APPENDIX II SOIL

APPENDIX II SOIL

Table II-1-1 True Density of EI Soil (Humic Gleysols)

Horizons / Samples / Items	EI_1 0 ∿ 12 cm, Vt = 100						EI_2 12 ∿ 40 cm, Vt = 100					
	K11	S1	T58	K9	K22	Mean	T27	T11	T12	T16	S18	Mean
Total Weight W	125.1	112.8	143.1	133.7	147.2	132.4	175.5	158.8	151.5	168.4	155.5	141.9
Actual Volume V	78.5	75.8	89.5	81.8	93.0	84.9	99.5	98.1	96.2	98.3	98.3	98.1
Wt. of Dried solid S	81.0	64.2	92.5	81.8	94.6	82.8	126.7	104.0	95.2	116.8	97.9	108.1
Wt. of Soil Water M	44.1	48.6	50.6	51.9	52.6	49.6	48.8	54.8	56.3	51.6	57.6	53.8
Volume of Solid Phase Vs	34.4	27.2	38.9	29.9	40.4	36.3	50.7	43.3	39.9	46.7	40.7	44.3
True Density d	2.35	2.36	2.38	2.74	2.34	2.35	2.50	2.40	2.39	2.50	2.41	2.44

Table . II-1-2 True Density of CI Soil (Humic Gleysols)

Horizons / Samples / Items	CI_1 0 ∿ 16 cm						CI_2 16 ∿ 60 cm					
	B4	T84	T42	T64	S41	Mean	T10	S13	T43	T36	S2	Mean
Total Weight W	130.2	129.3	126.4	117.1	123.8	125.4	170.5	168.9	168.9	170.1	171.0	169.9
Actual Volume V	98.1	98.8	98.8	96.0	97.0	97.7	99.6	99.5	100.0	100.0	99.9	99.8
Wt. of Dried Soil S	54.1	58.7	53.3	42.2	49.0	51.5	117.5	115.7	114.3	116.1	118.7	116.5
Wt. of Soil Water M	76.1	70.6	73.1	74.9	74.8	73.9	53.0	53.2	54.6	54.0	52.3	53.4
Volume of Solid Phase Vs	22.0	28.2	25.7	21.1	22.2	23.8	46.6	46.3	45.4	46.0	47.6	46.4
True Density d	2.46	2.08	2.07	2.00	2.21	2.16	2.52	2.50	2.52	2.52	2.49	2.51

Table II-1-3 True Density of EIII Soil (Dystric Gleysols)

Horizons / Samples / Items	EIII$_1$ 0 ∿ 16 cm							EIII$_2$ 16 ∿ 70 cm						
	C3	H6	S1	S27	T29	S11	Mean	S35	S20	S13	S15	S7	S31	Mean
Total Weight W	169.3	150.3	156.3	148.0	151.0	158.2	155.5	198.7	193.7	198.2	196.0	197.0	195.2	196.5
Actual Volume V	95.9	96.8	88.8	84.9	87.8	91.3	89.3	99.2	97.1	98.3	99.3	99.1	98.0	98.5
Wt. of Dried Soil S	124.5	105.9	111.1	104.6	106.4	111.3	110.6	166.0	160.8	165.8	161.8	164.0	161.9	163.4
Wt. of Soil Water M	44.8	44.4	45.2	43.4	44.6	46.9	44.9	32.7	32.9	32.4	34.2	33.0	33.3	33.1
Volume of Solid Phase Vs	51.1	42.4	43.6	41.5	43.2	44.4	44.4	66.5	64.2	65.9	65.1	66.1	64.7	65.4
True Density d	2.44	2.50	2.55	2.52	2.46	2.51	2.49	2.50	2.50	2.52	2.49	2.48	2.50	2.50

Table II-1-4 True Density of WIV_2 Soil (Dystric Gleysols)

Horizon / Samples / Items		WIV_2 7 ~ 50 cm					
		S6	T57	S3	T90	S21	Mean
Total Weight	W	167.3	166.2	166.8	168.2	168.7	167.4
Actual Volume	V	99.8	102.1	100.0	100.1	100.1	100.0
Wt. of Dried Soil	S	110.5	108.4	109.1	112.2	111.3	110.3
Wt. of Soil Water	M	56.8	57.8	57.7	56.0	57.4	57.1
Volume of Solid Phase	Vs	43.0	42.3	42.3	44.1	42.7	42.9
True Density	d	2.57	2.56	2.58	2.54	2.61	2.57

Table II-1-5 True Density of EII$_3$ Soil (Heavy Clay Histosols)

Horizon / Samples / Items		EII$_3$ 35 ~ 70 cm, Vt = 100					
		S8	S37	T23	S33	S39	Mean
Total Weight	W	138.3	141.3	148.8	151.4	152.8	146.5
Actual Volume	V	95.5	98.1	99.9	99.8	99.8	98.6
Wt. of Dried Soil	S	71.5	73.3	84.8	86.5	87.0	80.6
Wt. of Soil Water	M	66.8	68.0	64.0	64.9	65.8	65.9
Volume of Solid Phase	Vs	28.7	30.1	35.9	34.9	34.0	32.7
True Density	d	2.49	2.49	2.36	2.48	2.56	2.46

Table II-1-6 True Density of Air dried Heavy Clay Soil

(Dystric Gleysols)

Condition / Sample		Air-dried	Water Saturated	Over dry 100°C
		S1	S20	Mean
Total Weight	W	139.1	150.2	144.7
Actual Volume	V	57.9	73.9	65.9
Wt. of Dried Soil	S	128.5	123.1	125.8
Wt. of Soil Water	M	10.6	27.1	18.9
Vol. of Solid Phase	Vs	47.3	46.8	47.0
True Density	d	2.72	2.63	2.68

Table II-1-7 Actual Density (True Density), Actual Volume Percentage (Solidmatio) and Volume Weight of Peat (Histosols) at Air Dried States

Peats / Samples / Items	Peat 1, EII , 0 20 cm				Peat 2, EII , 20 35 cm				Peat 3, CIII drained		
	1	2	3	Mean	1	2	3	Mean	1	2	Mean
Volume Weight Ps.a	9.6	8.9	9.7	9.4	9.5	8.7	8.4	8.9	9.6	11.0	10.3
Actual Density (W/V)a	1.46	1.46	1.46	1.46	1.57	1.57	1.57	1.57	1.52	1.52	1.52
Actual Volume Percentage % Pv:a	6.6	6.1	6.6	6.4	6.1	5.5	5.4	5.7	6.3	7.2	6.8

Table II-1-8 True Density of WI Soil (Orthic Acrisols)

Horizons / Samples / Items	WI_1 0 ∿ 15 cm						WI_2 15 ∿ 80 cm					
	S12	T51	T3	T5	T38	Mean	T71	K8	T61	T56	S30	Mean
Total Weight W	164.2	166.0	164.5	169.0	167.5	166.2	180.3	169.5	162.6	172.0	176.2	172.1
Actual Volume V	93.4	95.6	94.2	96.6	95.5	95.0	97.2	93.1	88.1	93.4	95.9	93.9
Wt. of Dried Soil S	118.2	119.0	118.1	122.3	120.9	119.7	137.7	127.5	121.5	130.3	133.0	130.0
Wt. of Soil Water M	46.0	47.0	46.4	46.7	46.9	46.5	42.6	42.0	41.1	41.7	43.2	42.1
Volume of Solid Phase Vs	47.4	48.6	47.8	49.9	48.6	48.5	54.6	51.1	47.0	51.7	52.7	51.8
True Density d	2.49	2.45	2.47	2.45	2.49	2.47	2.52	2.50	2.59	2.52	2.52	2.51

Table II-1-9 True Density of WII Soil (Orthic Acrisols)

Horizons / Items	WII$_1$ 0 ∼ 20 cm						WII$_2$ 20 ∼ 80 cm					
Samples	S34	T57	T54	S32	B1	Mean	T9	T38	S29	T4	T37	Mean
Total Weight W	119.1	123.4	137.2	133.5	137.3	130.1	165.5	157.8	159.7	157.0	160.7	159.1
Actual Volume V	59.6	63.1	70.6	68.2	73.9	67.1	82.4	79.2	79.3	78.5	80.2	79.9
Wt. of Dried Soil S	96.2	97.6	107.9	105.0	100.8	101.5	127.1	127.6	129.2	127.7	130.0	128.8
Wt. of Soil Water M	22.9	25.8	29.3	28.5	36.5	28.6	36.4	30.2	30.5	29.4	30.7	31.4
Volume of Solid Phase Vs	36.7	37.3	41.3	39.7	37.4	38.5	46.0	49.0	48.8	49.1	49.5	48.5
True Density d	2.62	2.62	2.61	2.64	2.69	2.64	2.76	2.60	2.65	2.60	2.63	2.65

