3	7.5 YR 3/2	
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast	nil	nil	nil	nil	nil	nil	nil	
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay loam	clay	clay	sandy loam	sand loam	sandy clay	clay loam	
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity			patchy					
	thickness			thin					
	type			clay					
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH cm

REMARKS:

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DT1

Survey area : GOMBO VILLAGE | Mapping Unit

Region : MOROGORO

District : MOROGORO RURAL

Location : 3.6 km N of Dutumi and 200 m E of Morogoro Road

Map sheet no :

Coordinates :

Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :

Date : 28-4-93

Soil name :

Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :

Soil temperature regime :

Landform : Lower Slopes of Alluvial/Colluvial Plain

Relief intensity : m

Microrelief : Gentle sloping towards east

Elevation : m

Macrorelief : nil

Parent material: Colluvium/Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 2

Type of slope : Straight

Length of slope(m) : 500 m

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking: nil

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : poor

Run off : nil

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.

Duration : days Depth cm

In months:

Erosion : nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type: short grass & scattered scrubs

Composition	Cover %	Dominant species
trees	-	
shrubs	5	
herbs	-	
grasses	95	
bare ground	-	

LAND USE/CROPPING SYSTEM

Grazing

Soil fauna:

Human influences :

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-15	15-45	45-100	100-115	115-155			0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist	5 YR 3/1	5 YR 3/2	5 YR 3/3	5 YR 3/4	5 YR 4/3			
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		sandy clay	sandy clay	sandy clay	gravelly sand clay	sandy clay loam			
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl									
ROOTS	quantity	many	many	few					
	size	very fine	very fine	fine					
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								
SOIL DEPTH REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DT2

Survey area : GOMBO — Mapping Unit

Region : MOROGORO

District : MOROGORO RURAL

Location : 2.6 km N of Dutumi Village & 100 m E of Morogoro Road

Map sheet no :

Coordinates :

Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :

Date : 28-4-93

Soil name :

Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :

Soil temperature regime :

Landform : Upper slopes of alluvial plain

Relief intensity : m

Microrelief :

Elevation : m

Macrorelief :

Parent material: Colluvium/Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 2

Type of slope : straight

Length of slope(m) : 50

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking:

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual 35 cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : well drained

Run off :

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.

Duration : days Depth cm

In months:

Erosion : water / wind

type :

degree :

Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees		
shrubs		
herbs		
grasses		
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-20	20-35						0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist	5 YR 2/2	5 YR 3/3						
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		sandy clay loam	sandy clay						
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH 100 cm

REMARKS: At 35 drainage water table Water sample was collected for lab. analysis.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DT3

Survey area : GOMBO VILLAGE — Mapping Unit

Region : MOROGORO

District : MOROGORO RURAL

Location : 2.6 km N of Dutumi & 200 m E of Morogoro Road

Map sheet no :

Coordinates :

Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :

Date : 28/4/93

Soil name : Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:

Rainy Season

Soil moisture regime :

Soil temperature regime :

Landform : Alluvial Plain (flat) — Relief intensity : m

Microrelief : — Elevation : m

Macrorelief :

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : ∠2

Type of slope : Very gentle sloping

Length of slope(m) : 50

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking: nil

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual 20 cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : poor

Run off : nil

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.

Duration : days Depth cm

In months:

Erosion : nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type: grass

Composition	Cover %	Dominant species
trees		
shrubs		
herbs		
grasses	100	
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :

Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-20	+ 20						0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist								
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		sandy clay							
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH cm

REMARKS: Water table (drainage water) found.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DT4

Survey area : GOMBO — Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 1.9 km N of Durumi & 50 m W of Morogoro Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 28-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Upper area of alluvial plain
Relief intensity : m
Microrelief :
Elevation : m
Macrorelief :

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 2
Type of slope : straight
Length of slope(m) :
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : Moderate
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	5	
grasses	95	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :
Photograph/slide no:

Remarks: Maire farm around the site

Brief description:

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-20	20-53	53-80					0-10
	BOUND width	clear	diffuse						
	BOUND topogr.	smooth	smooth						
COLOUR	dry								
	moist	10 YR 2/2	5 YR 3/4	5 YR 3/4					
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		sandy loam	sandy clay	sandy clay					
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade	moderate	moderate	weak					
	size	coarse	coarse	coarse					
	form	sab	sab	sab					
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity	few	very few	very few					
	size	coarse	coarse	coarse					
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH cm