Table II-1-10 True Density of M Soils (Dystric Fluvisols)

Horizons / Samples / Items		M_1 0 ∿ 17 cm				M_2 17 ∿ 70 cm			
		S8	S11	S12	Mean	S7	S9	S10	Mean
Total Weight	W	169.0	169.5	165.5	168.0	174.9	172.0	170.0	172.3
Actual Volume	V	86.4	85.8	83.5	85.2	87.4	86.4	85.5	86.4
Weight of Dried Soil	S	138.4	139.6	136.4	138.1	143.5	141.5	139.5	141.5
Wt. of Soil Water	M	30.6	29.9	29.1	29.9	31.4	30.5	30.5	30.8
Volume of Solid Phase	V_3	55.8	55.9	54.4	55.3	56.0	55.9	55.0	55.6
True Density	d	2.48	2.50	2.51	2.50	2.56	2.53	2.54	2.54

Table II-2-1 Physical Properties of EI Soil (Humic Gleysols)

Horizons / Samples / Properties	EI_1, 0∿12 cm, d=2.35						EI_2, 12∿40 cm, d=2.44					
	K11	S1	T58	K9	K22	Mean	T27	T11	T2	T16	S18	Mean
Total Weight W	125.1	112.8	143.1	133.7	147.2	132.4	175.5	158.8	151.5	168.4	155.5	161.9
Actual Volume V	78.5	75.8	89.5	87.8	93.0	84.9	99.5	98.1	96.2	98.3	98.3	98.1
Air Ratio Av	21.5	24.2	10.5	12.2	7.0	15.1	0.5	1.9	3.8	1.7	1.7	1.9
Water Ratio Mv	44.0	48.4	49.8	53.8	52.8	49.7	46.7	55.9	57.8	49.6	58.6	53.8
Solid Ratio Sv	34.5	27.4	39.7	34.0	40.2	35.2	52.8	42.2	38.4	48.7	39.7	44.3
Porosity P	65.5	72.6	60.3	66.0	59.8	64.8	47.2	57.8	61.6	51.3	60.3	55.7
Wt. of Solid Phase S	81.1	64.4	93.3	79.9	94.4	82.7	128.8	102.9	93.7	118.8	96.9	108.1
Saturation % H	67.2	66.7	82.6	81.5	88.3	76.6	98.9	96.7	93.8	96.7	97.2	96.6
Moisture % Mo	54.3	75.2	53.4	67.3	56.0	60.1	36.3	54.3	60.4	41.8	60.5	49.8

Table II-2-2 Physical Properties of CI Soil (Humic Gleysols)

Horizons / Samples / Properties	CI_1 0∿16 cm d=2.16						CI_2 16∿60 cm d=2.51					
	B4	T84	T42	T64	S41	Mean	T10	S13	T43	T36	S2	Mean
Total Weight W	130.2	129.3	126.4	117.1	123.8	125.4	170.5	168.7	168.9	170.1	171.0	169.9
Actual Volume V	98.1	98.8	98.8	96.0	97.0	97.7	99.6	99.5	100.0	100.0	99.9	99.8
Air Ratio Av	1.9	1.2	1.2	4.0	3.0	2.3	0.4	0.5	0	0	0.1	0.2
Water Ratio Mv	70.4	72.5	75.0	77.8	73.9	73.8	52.6	53.5	54.4	53.6	52.8	53.4
Solid Ratio Sv	27.7	26.3	23.8	18.2	23.1	23.9	47.0	46.0	45.6	46.4	47.1	46.4
Porosity P	72.3	73.7	76.2	81.8	76.9	76.1	53.0	54.0	54.4	53.6	52.9	53.6
Wt. of Solid Phase S	59.8	56.8	51.4	39.3	49.9	51.6	117.9	115.4	114.5	116.5	118.2	116.5
Saturation % H	93.4	98.4	98.4	95.1	96.1	97.0	99.3	99.1	100.0	100.0	99.8	99.6
Moisture % Mo	117.7	127.6	145.9	198.0	148.1	143.0	44.6	46.4	47.5	46.0	44.7	45.9

Table II-2-3 Physical Properties of E III Soil (Dystric Gleysols)

Horizons / Samples / Properties	E III_1 0∿16 cm d=2.49							E III_2 16∿70 cm d=2.50						
	C3	H6	S2	S27	T29	S11	Mean	S35	S20	S13	S15	S7	S31	Mean
Total Weight W	169.3	150.3	156.3	148.0	151.0	158.2	155.5	198.7	193.7	198.2	196.0	197.0	195.2	196.5
Actual Volume V	95.9	86.8	88.8	84.9	87.8	91.3	89.3	99.2	97.1	98.3	99.3	99.1	98.0	98.5
Air Ratio Av	4.1	13.2	11.2	15.1	12.2	8.7	10.7	0.8	2.9	1.7	0.7	0.9	2.0	1.0
Water Ratio Mv	46.6	44.2	43.5	42.5	45.4	46.4	44.9	32.9	32.7	31.7	34.8	33.8	33.2	33.2
Solid Ratio Sv	49.3	42.6	45.3	42.4	42.4	44.9	44.4	66.3	64.4	66.6	64.5	65.3	64.8	65.3
Porosity P	50.7	57.4	54.7	57.6	57.4	55.1	55.6	33.7	35.6	33.4	35.5	34.7	35.2	34.7
Wt. of Solid Phase S	122.7	106.1	112.8	905.5	105.6	111.8	110.6	165.8	161.0	166.5	161.2	163.2	162.0	163.3
Saturation % H	91.3	77.0	79.5	73.8	78.8	84.2	80.8	97.6	91.9	94.9	98.0	97.4	94.3	95.7
Moisture % Mo	40.2	41.7	38.6	40.3	43.0	41.5	40.6	19.8	20.3	19.0	21.6	20.7	20.5	20.3

Table II-2-4 Physical Properties of WIV_2 Soil (Dystric Gleysols)

Horizon / Samples / Properties		WIV_2, 7 ∿ 50 cm, d=2.57					
		S6	T57	S3	T90	S21	Mean
Total Weight	W	167.3	166.2	166.8	168.2	168.7	167.4
Actual Volume	V	99.8	100.1	100.0	100.1	100.1	100.0
Air Ratio	Av	0.2	-0.1	0	-0.1	-0.1	0
Water Ratio	Mv	56.8	58.0	57.4	56.7	56.4	57.1
Solid Ratio	Sv	43.0	42.1	42.6	43.4	43.7	42.9
Porosity	P	57.0	57.9	57.4	56.6	56.3	57.1
Wt. of Solid Phase	S	110.5	108.2	109.4	111.5	112.3	110.3
Saturation %	H	99.7	100.2	100.0	100.2	100.2	100.0
Moisture %	Mo	51.4	53.6	52.5	50.9	50.2	51.8

Table II-2-5 Physical Properties of EII_3 Soil (Heavy Clay, Histosols)

Horizon / Samples / Properties		EII_3, 35 ∿ 70 cm, d≈2.46					
		S8	S37	T23	S33	S37	Mean
Total Weight	W	138.3	141.3	148.8	151.4	152.8	146.5
Actual Volume	V	99.6	95.5	98.1	99.8	99.8	98.6
Air Ratio	Av	4.5	1.9	0.1	0.2	0.2	1.4
Water Ratio	Mv	70.3	64.1	63.4	64.6	63.5	65.8
Solid Ratio	Sv	29.3	31.4	34.7	35.3	36.3	32.8
Porosity	P	70.7	68.6	65.3	64.7	63.7	67.2
Wt. of Solid Phase	S	68.0	77.2	85.4	86.8	89.3	80.7
Saturation %	H	99.4	93.4	97.1	99.9	99.7	97.9
Moisture %	Mo	103.4	83.0	74.0	74.4	71.1	81.5

Table II-2-6 Physical Properties of Air-dried Heavy Clay Soil

(Dystric Gleysols)

Condition / Sample / Physical Properties		Air Dried	Water Saturated	Vt = 100.0 d = 2.68
		S_1	S_{20}	Mean
Total Weight	W	139.1	150.2	144.7
Actual Volume	V	57.9	73.9	65.9
Air Ratio	Av	42.1	26.1	34.1
Water Ratio	Mv	9.6	28.5	19.0
Solid Ratio	Sv	48.3	45.4	46.9
Porosity	P	51.7	54.6	53.1
Wt. of Solid Phase	S	129.5	121.7	125.7
Saturation %	H	18.6	52.2	35.8
Moisture %	Mo	7.4	23.4	15.1

Table II-2-7 Physical Properties of Peat (Dystric Histosols) at Air-dried States

Peats / Properties		Peat 1 E II_1	Peat 2 E II_2	Peat 3 C peat
Total Weight	W	36.2	79.5	91.0
Actual Volume	V	30.6	75.8	89.8
Air Ratio	Av	69.4	24.2	10.2
Water Ratio	Mv	18.4	69.3	87.5
Solid Ratio	Sv	12.2	6.5	2.3
Porosity	P	81.8	93.5	97.7
Wt. of Solid Phase	S	17.8	10.2	3.5
Saturation %	H	21.0	74.1	89.6
Moisture %	Mo	103.4	697.4	2500

Table II-2-8 Physical Properties of Peat 1 and 2 (Dystric Histosols)

Peats / Samples / Properties	E II$_1$ Peat 1, (W/V)a = 1.46						E II$_2$ Peat 2, (W/V)a = 1.57					
	S2	S3	S4	S5	S6	Mean	S14	S15	S16	S17	S18	Mean
Total Weight W	44.1	32.0	37.0	33.1	35.0	36.2	74.0	74.6	87.3	76.7	85.1	79.5
Actual Volume W	38.3	26.6	30.1	28.0	29.9	30.6	69.9	71.1	84.3	72.5	81.0	75.8
Air Ratio Av	61.7	73.4	69.9	72.0	70.1	69.4	30.1	28.9	15.7	27.5	19.0	24.2
Water Ratio Mv	25.7	14.9	15.1	16.9	18.8	18.4	62.7	65.0	79.0	65.1	73.8	69.3
Solid Ratio Sv	12.6	11.7	15.0	11.1	11.1	12.2	7.2	6.1	5.3	7.4	7.2	6.5
Porosity P	87.4	88.3	85.0	88.9	88.9	87.8	92.8	93.9	94.7	92.6	92.8	93.5
Wt. of Solid Phase S	18.4	17.1	21.9	16.2	16.2	17.8	11.3	9.6	8.3	11.6	11.3	10.2
Saturation % H	29.4	16.9	17.8	19.0	21.1	21.0	67.6	69.2	83.4	70.3	79.5	74.1
Moisture % Mo	139.7	87.1	68.9	104.3	116.0	103.4	554.9	677.1	951.8	561.2	653.1	679.4

Table II-2-9 Physical Properties of Peat 3 (Dystric Histosols)

Peats / Samples / Properties		C: Peat (Drain) (W/V)a = 1.52					
		S19	S21	S22	S23	S24	Mean
Total Weight	W	95.6	91.0	89.1	89.6	89.6	91.0
Actual Volume	V	94.1	90.0	88.0	88.4	88.5	89.8
Air Ratio	Av	5.9	10.0	12.0	11.6	11.5	10.2
Water Ratio	Mv	91.2	88.1	85.9	86.1	86.4	87.5
Solid Ratio	Sv	2.9	1.9	2.1	2.3	2.1	2.3
Porosity	P	97.1	98.1	97.9	97.7	97.9	97.7
Wt. of Solid Phase	S	4.4	2.9	3.2	3.5	3.2	3.5
Saturation %	H	93.9	89.8	87.7	88.1	88.3	89.6
Moisture %	Mo	2073	3038	2684	2460	2700	2500

Table II-2-10 Physical Properties of WI Soil (Dystric Acrisols)

Horizons / Samples / Properties	WI_1 0 ∿ 15 cm d=2.47						WI_2 15 ∿ 80 cm d=2.51					
	S12	T51	T3	T5	T38	Mean	T71	K8	T61	T56	S40	Mean
Total Weight W	164.2	166.0	164.5	169.0	167.5	166.2	180.3	169.5	162.6	172.0	176.2	172.1
Actual Volume V	95.4	95.6	94.2	96.6	95.5	95.0	97.2	93.1	88.1	93.4	95.9	93.3
Air Ratio Av	6.6	4.4	5.8	3.4	4.5	5.0	2.8	6.9	11.9	6.6	4.1	6.1
Water Ratio Mv	45.2	47.7	46.4	47.3	46.5	46.6	42.2	42.5	38.8	41.3	42.7	42.1
Solid Ratio Sv	48.2	47.9	47.8	49.3	49.0	48.4	55.0	50.6	49.3	52.1	53.2	51.8
Porosity P	51.8	52.1	52.2	50.7	51.0	51.6	45.0	49.4	50.6	47.9	46.8	48.2
Wt. of Solid Phase S	119.0	118.1	118.1	122.3	120.9	119.6	138.1	127.0	123.8	130.7	133.5	130.0
Saturation % H	87.3	91.6	88.9	93.3	91.2	90.3	93.8	86.0	76.7	86.2	91.2	87.3
Moisture % Mo	38.0	46.4	39.3	38.7	38.5	39.0	30.6	33.5	31.3	31.6	32.0	32.4

Table II-2-11 Physical Properties of WII Soil (Dystric Acrisols)

Horizons / Samples / Properties	WII$_1$ 0 ∿ 20 cm d=2.64						WII$_2$ 20 ∿ 80 cm d=2.65					
	S34	T57	T54	S32	B1	Mean	T9	T38	S29	T4	T37	Mean
Total Weight W	119.1	123.4	137.2	133.5	137.3	130.1	163.5	157.8	159.7	159.0	160.7	159.7
Actual Volume V	63.1	63.1	70.6	68.2	65.3	66.1	82.4	79.2	79.3	78.5	80.2	79.9
Air Ratio Av	36.9	36.9	29.4	31.8	34.7	33.9	17.6	20.8	20.7	21.5	19.8	20.1
Water Ratio Mv	28.9	26.3	30.0	28.4	21.4	27.1	33.2	31.4	30.6	29.7	31.4	31.5
Solid Ratio Sv	34.2	36.8	40.6	39.8	43.9	39.0	49.2	47.6	48.7	48.8	48.8	48.4
Porosity P	65.8	63.2	59.4	60.2	56.1	61.0	50.8	52.4	51.3	51.2	51.2	51.6
Wt. of Solid Phase S	90.2	97.1	107.2	105.1	115.9	103.0	130.3	126.2	129.1	129.3	129.3	128.2
Saturation % H	43.9	41.6	50.5	47.2	38.2	44.4	65.4	60.3	59.7	58.0	61.3	61.1
Moisture % Mo	32.0	27.1	28.0	27.0	18.5	26.1	25.5	25.0	23.7	23.0	24.3	24.6

Table II-2-12 Physical Properties of M Soils (Dystric Fluvisols)

Horizons / Samples / Properties		M_1 0 ∿ 17 cm d=250				M_2 17 ∿ 70 cm d=254			
		S18	S11	S12	Mean	S7	S9	S10	Mean
Total Weight	W	169.0	169.5	165.5	168.0	174.9	172.0	170.0	172.3
Actual Volume	V	86.4	85.8	83.5	85.2	87.4	86.4	85.5	86.4
Air Ratio	Av	13.6	14.2	16.5	14.8	12.6	13.6	14.5	13.6
Water Ratio	Mv	31.3	30.0	28.8	30.0	30.6	30.8	30.6	30.6
Solid Ratio	Sv	55.1	55.8	54.7	55.2	56.8	55.6	54.9	55.8
Porosity	P	44.9	44.2	45.3	44.8	43.2	44.4	45.1	44.2
Wt. of Solid Phase	S	137.7	139.5	136.7	138.0	144.1	141.2	139.4	141.7
Saturation %	H	69.7	69.7	63.6	67.0	70.8	69.4	67.8	69.2
Moisture %	Mo	22.7	21.5	21.1	21.7	21.2	21.8	22.0	21.6

Table II-3-1 Dehydration and Shrinkage of Heavy Clay Soil EI (Humic Gleysols)

Soil / Sample / Item / Date	EI_1 0 ∼ 12 cm															
	K11				S1				T58				K9			
	D	H	Vt	W	D	H	Vt	W	D	H	Vt	W	D	H	Vt	W
Sept. 24	5.0	5.1	100.0	125.1	5.0	5.1	100.0	112.8	5.0	5.1	100.0	143.1	5.0	5.1	100.0	138.7
Sept. 25				114.9				102.4				131.5				122.0
Sept. 26	4.8	4.8	86.8	109.1	4.8	4.8	86.8	96.2	4.8	4.9	88.6	125.2	4.8	4.9	88.6	115.9
Sept. 27	4.8	4.8	86.8	96.2	4.8	4.8	86.8	83.0	4.8	4.9	88.6	110.4	4.8	4.9	88.6	100.7
Sept. 29				84.2				68.2				96.2				85.7
Oct. 2	4.75	4.8	85.0	83.5	4.75	4.8	85.0	67.0	4.7	4.85	84.1	94.8	4.8	4.85	87.7	84.5

Soil / Sample / Item / Date	EI_1 0 ∼ 12 cm							
	K22				Mean			
	D	H	Vt	W	D	H	Vt	W
Sept. 24	5.0	5.1	100.0	147.2	5.0	5.1	100.0	132.4
Sept. 25				135.7				121.4
Sept. 26	4.8	4.9	88.6	129.2	4.8	4.84	89.5	115.1
Sept. 27	4.8	4.9	88.6	114.6	4.8	4.84	87.5	101.0
Sept. 29				98.8				86.6
Oct. 2	4.8	4.85	87.7	97.2	4.76	4.83	85.9	85.3

Note

D : Diameter of Sample

H : Height of Sample

Vt : Total Volume of Sample

W : Total Weight of Sample

Table II-3-1 (cont'd)

Soil	EI_2 12 ∿ 40 cm															
Sample	T27				T11				T2				T16			
Item / Date	D	H	Vt	W	D	H	Vt	W	D	H	Vt	W	D	H	Vt	W
Sept. 24	5.0	5.1	100.0	175.5	5.0	5.1	100.0	158.8	5.0	5.1	100.0	151.5	5.0	5.1	100.0	168.4
Sept. 25				162.0				147.0				139.0				155.8
Sept. 26	4.8	4.9	88.6	154.7	4.8	4.8	86.8	140.4	4.8	4.8	86.8	132.5	4.8	4.8	88.6	149.1
Sept. 27	4.8	4.9	88.6	189.7	4.8	4.8	86.8	125.2	4.8	4.8	86.8	117.7	4.8	4.8	88.6	134.6
Sept. 29				129.6				107.6				99.0				120.5
Oct. 2	4.8	4.85	87.7	128.7	4.7	4.8	83.2	106.3	4.75	4.75	84.1	97.7	4.7	4.8	83.2	119.1

Soil	EI_2 12 ∿ 40 cm							
Sample	S18				Mean			
Item / Date	D	H	Vt	W	D	H	Vt	W
Sept. 24	5.0	5.1	100.0	155.5	5.0	5.1	100.0	161.9
Sept. 25				142.8				149.1
Sept. 26	4.8	4.9	88.6	186.4	4.8	4.84	87.9	142.6
Sept. 27	4.8	4.9	88.6	121.0	4.8	4.8	87.7	127.6
Sept. 29				114.2				114.2
Oct. 2	4.7	4.8	83.2	100.4	4.73	4.8	84.3	110.4

Table II-3-2 Dehydration and Shrinkage of Heavy Clay Soil EII$_3$ (Dystric Histosols)

Soil	EII$_3$ 35 ∿ 70 cm															
Sample	S8				S37				T23				S33			
Item / Date	D	H	Vt	W	D	H	Vt	W	D	H	Vt	W	D	H	Vt	W
Sept. 24	5.0	5.1	100.0	138.8	5.0	5.1	100.0	141.3	5.0	5.1	100.0	148.8	5.0	5.1	100.0	151.4
Sept. 25				125.1				129.2				137.9				139.7
Sept. 27	4.6	4.8	79.7	112.9	4.75	4.8	85.0	117.5	4.7	4.8	83.2	126.7	4.8	4.9	88.6	128.0
Sept. 29				77.4				80.0				91.0				92.7
Oct. 2	4.35	4.5	66.8	74.1	4.3	4.5	65.3	75.9	4.35	4.5	66.8	87.0	4.35	4.5	66.8	89.2
Oct. 7	4.35	4.5	66.8	74.1	4.3	4.5	65.8	75.9	4.35	4.5	66.8	87.0	4.35	4.5	66.8	89.2

Soil	EII$_3$, 35 ∿ 70 cm							
Sample	S39				Mean			
Item / Date	D	H	Vt	W	D	H	Vt	W
Sept. 24	5.0	5.1	100.0	152.8	5.0	5.1	100.0	146.5
Sept. 25				141.2				
Sept. 27	4.75	4.8	85.0	129.6	4.72	4.82	84.4	122.9
Sept. 29				95.5				87.3
Oct. 2	4.35	4.4	65.4	91.5	4.34	4.48	66.2	83.5
Oct. 7	4.35	4.4	65.4	91.5	4.34	4.48	66.2	83.5

Table II-3-3 Dehydration of Heavy Clay Soils (Gleysols and Histosols)

Soils / Samples / Date	EI_1 9 ∿ 12 cm						EI_2 12 ∿ 40 cm					
	K11	S1	T58	K9	K22	Mean	T27	T11	T2	T16	S18	Mean
Sept. 24	125.1	112.8	143.1	133.7	147.2	132.4	175.5	158.8	151.5	168.4	155.5	161.9
Sept. 25	114.9	102.4	131.5	122.0	135.7	121.4	162.0	147.0	139.0	155.8	142.8	149.1
Sept. 26	109.1	96.2	125.2	115.9	129.2	115.1	154.7	140.4	132.5	149.1	136.4	142.6
Sept. 27	96.2	83.0	110.4	100.7	114.6	101.1	139.7	125.2	117.7	134.6	121.0	127.6
Sept. 29	84.2	68.2	96.2	85.7	98.8	86.6	129.6	107.6	99.0	120.5	101.7	111.7
Oct. 2	83.5	67.0	94.8	84.5	97.2	85.4	128.7	106.3	97.7	119.1	100.4	100.4

Table II-3-3 (cont'd)

Soil / Samples / Date	EII_3 35 ∿ 70 cm					
	S8	S37	T23	S33	S39	Mean
Sept. 24	138.3	141.3	148.8	151.4	152.8	146.5
Sept. 25	125.1	129.2	137.9	139.7	141.2	134.6
Sept. 26	112.9	117.5	126.7	128.0	129.6	122.9
Sept. 27	77.4	80.0	91.0	92.7	95.5	87.3
Sept. 29	74.1	75.9	87.0	89.2	91.5	83.5
Oct. 2	74.1	75.9	87.0	89.2	91.5	83.5

Table II-3-4 Dehydration and Shrinkage of Heavy Clay Soil

(measured on molded samples)

Items / Date	L	B	H	Vt	W
Sept. 24	10	4.5	4.5	202.5	264.0
Sept. 25	9.5	3.7	3.9	137.1	229.6
Sept. 27	9.1	3.45	3.45	108.3	199.0
Sept. 29	9.0	3.45	3.45	108.3	163.7
Oct. 2	9.0	3.45	3.40	105.6	161.2
Oct. 7	9.0	3.40	3.40	104.0	161.0
Oct. 8 Oven Dried	-	-	-	-	156.3
Dehydration % & Shrinkage %	10	24.4	24.4	48.6	39.0

Note

L : Length of Sample

B : Breadth of Sample

H : Height of Sample

Vt : Total Volume of Sample

W : Total Weight of Sample

Table II-4 Dehydration and Shrinkage of Peat (Dystric Histosols)

Peat / Sample / Date	EII_1, Peat 1, 0 ∿ 20cm			
	1 cm^3 10x10x10	2 cm^3 10x10x10	3 cm^3 10x10x10	Mean
	g	g	g	g
Sept. 24	371.2	388.2	385.7	381.7
Sept. 25	236.3	254.2	239.3	243.2
Sept. 27	142.5	169.5	158.7	156.9
Sept. 29	102.7	108.0	110.7	107.1
Oct. 3	97.8	90.9	98.6	95.8
Oct. 7	96.2	89.3	97.0	94.2
Dehydration %	74.1	77.0	74.9	75.3
Oven Dried 80°C	81.5	88.2	87.6	85.8
Dehydration %	78.0	77.3	77.3	77.5

Peat / Sample	EII_2, Peat 2, 20 ∿ 35cm			
	1 cm 10x10x10	2 cm 10x10x10	3 cm 10x10x10	Mean
	g	g	g	g
Sept. 24	581.2	467.2	460.4	502.9
Sept. 25	481.6	379.2	338.1	399.6
Sept. 27	375.0	292.5	253.0	306.8
Sept. 29	239.6	181.5	162.6	194.6
Oct. 3	117.1	98.5	99.1	104.9
Oct. 7	95.0	87.3	84.1	88.8
Dehydration %	83.7	81.3	81.7	82.3
Oven Dried 80°C	84.5	77.1	74.7	78.8
Dehydration %	85.5	83.5	83.8	84.3

Table II-4 (cont'd)

Peat / Item / Date	C. Peat	C. Peat (drain)	
	W	W	Vt
Sept. 24	762.0 g	781.0 g	780 cc
Sept. 25	707.5	704.0	703
Sept. 27	652.0	600.1	600
Sept. 29	514.7	464.5	505
Oct. 3	297.6	245.1	348
Oct. 7	56.5	98.7	250
Oct. 15	44.0	74.9	190
Dehydration %	94.2	90.4	-
Shrinkage	-	0	75.6
Oven Dried at 80°C	39.5	63.5	175
Dehydration %	94.8	91.9	-
Shrinkage	-	-	77.6

Table II-5-1 Dehydration, Shrinkage and Actual Density of Peat 1 and 2

(Dystric Histosols)

Date	Peats / Samples / Items	Peat 1 EII_1, 0 ∿ 20 cm						Peat 2 EII_2, 20 ∿ 35 cm					
		S2	S3	S4	S5	S6	Mean	S14	S15	S16	S17	S18	Mean
Sept. 25	Total Weight W	44.1	32.0	37.0	33.1	35.0	36.2 V=32.5	74.0	74.6	87.3	76.7	85.1	79.5 V=73.5
	Diameter D	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	Height H	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
	Total Volume Vt	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Oct. 2	Total Weight W	14.2	11.2	11.1	10.5	11.6	11.7	15.7	14.4	20.3	15.7	18.6	16.9
	Diameter D	3.5	4.2	4.3	4.3	4.5	4.2	3.9	3.8	4.2	4.0	4.1	4.0
	Height H	4.3	4.6	4.8	4.7	4.7	4.8	4.3	3.9	4.5	4.0	4.4	4.2
	Total Volume Vt	41.4	63.7	69.7	68.2	74.7	63.5	51.2	56.3	62.3	50.2	58.1	55.6
	ΔW	29.9	20.8	25.9	22.6	23.4	24.6	58. 3	60.2	67.0	61.0	66.5	62.6
	ΔVt	58.6	36.3	30.3	31.8	25.3	36.5	48.8	43.7	37.7	49.8	41.9	44.4

Table II-5-1 (cont'd)

Date	Peats / Samples / Items	Peat 1 EII_1, 0 ∿ 20 cm						Peat 2 EII_2, 20 ∿ 35 cm					
		S2	S3	S4	S5	S6	Mean	S14	S15	S16	S17	S18	Mean
Oct. 3	Total Weight W	14.2	11.2	11.1	10.5	11.6	11.7	15.5	14.3	19.6	15.3	18.2	16.5
	Actual Volume V	10.0	8.5	7.5	7.0	7.2	8.0	9.9	9.2	12.2	10.0	14.4	10.5
	ΔW	29.9	20.8	25.9	22.6	23.5	24.5	58.5	60.3	64.1	61.4	66.9	63.0
	W/V	1.42	1.32	1.48	1.50	1.50	1.46	1.56	1.51	1.61	1.53	1.60	1.57
Oct. 7	Total Weight W	14.2	11.2	11.3	10.4	11.4	11.7	15.2	14.1	18.6	15.0	17.6	16.1
	Actual Volume V	7.2	5.3	5.6	5.0	5.3	5.7	8.4	7.6	10.0	7.2	9.5	8. 5
	ΔW	29.9	20.8	25.9	22.6	23.4	24.5	58.3	60.2	67.0	61.0	66.5	62.6
	ΔV	3.2	3.2	1.9	2.0	1.9	2.3	1.5	1.6	2.2	2.8	1.9	2.0
	W/V	1.97	2.11	20.2	2.08	2.15	2.05	1.81	1.86	1.86	2.08	1.85	1.89

Table II-5-2 Dehydration, Shrinkage and Actual Density of Peat 3

(Dystric Histosols)

Date	Peat / Samples / Items	C. Peat (Drain), Peat 3					
		S19	S21	S22	S23	S24	Mean
Sept. 25	Total Weight W	95.6	91.0	89.1	89.6	89.6	91.0 V=87.4
	Diameter D	5.0	5.0	5.0	5.0	5.0	5.0
	Height H	5.1	5.1	5.1	5.1	5.1	5.1
	Total Volume Vt	100.0	100.0	100.0	100.0	100.0	100.0
Oct. 2	Total Weight W	12.8	12.2	11.9	11.2	12.4	12.1
	Diameter D	3.8	3.6	3.6	3.6	3.6	3.6
	Height H	3.7	3.6	3.7	3.7	3.7	3.7
	Total Volume Vt	41.9	36.6	37.6	37.6	37.6	38.3
	ΔW	82.8	78.8	77.2	78.4	77.2	78.9
	ΔVt	58.1	63.4	62.4	62.4	62.4	61.7

Table II-5-2 (cont'd)

Date	Peat / Samples / Items	C. Peat (Drain), Peat 3					
		S19	S21	S22	S23	S24	Mean
Oct. 3	Total Weight W (S)	11.4	10.4	10.2	9.9	10.7	10.5
	Actual Volume V (Vs)	8.1	7.4	6.2	6.2	6.6	6.9
	ΔW	84.2	80.6	78.9	79.7	78.9	80.5
	(W/V) (d)	1.41	1.41	1.65	1.60	1.62	1.52
Oct. 7	Total Weight W (s)	10.5	9.8	9.3	9.3	9.5	9.7
	Actual Volume W (Vs)	5.9	5.6	5.7	5.3	5.3	5.6
	ΔW	85.1	81.2	79.8	80.3	80.1	81.3
	ΔV	2.2	1.8	0.5	0.9	0.9	1.3
	(W/V) (d)	1.78	1.75	1.63	1.75	1.79	1.73

Table II-6 Description on Soil Profiles of Pilot Project Area

Table II-6-1

a)	Profile Number	:	EI
b)	Location	:	E1500m, N550m
c)	Date of Examination	:	19 Sept. 1978
d)	High Category Classification	:	Gleysols, Humic Gleysols
e)	Topography	:	Flat
f)	Vegetation	:	Paddy
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Poor

Profile Description

Apg	0 ∿ 12 cm	Brownish Black 7.5YR2/2, Humus contents 6.2%, very coarse subangular blocky structure, many fine roots, compact (Hardness 12 ∿ 16), Heavy Clay Sticky, Solid ratio 27 ∿ 40%, abrupt irregular boundary to
Bg	12 ∿ 40 cm	Brownish Gray 7.5YR5/1, Humus contents 2.6%. very coarse weakly subangular block-like structure, a few fine roots, somewhat compact (Hardness 13∿15) Heavy clay, Sticky, Solid ratio 38∿53%, abrupt smooth boundary to
Cg	40 ∿ 70 cm	Grayish white N 7/0, few fine roots to 50cm depth, very coarse weakly subangular block structure, Somewhatcompact (Hardness 13), Heavy clay, Sticky

Table II-6-2

a)	Profile Number	:	CI
b)	Location	:	Cardinal point N 20m
c)	Date of Examination	:	8 Oct. 1978
d)	High Category Classification	:	Gleysols, Humic Gleysols
e)	Topography	:	Flat
f)	Vegetation	:	Grass
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Poor

Profile Description

Apg	0 ∿ 16 cm	Brownish Gray 7.5YR4/1, Humus contents rich, many fine roots, very coarse subangular block structure, Hardness 5∿10, Sticky, Heavy clay, Solid ratio 18∿28%, Clear irregular boundary to
C_1g	16 ∿ 70 cm	Grayish White N 7/0, few humus content, a few fine roots to 50cm, Ground water level at 50cm depth, very coarse subangular block structure, a few small brownish mottles, Sticky, somewhat compact (Hardness 9.5∿13.0), Heavy Clay, Solid ratio 45∿48%, abrupt smooth boundary to
C_2g	70 ∿ 100 cm	Grayish white N 7/0, very coarse subangular structure, Sticky, Sandy clay

Table II-6-3

a)	Profile Number	:	EIII
b)	Location	:	E 2000m
c)	Date of Examination	:	28 Sept. 1978
d)	High Category Classification	:	Gleysols, Dystric Gleysols
e)	Topography	:	Flat
f)	Vegetation	:	Rubber (*Hevea brasiliensis*, Muell.)
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Poor

Profile Description

Apg 0 ∿ 16 cm Brown 7.5YR4/4, Humus contents 3.3%, Coarse subangular block structure, many fine roots, somewhat compact (Hardness 12∿14), Silty clay, Sticky, Solid ratio 42∿50%, abrupt smooth boundary to

Bg 16 ∿ 70 cm Light Brownish Gray 7.5YR7/1, Very coarse subangular block structure, a few fine roots to 40cm depth, compact (Hardness 17∿20) Light clay, Sticky, brownish mottles, Solid ratio 64∿67%, Clear smooth boundary to

Cg 70 90^{+} cm Light Gray 7.5YR8/1, very coarse weakly subangular block structure, Sandy clay

Table II-6-4

a)	Profile Number	:	WIII
b)	Location	:	W 2400m, N 50m
c)	Date of Examination	:	1 Oct. 1978
d)	High Category Classification	:	Gleysols, Humic Gleysols
e)	Topography	:	Flat
f)	VEgetation	:	Pasture
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Poor

Profile Description

Apg	0 ∿ 20 cm	Brownish Gray 7.5YR4/1, Humus contents rich, very coarse subangular block structure, many fine roots, Compact, Sticky, Heavy clay, abrupt irregular boundary to
C_1g	20 ∿ 60 cm	Grayish white N 7/0, no roots, very coarse subangular block structure, Compact, Sticky, Heavy clay, abrupt smooth boundary to
C_2g	60 ∿ 100^+cm	Grayish White N 7/0, Very coarse subangular block structure, Compact, Sticky, Light clay

Table II-6-5

a)	Profile Number	:	WIV
b)	Location	:	W 2000m, N 600m
c)	Date of Examination	:	1 Oct. 1978
d)	High Category Classification	:	Gleysols, Dystric Gleysols
e)	Topography	:	Flat
f)	Vegetation	:	Grass
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Poor

Profile Description

Apg	0 ∿ 7 cm	Grayish Brown 7.5YR6/2, Humus contents rich, many fine roots, coarse subangular blocky structure, Compact (Hardness 15∿17), Sticky, Heavy clay, clear smooth boundary to
C_1g	7 ∿ 70 cm	Grayish white N 7/0, few humus content, very coarse subangular block structure, a few cracks, many brownish mottles, Ground water level at 50cm depth, compact (Hardness 16∿18), Heavy clay, Solid ratio 42∿44%, abrupt smooth boundary to
C_2g	70 ∿ 100^+ cm	Grayish white N 7/0, very coarse subangular block structure, Sticky, Sandy clay

Table II-6-6

a)	Profile Number	:	DII
b)	Location	:	E 1600m, N 600m
c)	Date of Examination	:	26 Sept. 1978
d)	High Category Classification	:	Gleysols, Dystric Gleysols
e)	Topography	:	Flat
f)	Vegetation	:	Grass
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Originally poor, but from 2 years ago a drainage ditch was constructed near by

Profile Description

A_0	0 ∿ 5 cm	Grayish Brown 7.5YR6/2, drained and airdried woody peat, fibrous structure, many fine roots, abrupt smooth boundary to
C_1g	5 ∿ 75 cm	Light Gray 2.5Y7/1, very coarse subangular block structure, many cracks, a few fine roots, Sticky, Heavy clay, abrupt smooth boundary to
C_2g	70 ∿ 100 cm	Light Gray 2.5Y8/1, very coarse subangular block structure, few cracks, Sticky, Light clay

Table II-6-7

a)	Profile Number	:	DIII
b)	Location	:	E 1500m, N 200m
c)	Date of Examination	:	26 Sept. 1978
d)	High Category Classification	:	Gleysols, Dystric Gleysols
e)	Topography	:	Flat
f)	Vegetation	:	Bush (Belukar)
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainage	:	Originally poor, but from 2 years ago a drainage ditch was constructed nearby

Profile Desctiption

Apg 0 ∿ 17 cm Light Gray 2.5Y7/1, Humus content common, many fine roots, many fine pores, coarse subangular block structure, compact, clear smooth boundary to

C_1g 17 ∿ 60 cm Light Gray 2.5Y8/1, a few humus contents, a few fine roots to 50cm depth, many brownish mottles, Medium granular structure, Compact, Sand, abrupt smooth boundary to

C_2g 60 ∿ 80^+ cm Grayish White N 7/0, Compact, Sand

Table II-6-8

a) Profile Number : EII
b) Location : E 1500m, N 750m
c) Date of Examination : 19 Sept.,1978
d) High Category Classification : Histosols, Dystric Histosols
e) Topography : Flat
f) Vegetation : Bush (Belukar)
g) Parent Material : Quaternary Tropical Swamp Forest Peat
h) Drainage : Very poor

Profile Description

H_1 0 ∿ 20 cm Brownish Black 7.5YR2/2, Many fine roots, somewhat drained, undecomposed woody peat, spongy structure, Hardness 4.0∿6.0, Solid ratio 7.0∿10.0%, Clear wavy boundary to

H_2 20 ∿ 35 cm Black 10YR2/1, very few roots, Water saturated, undecomposed woody peat, Spongy structure, Hardness 4.5∿7.0, Solid ratio 9.2∿14.4, abrupt irregular boundary to

C_1 35 ∿ 100cm Grayish Brown 7.5YR6/1, very weakly coarse subangular block structure, Hardness 5.0∿8.0 Heavy clay, Sticky, Solid ratio 29∿36%, Ground water level at 70cm depth.

Table II-6-9

a)	Profile Number	:	CIII
b)	Location	:	Center N 2200m
c)	Date of Examination	:	3 Oct. 1978
d)	High Category Classification	:	Histosols, Dystric Histosols
e)	Topography	:	Flat
f)	Vegetation	:	Tropical Swamp Forest
g)	Parent Material	:	Quaternary Tropical Swamp Forest Peat
h)	Drainage	:	Very poor

Profile Description

H_1	0 ∿ 225 cm	Brownish Black 10YR2/2, many roots upper 50cm, partially decomposed woody peat, throughout the year water logged, Solid ratio 6.2∿8.1%, may be gradual smooth boundary to
H_2	225 ∿ 475 cm	Dark Brown 10YR3/3, fairly decomposed Woody peat, throughout the year water logged, Solid ratio 6.2∿8.1%, may be abrupt smooth boundary to
Cg	475^+ cm	Dark Olive Gray 5GY3/1 to Grayish Olive 7.5Y4/2. Sticky, Heavy clay

Table II-6-10

a)	Profile Number	:	CII
b)	Location	:	Center N 450m
c)	Date of Examination	:	20 Sept. 1978
d)	High Category Classification	:	Histosols, Dystric Histosols
e)	Topography	:	Flat
f)	Vegetation	:	Bush (Belukar)
g)	Parent Material	:	Quaternary Tropical Swamp Forest Peat
h)	Drainage	:	Very poor

Profile Description

H	0 ∿ 150 cm	Brownish Black 10YR2/2, many fine roots to 20cm depth, throughout the year water-logged, partially decomposed woody peat, Solid ratio 1.9 ∿ 2.9%, abrupt smooth boundary to
Cg	150 ∿ 250 cm	Grayish White N 7/0, very coarse subangular block structure, somewhat compact, Sticky, Heavy clay

Table II-6-11

a)	Profile Number	:	DI
b)	Location	:	E 1600m, N 800m
c)	Date of Examination	:	26 Sept. 1978
d)	High Category Classification	:	Histosols, Dystric Histosols
e)	Topography	:	Flat
f)	Vegetation	:	Bush (Belukar)
g)	Parent Material	:	Quaternary Tropical Swamp Forest Peat
h)	Drainage	:	Originally very poor, but from 2 years ago a drainage ditch was constructed nearby

Profile Description

H	0 ∿ 30 cm	Brownish Black 7.5YR2/2, somewhat drained undecomposed and somewhat decomposed woody peat, many fine roots, spongy structure, clear irregular boundary to
Cg	30 ∿ 70 cm	Grayish White N 7/0, few roots, very coarse sub-angular block structure, Ground water level at 30cm depth, nearby the boundary between the peaty horizon and this horizon, Sticky, Heavy clay.

Table II-6-12

a)	Profile Number	:	WI
b)	Location	:	W 2800m, N 100m
c)	Date of Examination	:	30 Sept. 1978
d)	High Category Classification	:	Acrisols, Orthic Acrisols
e)	Topography	:	Undulating
f)	Vegetation	:	Rubber (Hevea brasiliensio, Muell)
g)	Parent Material	:	Weathering material of Carboniferous sand stone and shale.
h)	Drainage	:	Good

Profile Description

A_1	0 ∿ 15 cm	Dark Brown 10YR3/3, Humus contents common, many fine roots, weak to moderate fine subangular block structure, Compact (Hardness 14.0∿21.0), Light clay, Solid ratio 48∿49%, abrupt smooth boundary to
B_1	15 ∿ 80 cm	Yellowish Brown 10YR5/6, few humus contents, a few fine roots to 65cm depth, Medium subangular block structure, very compact (Hardness 20.0∿22.0), Sandy clay, Solid ratio 49∿55%, clear smooth boundary to
B_2	80 ∿ 100^+cm	Pale Yellow 2.5YR8/4, Medium subangular block structure, very compact, Sandy clay

Table II-6-13

a)	Profile Number	:	WII
b)	Location	:	W 2000m, N 100m
c)	Date of Examination	:	30 Sept. 1978
d)	High Category Classification	:	Acrisols, Orthic Acrisols
e)	Topography	:	Undulating
f)	Vegetation	:	Upland crops
g)	Parent Material	:	Weathering material of Carbonferous sand stone and shale.
h)	Drainage	:	Good

Profile Description

A_1	0 ∿ 20 cm	Brownish Black 7.5YR2/3, Humus contents common, many fine roots, moderate fine subangular block structure, compact (Hardness 12.0∿19.0) Sandy clay Loam, Solid ratio 34∿44%, abrupt smooth boundary to
B_1	20 ∿ 80 cm	Yellowish Brown 10YR5/6, few humus content, a few fine roots to 45cm depth, moderate medium sub-angular block structure, very compact (Hardness 20.0 ∿ 23.0), Sandy Loam, Solid ratio 47∿49%, Clear smooth boundary to
B_2	80 ∿ 100$^+$cm	Yellow 2.5Y8.6, medium subangular block structure, very compact, Sandy Loam

Table II-6-14

a)	Profile Number	:	HI
b)	Location	:	E 2300m, N 700m
c)	Date of Examination	:	5 Oct. 1978
d)	High Category Classification	:	Acrisols, Orthic Acrisols
e)	Topography	:	Hilly
f)	Vegetation	:	Bush (Belukar)
g)	Parent Material	:	Weathering material of Jurassic-Triasei sand stone and shale.
h)	Drainage	:	Good

Profile Description

A_1	0 ∿ 20 cm	Brown 10YR4/4, Humus contents rich, many fine roots, many pores, Medium subangular block structure, friable, Sandy clay Loam, gradual smooth boundary to
B_1	20 ∿ 60 cm	Yellowish Brown 10YR5/6, a few faint brownish mottles, patchy clay skins, a few fine pores, Medium subangular block structure, compact, Sandy clay, gradual smooth boundary to
B_2	60 ∿ 80^+ cm	Bright Brown 7.5YR5/6, few faint redish mottles, few fine pores, Medium subangular block structure, Compact, Sandy clay

Table II-6-15

a) Profile Number : BI
b) Location : W 3000m, N 6000m
c) Date of Examination : 24 Oct. 1978
d) High Category Classification : Acrisols, Orthic Acrisols
e) Topography : Hilly
f) Vegetation : Tropical Low Land Forest
g) Parent Material : Weathering material of Carboniferous sandstone and shale
h) Drainage : Good

Profile Description

A_1	0 ∿ 5 cm	Brownish Black 7.5YR2/3, humus content rich, many fine roots, many pores, friable, fine to medium subangular block structure, Clay Loam, Clear smooth boundary to
B_1	5 ∿ 35 cm	Brown 10YR4/4, humus content common, many fine roots, many pores, medium subangular block structure, friable, somewhat compact, Sandy Clay Loam, gradual smooth boundary to
B_2	35 ∿ 80 cm	Yellowish Brown 10YR5/6, humus content scanty a few fine roots, a few fine pores, medium subangular block structure, compact, Sandy Clay, abrupt smooth boundary to
	80 ∿ 120 cm	Bright Brown 7.5YR5/6, layer of Gravel with filmy clayskins

Table II-6-16

a)	Profile Number	:	BII
b)	Location	:	W 3500m, N 6500m
c)	Date of Examination	:	24 Oct. 1978
d)	High Category Classification	:	Acrisols, Orthic Acrisols
e)	Topography	:	Hilly
f)	Vegetation	:	Tropical Low Land Forest
g)	Parent Material	:	Weathering material of Carboniferous sandstone and shale.
h)	Drainage	:	Good

Profile Description

A_1	0 ∿ 5 cm	Brownish Black 7.5YR2/3, humus content rich, many fine roots, many pores, fine to medium subangular block structure, friable, Clay Loam, Clear smooth boundary to
B_1	5 ∿ 25 cm	Brown 10YR4/4, humus content common, many fine roots, many pores, fine to medium subangular block structure, friable Sandy Clay, Clear smooth boundary to
B_{21}	25 ∿ 60 cm	Yellowish Brown 10YR5/6, humus content scanty few fine roots, medium subangular block structure, a few faint red mottles, somewhat compact, Sandy Clay, abrupt smooth boundary to
B_{22}	60 ∿ 80^{+} cm	Grayish Brown 7.5YR6/2, medium subangular block structure, a few red mottles, massive, Light Clay.

Table II-6-17

a)	Profile Number	:	HII
b)	Location	:	E 2300m, N 1500m
c)	Date of Examination	:	5 Oct. 1978
d)	High Category Classification	:	Acrisols, Ferric Acrisols
e)	Topography	:	Hilly
f)	Vegetation	:	Tropical Low Land Forest
g)	Parent Material	:	Weathering material of Jurassic - Triassic sandstone and shale.
h)	Drainage	:	Good

Profile Description

A_1	0 ∿ 25 cm	Brown 10YR4/4, humus contents rich, many roots, many pores, medium subangular block structure, friable, Sandy Loam, abrupt smooth boundary to
B_1	25 ∿ 60 cm	Yellowish Brown 10YR5/6, humus contents scanty, a few fine roots, many fine pores, medium subangular block structure, patchy clayskins, a few redish brown mottles, Compact, Sandy Loam, gradual smooth boundary to
B_2	60 ∿ 80^+ cm	Bright Brown 7.5YR5/6, a few fine roots to 70cm depth, medium subangular block structure, redish brown mottles, compact, Sandy Loam.

Table II-6-18

a)	Profile Number	:	HIII
b)	Location	:	E 2500m, N 2000m
c)	Date of Examination	:	5 Oct. 1978
d)	High Category Classification	:	Acrisols, Ferric Acrisols
e)	Topography	:	Hilly
f)	Vegetation	:	Tropical Low Land Forest
g)	Parent Material	:	Weathering material of Jurassic-Triassic sandstone and shale.
h)	Drainage	:	Good

Profile Description

A_1	0 ∿ 15 cm	Brown 10YR4/4, humus contents rich, many fine roots, many pores, moderate medium subangular block structure, friable, Sandy Loam, abrupt smooth boundary to
B_1	15 ∿ 70 cm	Yellowish Brown 10YR5/6, humus contents scanty, a few fine roots, many fine pores, medium subangular block structure, a few redish brown mottles, patchy clayskins, Compact, Sandy Loam, gradual smooth boundary to
B_2	70 ∿ 90^+ cm	Bright Brown 7.5YR5/6, medium subangular block structure, many fine pores, a few fine roots to 80cm depth, redish brown mottles, compact, Sandy Loam.

Table II-6-19

a) Profile Number : BIII
b) Location : W 4300m, N 7000m
c) Date of Examination : 24 Oct. 1978
d) High Category Classification : Acrisols
e) Topography : Rolling
f) Vegetation : Tropical Low Land Forest
g) Parent Material : Weathering material of Carboniferous siltstone and shale which is low in iron.
h) Drainage : Poor

Profile Description

A_1	0 ∿ 10 cm	Dark Grayish Brown 10YR4/2, humus content rich, many fine roots, many pores, fine subangular block structure, friable, Sandy Clay Loam, abrupt smooth boundary to
B_1	10 ∿ 35 cm	Light Gray 10YR7/2, humus content scanty, a few fine roots, medium subangular block structure, many faint yellow mottles, Sandy Clay, gradual smooth boundary to
B_2	35 ∿ 65 cm	Light Gray 10YR7/2, few fine roots, many district yellow mottles, fairly strong medium angular block structure, somewhat compact, Sandy Clay, abrupt smooth boundary to
	65 ∿ 70 cm	Layer of Quarty grits and gravels

Table II-6-20

a)	Profile Number	:	M
b)	Location	:	E 4000m, N 7000m
c)	Date of Examination	:	29 Sept. 1978
d)	High Category Classification	:	Fluvisols, Dystric Fluvisols
e)	Topography	:	Flat
f)	Vegetation	:	Mangosteen (Garcinia mangostena, L.)
g)	Parent Material	:	Quaternary Riverine Alluvium
h)	Drainag	:	Poor

Profile Description

A_1	0 ∿ 17 cm	Grayish Yellow Brown 10YR6/2, humus contents common, many fine roots, Fine subangular block structure, somewhat compact (Hardness 9.0∿11.5) Load, Solid ratio 54.7∿55.8%, abrupt smooth boundary to
B_1	17 ∿ 70 cm	Bright Yellowish Brown 10YR7/6, few humus contents, a few fine roots to 55cm depth, Fine subangular block structure, somewhat compact (Hardness 8.0∿12.0), Sandy Loam, Solid ratio 55.0∿57.0%, abrupt smooth boundary to
B_2	70 ∿ 100$^+$cm	Yellowish Orange 10YR8/6, Fine subangular block structure, somewhat compact, Sandy Loam.

Table II-7 Boring Core Samples*

Depth cm	No. of Samples	Site No. 7		Site No.15		Site No.23	
		Color	Texture	Color	Texture	Color	Texture
50	1 2 3	10YR 2/2 Brownish Black	Peat many roots	10YR 2/2 Brownish Black	Peat many roots	10YR 2/2 Brownish Black	Peat partially decomposed many roots
100	4 5 6 7	10YR 3/3 Dark Brown	Peat fairly decom-posed	10YR 3/3 Dark Brown	Peat fairly decom-posed		
200	8 9 10 11	2.5Y 4/3 Olive Brown	SC Sandy Clay a little organic matter	2.5Y 4/3 Olive Brown	SC Sandy Clay a little organic matter		
300	12 13 14 15				SC	10YR 3/3 Dark Brown	Peat fairly de-composed
400	16 17 18 19	25Y 3/3 Dark Olive Brown	SC Sandy Clay a little organic matter	2.5Y 3/3 Dark Brown	Sandy Clay a little organic matter		
500	20 21 22 23		Lic Light Clay		Lic Light Clay	5GY 3/1 Dark Olive Gray	HC Heavy Clay
600	24 25 26 27	10YR 6/4 Brown	SC Sandy Clay	10YR 6/4 Brown	SC Sandy Clay	7.5Y 4/2 Grayish Olive	HC Heavy Clay
700	28 29 30 31					2.5Y 4/3 Olive Brown	SC Sandy Clay
800	32 33 34 35					2.5Y 3/3 Dark Olive Brown	SC Sandy Clay
900	36 37 38 39					10Y 4/1 Gray	Lic Light Clay
1000	40					10YR 6/4 Brown	SC Sandy Clay

* Samples were Obtained from Geotechnique (Malaysia) Sdn.Bhd.

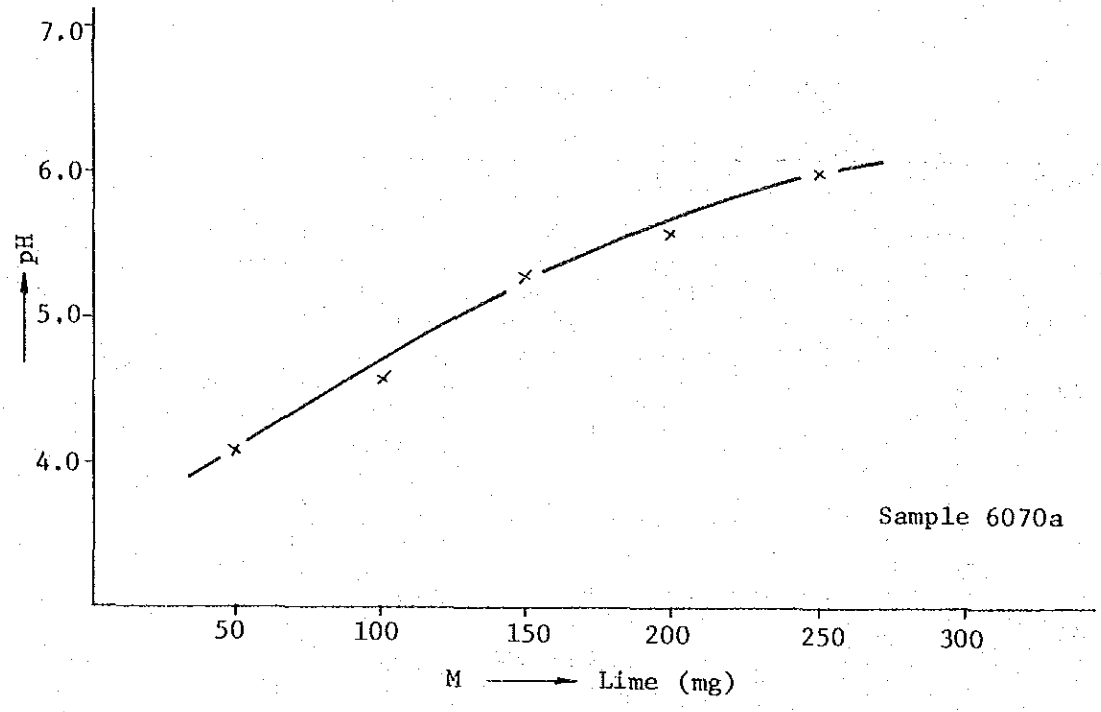

Fig. II-1 Buffer Curve of E II_1 (Dystric Histosols, H_1)
- Miss I. Jogeswary -

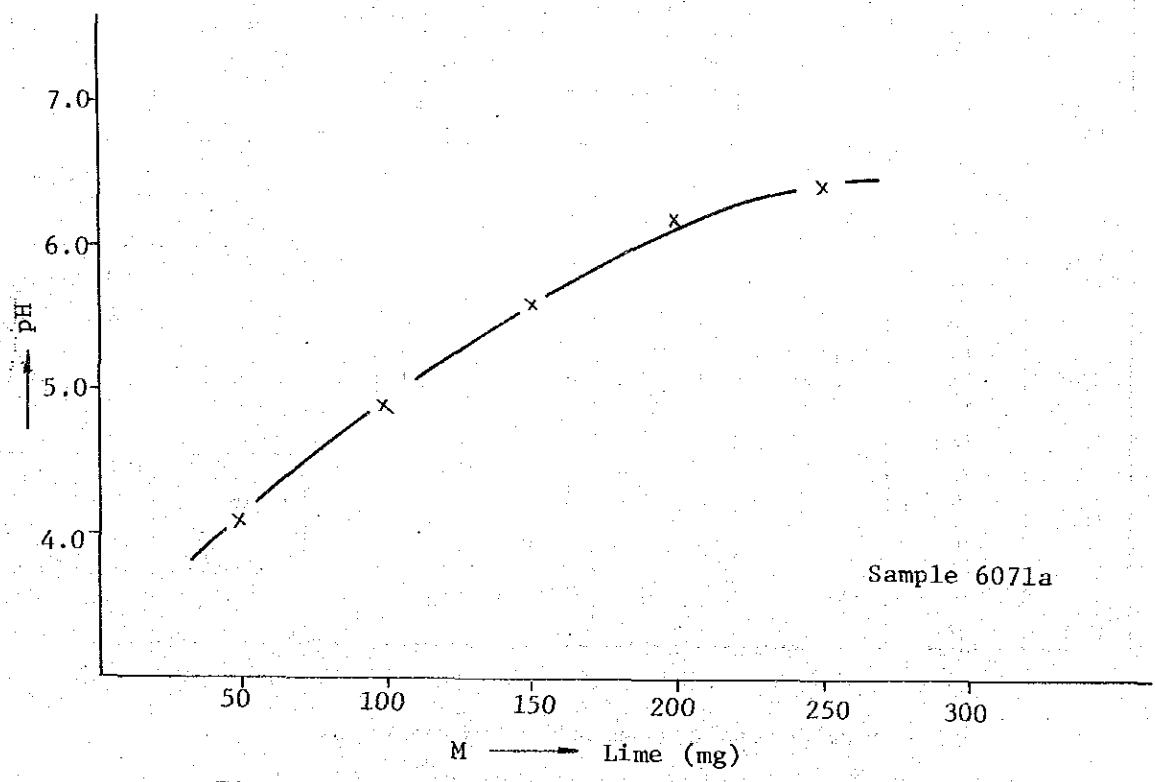

Fig. II-2 Buffer Curve of EII_2 (Dystric Histosols, H_2)
- Miss I. Jogeswary -