REMARKS: Water table, (drainage water) reached at 80 cm Water sample collected for lab. analysis.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DT5

Survey area : MBWADE VILLAGE — Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 800 m N of Dutumi and 100 m E of Morogoro Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 28/4/93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Flat-Alluvial Plain
Relief intensity : m
Microrelief :
Elevation : m
Macrorelief :

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0
Type of slope : flat
Length of slope(m) :
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking:
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : moderate
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	-	
grasses	100	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :
Photograph/slide no:

Remarks:

Brief description: Millet farm around the site

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-17	17-50	50-85	85-112	112-150 +			0-10
	BOUND width	clear	clear	diffuse	diffuse				
	BOUND topogr.	smooth	smooth	smooth	smooth				
COLOUR	dry								
	moist	7.5 YR 3/1	10 YR 2/2	7.5 YR 3/4	7.5 YR 3/2	7.5 YR 3/3			
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay	clay	loamy sand	clay loam	clay loam			
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade	weak	weak	weak	weak	weak			
	size	coarse	coarse	fine	coarse	coarse			
	form	sab	sab	sab	sab	sab			
CUTANS.	quantity		continous						
	thickness		thick						
	type		clay						
PORES	quantity	many			many				
	size	macro			macro				
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl									
ROOTS	quantity	many	many	few	very few				
	size	very fine	very fine	very fine	very fine				
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								
SOIL DEPTH	150 cm								
REMARKS:									

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DT6

Survey area : MBWADE VILLAGE | Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 3 km East of Dutumi

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 29-4-93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Flat Alluvial Plan
Relief intensity : m
Microrelief :
Elevation : m
Macrorelief :

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0
Type of slope : Straight
Length of slope(m) : 100
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking:
Rock out crops Nil %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : Poor
Run off : Nil
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : Nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	20	
shrubs	-	
herbs	5	
grasses	75	
bare ground	-	

LAND USE/CROPPING SYSTEM

Parthy fallow land; rest of the area is well covered by thick grass & big fall trees (acacia).

Soil fauna:

Human influences :
Photograph/slide no:

Remarks:

Brief description: Rain water found on the surface in some parts of the plain.

PROFILE CHARACT									
HORIZON	symbol								
	depth (cm)	0-10	10-30	30-50	50-70+				0-10
	BOUND width	clear	diffuse	diffuse					
	BOUND topogr.	smooth	smooth	smooth					
COLOUR	dry								
	moist	10 YR 2/1	10 YR 3/1	10 YR 3/1	10 YR 3/2				
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay loam	sand clay loam	sand clay loam	sandy clay				
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade	weak	moderate	moderate	moderate				
	size	medium	coarse	very coarse	coarse				
	form	sab	sab	sab	sab				
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity	many, few	many	many	few				
	size	fine, med &	very fine	very fine	very fine				
SALTS	EC 1:2.5	coars							coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH 120 cm

REMARKS: Rain/drainage water at 70 cm.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: BN1

Survey area : BONYE VILLAGE | Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : Bwakira Chivi 1 km S of Autum & 150 m Dutumi & 150 m E of Dutumi to Kisaki Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 28/04/93

Soil name :
Classification:FAO :
Soil Taxonomy :

Phase:

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Almost flat - Alluvial Plain
Microrelief :
Macrorelief :

Relief intensity : m
Elevation : m

Parent material: Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0
Type of slope : flat
Length of slope(m) : 100
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting:
thickness: mm, consist.: (d) (m)
Cracking:
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level: no

Nat. drainage class : Moderate
Run off : nil
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	-	
grasses	100	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :
Photograph/slide no:

Remarks: Maize farm around the site.

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-15	15-35	35-55	55-80	80-130	130-138	138-145	145-155
	BOUND width	diffuse	clear	clear	clear	clear	clear	clear	
	BOUND topogr.	smooth	smoth	smoth	smoth	smoth	smoth	smoth	
COLOUR	dry								
	moist	10 YR 1.7/1	10 YR 1.7/1	10 YR 2/3	10 YR 3/2	10 YR 4/6	10 YR 3/2	10 YR 2/2	7.5 YR 4/6
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		sandy clay loam	clay loam	sand sandy	sandy loam	gravelly sand	loamy sand	sandy loam	coarse sand
CONSIST.	dry								
	moist	friable	friable	very friable	very friable	loose	loose	very friable	loose
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH 155 cm

REMARKS: Stratification formed horizons.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: BK1

Survey area : BWAKIRA VILLAGE | Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 8 km from Dutumi and 150 m E of Kisaki-Dutumi Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 29/4/93

Soil name :
Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Flat Alluvial Plain (Levee)
Microrelief : Levee
Macrorelief :

Relief intensity : m
Elevation : m

Parent material: Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0
Type of slope : flat
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: Nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : Moderate
Run off : Nil
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : Nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type:

Composition	Cover %	Dominant species
trees	1	
shrubs	4	
herbs	-	
grasses	95	Hyperrhenea
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :
Photograph/slide no:

Remarks: The pit is approximately 100 m away from Bwakira River to the East.

Brief description:

PROFILE CHARAC']									
HORIZON	symbol								
	depth (cm)	0-8	8-20	20-42	42-71	71-90	90-107	107-115	115-130
	BOUND width	diffuse	diffuse	clear	clear	clear	clear	clear	
	BOUND topogr.	smooth	smooth	wavy	wavy	smoth	stsmooth	irregular	
COLOUR	dry								
	moist	10 YR 2/1	10 YR 2/2	10 YR 2/2	10 YR 3/3	10 YR 3/2	10 YR 4/3	10 YR 2/2	10 YR 4/4
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay loam	sand clay loam	clay	sandy loam	sandy loam	sand	sandy loam	fine sand
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade	weak	weak	moderate	weak	weak		weak	
	size	med.	med.	coarse	fine	fine	single	fine	single
	form	sab	sab	sab	sab	sab	grain	sab	grain
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity	many	many	common	common	very few	very few	very few	
	size	very fine	very fine	very fine	very fine	very fine	very fine	very fine	
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH cm

REMARKS:
1. Common big antholes found from 2nd horizon up to the 5th horizon.
2. Flat coarse gravels at 130 cm

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: BK2

Survey area : BWAKIRA VILLAGE | Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 8.5 km S of Dutumi & 40 m E of Bwakira / Kisaki Road

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :
Date : 29/4/93

Soil name : Phase:
Classification:FAO :
Soil Taxonomy :

Season/weather conditions:
Rainy Season

Soil moisture regime :
Soil temperature regime :

Landform : Flat Alluvial Plain
Microrelief :
Macrorelief :

Relief intensity : m
Elevation : m

Parent material: Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0
Type of slope : flat
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: nil
Rock out crops %
Surface stoniness % Size cm

Ground water level: actual 35 cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : poor
Run off :
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : Nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type: Tall thick grass

Composition	Cover %	Dominant species
trees	-	
shrubs	-	
herbs	-	
grasses	100	
bare ground	-	

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna:

Human influences :
Photograph/slide no:

Remarks:

Brief description:

PROFILE CHARAC]									
HORIZON	symbol								
	depth (cm)	0-15	15-35						0-10
	BOUND width								
	BOUND topogr.								
COLOUR	dry								
	moist		10 YR 2/1						
MOIST. COND.		wet							
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.									
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade		moderate						
	size		coarse						
	form		sab						
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH 100 cm

REMARKS:
1. At 35 cm water table, with drainage water.
2. Water sample taken for lab. analysis.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DKU1

Survey area : DAKANA UKUTU VILLAGE | Mapping Unit

Region : MOROGORO

District : MOROGORO RURAL

Location : 9.0 km South of Dutumi & 200 m West of Dakawa Ukutu Village

Map sheet no :

Coordinates :

Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no :

Date : 29/4/93

Soil name : Phase:

Classification:FAO :

Soil Taxonomy :

Season/weather conditions:

Rain Season

Soil moisture regime :

Soil temperature regime :

Landform : Flat Alluvial Plain

Microrelief :

Macrorelief :

Relief intensity : m

Elevation : m

Parent material: Alluvium

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0

Type of slope : flat

Length of slope(m) : 100

Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no

thickness: mm, consist.: (d) (m)

Cracking: no

Rock out crops %

Surface stoniness % Size cm

Ground water level: actual cm

Perched: yes/no heighest cm lowest cm

Stagnating hor : depth cm design

Modified ground water level:

Nat. drainage class : Moderate

Run off : Nil

Infiltration :

Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.

Duration : days Depth cm

In months:

Erosion : Nil water / wind

type :

degree :

Deposition :

Nat. Vegetation type: Thick tall grass

Composition	Cover %	Dominant species
trees		
shrubs		
herbs		
grasses	100	
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna: active

Human influences : Caltivation, mai

Photograph/slide no:

Remarks: Currently maize farming is carried on around the area.

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-12	12–25	25-50	50-70	70-90	90-115		0-10
	BOUND width	diffuse	diffuse	clear	clear				
	BOUND topogr.	smooth	smooth	smootn	smootn				
COLOUR	dry								
	moist	10 YR 3/1	10 YR 2/1	10 YR 2/2	10 YR 2/3	10 YR 3/2	10 YR 3/4		
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay loam	sandy loam	sandy loam	clay loam	clay loam	clay loam		
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade	weak	weak	moderate	weak	weak	weak		
	size	med.	med.	coarse	med.				
	form	sbk	sbk	sbk	sbk	sbk	sbk		
CUTANS.	quantity								
	thickness			thick					
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl									
ROOTS	quantity	many	many	common	few	very few			
	size	fine	fine	fine	fine	fine			
SALTS	EC 1:2.5								coars
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								

SOIL DEPTH 115 cm

REMARKS: 1) Common antiholes distributed throughout the profile.

2) Stratification of Horizons well formed.

NATIONAL SOIL SERVICE, TANZANIA — SOIL PROFILE DESCRIPTION FORM

PROFILE NO: DKU2

Survey area : DAKANA UKUTU VILLAGE — Mapping Unit
Region : MOROGORO
District : MOROGORO RURAL
Location : 12 km South of Dutumi &300 m East of Dakawa

Map sheet no :
Coordinates :
Author (s) : Mirisho, Nyumba, Mdamu

Airphoto no : Primary School
Date : 29/4/93

Soil name :
Classification:FAO :
Soil Taxonomy :

Phase:

Season/weather conditions:
Rain Season

Soil moisture regime :
Soil temperature regime :

Landform : Flat Alluvial Plain
Microrelief :
Macrorelief :

Relief intensity : m
Elevation : m

Parent material:

Geological formation:

SITE CHARACTERISTICS

Slope gradient(%) : 0
Type of slope : flat
Length of slope(m) : 50
Position on slope :

SURFACE CHARACTERISTICS

Sealing/crusting: no
thickness: mm, consist.: (d) (m)
Cracking: No
Rock out crops %
Surface stoniness Nil % Size cm

Ground water level: actual cm
Perched: yes/no heighest cm lowest cm
Stagnating hor : depth cm design
Modified ground water level:

Nat. drainage class : Moderate
Run off : Nil
Infiltration :
Seepage/spring levels

FLOODING/PONDING

Frequency : times/yr.
Duration : days Depth cm
In months:

Erosion : Nil water / wind
type :
degree :
Deposition :

Nat. Vegetation type: Thick tall grass

Composition	Cover %	Dominant species
trees	10	
shrubs	5	
herbs		
grasses	85	
bare ground		

LAND USE/CROPPING SYSTEM

Fallow

Soil fauna: active

Human influences : Caltivation
Photograph/slide no:

Remarks: School farms with maize, millet, sesame crops growing well.

Brief description:

PROFILE CHARAC									
HORIZON	symbol								
	depth (cm)	0-15	15-30	30-55	55-68	68-95	95-140	140-165	
	BOUND width	diffuse	diffuse	clear	diffuse	clear	diffuse		
	BOUND topogr.	smooth	smooth	smootn	smooth	smootn	smooth		
COLOUR	dry								
	moist		7.5 YR 3/1	7.5 YR 3/3			7.5 YR 2/2		
MOIST. COND.									
MOTTLING	abundance								
	size								
	contrast								
	sharpness								
	colour								
TEXTURE & COARSE FRAG.		clay loam	sand clay loam	sandy loam	clay loam	sand clay loam	clay loam	sand clay loam	
CONSIST.	dry								
	moist								
	wet								
STRUCT.	grade								
	size								
	form								
CUTANS.	quantity								
	thickness								
	type								
PORES	quantity								
	size								
PRIM. MIN ROCK FRAGM.	quantity								
	size								
	weath								
	shape								
	nature								
CONCRETIONS NODULES	quantity								
	size								
	hardness								
	shape								
	type								
REACTION HCl.									
ROOTS	quantity								
	size								
SALTS	EC 1:2.5								
	pH 1:2.5								
OTHER FEATURES									
SAMPLE	no.								
	depth								
SOIL DEPTH	cm								
REMARKS: