Tables

No. of Soil	Symbol of	Location		Parent	Effective Soil	Present Land Use	Date
Site	Soil Site	Village	District	Material	Horizon Depth		
			*				
1	PB- 1	B.Daxe	LG	Basal	Deep	Rice field	20/04/199
2	PB- 2	B.Natabeng Nai	LG	Basalt	Deep	Rice field	20/04/199
3	PB-3	VIIL No.08-2	`PX _'	Basalt	Shallow	Grassland	20/04/199
4	PB- 4	B.Thong Kam	1.G	Basalt	Deep	Coffee garden	20/04/199
5	РВ- 5	B.Dong Noy	10	Basalt	Deep	Fruit garden	20/04/199
6	PB- 6	B.Kianglatsoung	BC	Basalt	Deep	Rice field	20/04/199
7	PB- 7	B Phonhin	LG	Basalt	Deep	Coffee garden	20/04/199
8	PB- 8	B.Kaphon	ig	Basalt	Medium	Rice field	20/04/199
9	PB- 9	B Dongtong Noi	LG	Basalt	Deep	Coffee garden	20/04/199
10	PB-10	B Nongb	BC	Basalt	Deep	Clear forest	20/04/199
11	PB-11	B.Talab	BC	Basalt	Deep	Fruit garden	20/04/199
12	PB-12	B.Thongkatai	PX	Basalt	Deep	Grassland	20/04/199
13	PB-13	B.Pakyoog	PX	Basalt	Shallow	Grassland	20/04/199
14	PB-14	B.Nong-loy	PX	Basalt	Deep	Rice field	20/04/199
15	PB-15	B.Nong Kin	₽ X	Basalt	Shallow	Grassland	21/04/199
16	PB-16	B.Kong	• РХ	Basalt	Shallow	Coffee garden	21/04/199
17	PB-17	B.Xepian	PX	Basalt	Deep	Grassland	21/04/199
18	PB-18	B.Ph.Dindeng	PX	Basalt	Shallow	Coffee garden	21/04/199
19	PB-19	B.Khankok	ТН	Basalt	Shallow	Rice field	21/04/199
20	PB-20	B.Borg Nok	ТН	Basalt	Deep	Grassland	21/04/199
21	PB-21	B.Houaytong	BC	Basalt	Deep	Rice field	21/04/199
22	PB-22	B.Nongtoua	BC	Basalt	Shallow	Grassland	21/04/19
23	PB-23	B.Ten	o.	Basalt	Medium	Rice field	21/04/19
24	PB-24	MKL No.34	PX	Basalt	Deep	Grassland	21/04/199
25	PB-25	B.Nong Khuang	PX	Basalt	Shallow	Grassland	21/04/19
26	PB-26	B.Houag Xay	PX	Basalt	•	Scrub	21/04/199
27	PB-27	MKL NO.23-11	PX	Basalt	Deep	Coffee garden	21/04/199
28	PB-28	B.LaK 43	PX	Basalt	Deep	Coffee garden	21/04/19
29	PB-29	NKh.L.08	PX	Basalt	Shallow	Grassland	21/04/19
30	PB-30	B.Phoyoy	PX	Basalt	Shallow	Coffee garden	21/04/19
31	PB-31	Pakxong	РХ	Basalt	Shallow	Grassland	21/04/199

Table I-1 Soil Description of Preliminary Boring Test with Auger

Table I-2 Soil Description of Regular Boring Test with Anger

Symbol of Servey Sile :B-1

1 Location	BKATOVAT	10 Parent material or	: Basalt
2 Elevationa	: 1230mMSL	mode of deposition	
3. Land use	: Rice, coffee & banana	11.Vegetation	: Rice, coffee & banana
4. Weather of Examination	: Fine	12 Application of fertiliz	2011
5 Precipitation	: Sinall rain last evening	13.Drainage	: Well
6 Slope	:0-2%	14.Data	: 28/04/1995
7 Erosion	: None	15.Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16.Soil group	: Soil Code 8- Lithic Nitosols
9.Geology			(Lithosols)

Soil Profile

Horizon	Depth	Description
	<u>i</u>	
A	0-25	Texture=Clay loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color= Dark brown (7.5YR3/4); Structure=Granular; Pore=Many & Ene; Oxidative sediments (Salts) =No; Mn=No; Pe2+=No; Hardness=Low; Plasticity=Low to medium; Stickness=Low to medium; Wetness=; Roots=Many & Ene.
AB	25-70	Texture=Silty clay loam; Gravel & stone=No; Hurnus=<2%; Peat muck=No; Color= Brown (7.5YR4/6); Structure=Granular; Pore=Many & Enc; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Haidness=; Plasticity=Medium; Stickness=Medium; Welness=; Roots=Few & very fine.
Bl	70-95	Texture=Silty clay; Gravel & stone=No; Humas=No; Peat mack=No; Color=Bright brown (7.5YR5/6); Structure=Granular; Pore=Many & Ene; Oxidative sediments(Salts)= No; Mn=No; Fe2+=No; Hardness=; Plasticity=Medium; Stickness=Mediu on to high; Wetness=; Roots=Very few & very fine.

Symbol of Survey Site :B-2

Location	BKUB	10.Parent material or	: Basalt
2.Elevation	: 510mMSL	mode of deposition	
3 Land use	: Upland crops & banana	1).Vegetation	: Scrub forest
4. Weather of Examination	: Good	12 Application of ketilis	261:
5.Precipitation	: Small min last evening	13.Dminage	: Well
6 Slope	:0-2%	14.Data	:01/05/1995
7.Erosion	: Slightly	15. Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 7- Dystric Nitosol

(Lithic Nitosols)

9.Geology Soil Profile

Horizon	Depth	Description
2. State 1	C13	
	0-18	Texture=Sill; Gravel & stone=No; Humus=No; Pest mock=No; Color= Dark reddish brown (SYR3/5); Structure=Granular & Enc; Pore=Many & Enc; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Medium; Stickness=Very sticky; Weiness=; Roois=Many & Enc.
AB	18-50	Texture=Silty clay; Gravel & store=No; Humus=No; Peal muck=No; Color=Dark reddish brown (SYR3/4); Structure=Granular & fine; Porc=Many & fine; Oxidative sodiments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Medium to high; Stickness=Very sticky; Wetness=; Roots=Many & very fine.
B)	50-100	Texture=Clay; Gravel & stone=5-10% of basalt fragments; Humus=No; Peat muck=No; Color=Reddish brown(SYR4/4); Structure=Granular & crurob; Pore=Mediam & fine; Oxidative sediments(Salts)=No; Mn=No: Fe24=No; Hardness=…; Masticity=Medium to Nigh; Stickness=Very aticky; Wetness=…; Roots=Many & fine.

11-12

1 Location	: B KHAMKOK	10.Parent material or	: Basalt
2.Flevation	: 610mMSL	mode of deposition	
3 Land use	: Upland field	11 Vegetation	: Upland rice
4. Weather of Examination	: Fiac	12 Application of fertile	201:
5 Precipitation	:No	13 Drainage	: Well
6.Slope	:2-8%	14 Data	:01/05/1995
7 Erosion	: Slightly	15.Sarveyer	: JICA Sarvey Team
8.Topography	: Undulating	16.Soil group	: Soil Code 7- Dystric Nitosol
9.Geology			(Lithic Nitosols)

Soil Profile

lorizoa	Depth	Description
A	ст 0-20	Texture=Silty lozm; Gravel & stone=No; Humus=2.3%; Peat unock=No; Color= Dark reddish brown (SYR3/3); Structure=Granular & fine; Pore=Many; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Stickness=Very Sticky; Wetness=; Roots=Many.
AB	20+	Gravel & stone=>90% of basaltic rock(2-200mm in diameter).

Symbol of Survey Site :B-4

Information on the Soil Site : B.THATHENG 10 Parent material or : Basalt 1 Location :830mMSL mode of deposition 2 Elevations : Coffee : Collee garden 11.Vegetation 3.Land use 12 Application of fertilizer: 4. Weather of Examination : Fiac : Well : Small rain last evening 13 Drainage S. Precipitation :2-8% 14 Da1a : 01/05/1995 6.Slope : JICA Survey Team : Stightly : Gently sloping 7.Erosion 15.Surveyer : Soil Code 7- Dystric Nitosols 16.Soil group 8.Topography (Lithic Nitosols) 9.Geology

Soil Profile	Depth	Description
Α	сл (-)5	Texture=Silty Clay; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color= Dark reddish brown (5YR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=; Hasticity=Very plastic; Stickness=Very sticky; Wetness=; Roots=Many & fine.
B1	15-50	Texture=Silty clay; Gravel & stone=No; Humas=No; Peal mark=No; Color=Dark reddish brown (SYR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Stickness=Very sticky; Wetness=; Roois=Many & fine.
B1 ·	50-100	Texture=Clay; Gravel & stone=S-10% of basalt fragments; Humus=No; Peat muck=No Color=Reddish brown(SYR4/4); Structure=Granular & crumb; Pore=Medium & fine; Oxidative sediments(Salts)=No; Ma=No: Fe2+=No; Hardnessa; Plasticity=Very plastic; Stickness=Very sticky; Wetness=; Rools=Many & fine.

Information on the Soil Site			
1 Location	: B PONG-NUA	10.Parent material or	: Basili
2.Elevation	: 780mMSL	mode of deposition	
3 Land use	: Sonob forest	11.Vegetation	: Scrub
4.Weather of Examination	: Flas	12.Application of knillin	¢f:
5.Precipitation	: No	13.Drainage	: Well
6 Slope	:2-8%	14.Data	: 01/05/1995
7.Erosion	: Slightly	15.Surveyer	: JICA Survey Teara
8.Topography	: Gently aloping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			

Sail Profile

Horizon	Depth	Description
	(u	
A	0-15	Texture=Silty clay loam; Gravel & store=No; Humus=2-3%; Peat muck=No; Color= Dark reddish brown (SYRM3); Structure=Granular & crumb & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Hasticity=Very plassic; Sickness=Very sticky; Wetness=; Roots=Many & fine.
AB	15-55	Texture=Cliy loam; Gravel & stone=No; Humas=No; Peat mack=No; Color=Dark reddish brown (SYR3/4); Structure=Granulsr & crumb & fine; Pore=Many & fine; Oxidativr sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Sickness=Very sticky; Wetness=; Roots=Many & very fine.
В	55-100	Texture=Clay; Gravel & stonc=No; Humas=No; Peat mack=No; Color=Yellowish red (SYR4/5); Structure=Granalar & crumb & fine; Pore=Many & fine; Oxidative sediments (Salts)=No; Mn=No; Fe2=No; Hurdness=; Hasticity=Very plastic; Stickness=Very sticky; Weiness=; Roots=Very few & very fine.

Symbol of Survey Site :B-6

1.Location		: B.LAVANO	10 Parent material or	: Basalt
2 Ekvation : 620mMSL		: 620:2MSL	mode of deposition	
3 Land use : Scrub forest			11.Vegetation	: Scrab forest
4. Weather of Enzorination : Fine			12 Application of fertili	20 f :
S. Precipitation		:No	13.Drainage	: Well
6 Slope	· .	:2-8%	14 Data	: 01/05/1995
7.Erosion		: Slightly	15. Surveyer	: JICA Survey Team
8. Topography		: Undefating	16 Soil group	: Soil Code 6- Dystric Nilosols
9.Geology				
Soil Profile				
Horizon	Depth		Description	
		a Texture=Siliy loam; Gravel & stone=No; Hamus=2-3%; Peat mack=No; Color= Dark æddish brown (SYR3/3); Structure=Granelar & crumb & fine; Pore=Many & fine; Oxidative ædiments(Salta)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very; Stickness=Very slicky; Wetness=; Roots=Many & fine.		
•	ст 0-20	Texture=Söiy koam; Grav reddish brown (SYR3/3); Oxidative acdiments(Saltu	Structure=Oranular & crumi s)=No; Mn=No; Fe2+=No; ł	b & fine; Pore=Many & fine; Iardness=; Plasticity=Very;
A		Texture-Siliy kaan; Grav reddish brown (SYR3/3); Oxidative acdiments(Satu Stickness=Very sticky; W Texture-Silty kaan; Grav reddish brown (SYR3/4);	Structure=Oranvier & crumi e)=No; Ma=No; Fe2+=No; H letness=; Roots=Many & el & stanc=No; Humus=No; Structure=Granular & crumi	b & Enc; Porc=Many & Enc; Hardness=; Plasticity=Very; Enc. ; Peat insuck=No; Color=Dack b & Enc; Porc=Many & Enc;
	0-20	Texture=Siliy kaan; Grav reddish brown (SYR3/3); Oxidative acdiments(Saltu Stickness=Very sticky; W Texture=Silty kaan; Grav reddish brown (SYR3/4); Oxidative sediments(Saltu	Structure=Oranvier & crumi e)=No; Ma=No; Fe2+=No; H letness=; Roots=Many & el & stanc=No; Humus=No; Structure=Granular & crumi	b & Enc; Porc=Many & Enc; Hardness=; Plasticity=Very; Enc. ; Peat mock=No; Color=Daak b & Enc; Porc=Many & Enc; Hardness=; Plasticity=Very

nformation on the Soil Site 1. Location		10 Pasent material or	: Bisit	
2 Ekvetion		mode of deposition	. Dasaji	
3.Land use	: Grass land	11.Vegetation	: Griss	
4. Weather of Faamination	: Fine	12 Application of fertile	261:	
5.Precipitation	: No	13.Drainage	: Well	
6 Slope		14.Data	: 01/05/1995	
7 Erosion		15 Surveyer	: JICA Servey Team	
8. Topography		16.Soil group	: Soil Code 6- Dystric Nitosols	
9. Geology				

Soil Profile

lorizon	Depth	Description		
A 1	0-20	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat mock=No; Color=Dark yellowish brown (SYR3/4); Structure=Granular & crumb & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Stickness=Very sticky; Weiness=; Roots=Many & fine.		
<u> </u>	20+	Gravel & stone=>90%.		
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Symbol of Survey Site :B-8

Information on the Soil Sile B PHOKHEM 10.Parent material or).Location : Baselt 2 Ekvation :850mMSL mode of deposition : Upland field 3.Land uso 11 Vegetation : Rice, chilli, collee 12 Application of fertilizer: 4. Weather of Examination : Fine 5 Precipitation :No 13 Drainage : Well :0-2% 6.Slope 14 Data : 02/05/1995 15 Surveyer 7 Erosion : Slightly : IICA Sariey Team : Gently sloping 8.Topography 16 Soil group : Soil Code 6- Dystric Nitosols 9. Geology

Horizon	Depth	Description		
		a		
A	0-30	Texture=Silty cfay; Gravel & stone=No; Hamns=2-3%; Peat muck=No; Color= Dark yelkowish brown (SYR3/4); Structure=Granular & crumb & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2a=No; Hardness=; Plasticity=Very plastic; Stickness=Very sticky; Wetness=; Roots=Many & fine.		
С	30+	Gravel & stone=>90% of besaltic segments having size of 20-200mm in diameter.		
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Information on the Soil Site			
1 Location	: B DAXIA NOY	10 Parent material or	: Basalt
2 Elevation	: 790mMSL	mode of deposition	
3 Land use	: Upland field	11.Vegetation	: Upland rice & coffee
4. Weather of Examination	: Fine	12 Application of Settli	261:
5.Precipitation	: No	13 Drainage	: Well
6.Slope	:0-2%	14 Data	: 01/05/1995
7.Erosion	: Stightly	15.Surveyer	: JICA Survey Team
8.Topography	: Very gently sloping	16 Soil group	: Soil Code 7- Dystric Nitosols
9. Geology			(Lithic Nitosols)

Soil Profile

Horizon	Depth	Description
	ເຫ	
A	0-15	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat mock=No; Color=Very dark brown (10YR2/2); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
BI	15-60	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat much=No; Color=Dark brown (7.5YR3/4); Structure=Granular & fine; Pere=Many & fine; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hardness=; Masticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Many & fine.
B2	60-100	Texture=Clay, Gravel & stonc=No; Humus=No; Peat mack=No; Color=Dark Yellowish brown(10YR4/6); Structure=Granular & fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=; Plasticity=Very plastic; Stickness =Very sticky; Wetness=Moist; Roots=Many & fine.

Symbol of Survey Site : B-10

1 Location	: B DONDOV	10 Parent material or	: Basalt
2 Elevation	:610mMSL	mode of deposition	
3.Land use	: Upland field	11.Vegetation	: Rice, tabacco, chilli, banana,
4. Weather of Examination	: Fine		cardamoni
5.Precipitation	:No	12 Application of fertilit	201:
6.Slope	:0-2%	13 Drainage	: Well
7.Erosion	: Slightly	14 Data	: 01/05/1995
8. Topography	: Cently sloping	15 Surveyer	: JICA Survey Team
9. Geology	· · · ·	16 Soil group	: Soil Code 7- Dystric Nitosols

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Horizon	Depth	Description
	C m	
•	0-20	Texture=Silty Ioaro; Gravel & stone=No; Hurnus=2-3%; Peal muck=No; Color= Dark brown (7.5YR3/4); Structure=Granular & Ene; Pore=Many & Ene; Oxidative sediments (Salts)=No; Ma=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Dry; Roots=Many & Ene.
B1	20-55	Texture=Silty clay losm; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown (5YR3/4); Structure=Granular & line; Pore=Many & medium; Oxidative sediments[Salts]=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very slicky; Wetness=Moist; Roots=Many & medium:
B2	55-100	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color= Reddish brown(SYR4,4); Structure=Graaular & very fine; Pore=Moderate & very fine; Oxidative sectiments(Salts)=No; Mn=No; Fe2+=No; Hardness=; Plasticity=Very plastic; Stichness=Very sticky; Welness=Moist; Roots=Few & very fine.

Symbol of Servey Sik :B-11

information on the Soil Site	: B XANUM	10 Parent material or	: Basalt
2 Elevation	: 410raMSL	mode of deposition	
3.Land use	: Upland field	11.Vegetation	: Upland rice
4.Weather of Examination	: Fino	12 Application of fertili	261;
5 Precipitation	: No	13.Drainage	: Well
6.Slope	:2-8%	14 Data	: 02/05/1995
7.Erosion	: Slightly	15.Surveyer	: JICA Survey Team
8.Topography	: Gently sloping to undelute.	16 Soil grosp	: Soil Code 6- Dystric Nitosols
9.Geology			

Soil Profile

Horizon	Depth	Description
A	0-15	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Pest mack=No; Color=Dark brown (7.5YR4/4); Structure=Granulas & fine; Pore=Many & fine; Oxidative acdiments (Salta)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Weiness=dry; Roots=Many & fine.
AB	15-40	Texture=Silty clay loam; Gravel & stone=No; Hunus=No; Peat muck=No; Color=Dark reddish brown (5YR3/4); Structure=Granular & fine; Pore=Many & fine; Onidative sediments(Salts)=No; Mn=No; Pe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
B1	40-80	Texture=Cliy; Gravel & stone=No; Hornus=No; Peat muck=No; Color=Dark reddish brown(2.5YR3/4); Structure=Sub-rounded & fine; Pore=Few & very fine; Oxidative sediments(Sults)=No; Mn=No; Fe2=No; Hardness=Medium; Masticity=Moderate; Stickness=Very slicky; Wetness=Moist; Roots=Very few & very fine.
B2	80-100	Texture=Clay; Gravel & stone=No; Hamus=No; Peal muck=No; Color=Durk reddish brown(2.5YR3/4); Sub-rounded & dine; Pore=Few & very fine; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hurdness=Medium; Plasticity=Moderate; Stickness= Very sticky; Roots=Very few & very fine.

Symbol of Survey Site

: B-12

1.Location	: B.VANGPUAY	10 Parent material or	: Basalt
2 Ekvition	: 590mMSL	mode of deposition	
3 Land use	: Banana garden	11.Vegetation	: Banana
4.Weather of Examination	Fine	12 Application of Ertiliza	a;
5.Precipitation	: Just mia	13 Drainage	: Well
6.Slope	:0-2%	14 Data	: 02/05/1995
7.Erosion	: Slightly	15.Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			· · · · · · · · · · · · · · · · · · ·

Borizon	Depth	Description
A	ст 0-20	Texture=Silty loam; Gravel & stone=No; Humas=2.3%; Feat muck=No; Color- Dark brown (7.5YR3/4); Structure=Granular & crumb & fine; Pone=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
AB	20-60	Texture=Silty loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Reddish brown (SYR4/4); Structure=Granular & crumb & fine; Pore=Many & medium; Oxidative sediments(Salts)=No; Ma=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very sticky; Wetness=Dry; Roots=Many & fine.
B1	60-100	Texture=Clay; Gravel & stone=10-20% of fragments having size of 20-50mm in diamete Humus=No; Peal muck=No; Color=Yellowish red(SYR4/6); Structure=Granular & Ene; Pore=Moderate & Ene; Oxidative sediments(Sults)=No; Mn=No; Fe2+=No; Hardness= Plasticity=Very plastic; Stickness=Very sticky; Weiness=dry; Roots=Many & Ene
B2	80-100+	Tealure=Clay; Gravel & stone=10-20% of fragments having size of 20-50mm in diamete Humus=No; Peal muck=No; Color=Yellowish red(SYR4/6),Structure=; Pore= Moderate & fine; Oxidative sediments(Salts)=No; Ma=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=dry; Roots=Many & fine.

Information on the Soil Site	· · · · · · · · · · · · · · · · · · ·	<u>.</u>	
1 Location	: B DONO	10 Pinel mitchil or	: Basatt
2 Elevations	: 890mMSL	mode of deposition	
3 Land use	: Three crops guidea	11 Vegetation	: Coffee, tamarine & linchee
4. Weather of Examination	: Cloudy	12 Application of & rulli	er:
5 Precipitation	: Roia	13.Drainage	: Well
6 Slope	:2-8%	14 Data	: 02/05/1995
7 Erosioa	: Slighuy	15 Surveyer	: ЛСА Survey Team
8. Topography	: Very gently eloping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology	,		·

Soil Profile

Horizon	Depth	Description
A	ал 0-15	Texture=Silty loam; Gravel & stone=No; Hamus=2-3%; Peat meck=No; Color=Dark brown(7.5YR3/3); Sinecture=Granular & fine; Pore=Many & fine; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Molst; Roots=Many & fine.
AB		Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark brown (7.5YR4/3); Structure=Granular & Ene; Pore=Many & Ene; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & Ene.
B1		Texture=Clay; Gravel & stone=No; Hamas=No; Peat mack=No; Color=Dark brown (7.5YR4/4); Structure=Granular & fine; Port=Many & fine; Oxidative sediments(Salts): No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Medium & fine.
B2		Texture=Clay; Gravel & stonc=No; Humus=No; Peat muck=No; Color=Dark brown (7.5YR44); Granular & Ene; Pore=Moderate & Ene; Oxidative sediments(Salu)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Roots=Few & very fine.

Symbol of Survey Site : B-14

Information on the Soil Site			• •
1.Location	: B KHOUA	10 Parent meterial or	: Basalt
2 Elevation	: 650mMSL	mode of deposition	
3 Land use	: Gressland	11.Vegetation	Native grass
4. Weither of Eximination	: Finc	12 Application of fertili	ZC1:
5 Precipitation	: No	13 Drainage	: Well
6 Slope	:0-2%	14.Data	: 02/05/1995
7 Erosion	: Slightly	15 Surveyer	: JICA Sarvey Team
8. Topography	: Gently sloping	16 Soil group	: Soil Code 6 - Dystric Nitosols
9.Goology			

Soil Profile

Horizon	Depth	Description
	. C11	
A	0-18	Texture=Silty lozm; Gravel & stone=No; Humas=2-3%; Peat mock=No; Color= Dark brown (7.5YR3/2); Structure=Granular & fine; Pore=Many & fine; Oxidative
·		sectiments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very sticky; Weiness=Molst; Roots=Many & fine.
AB	18-40	Texture=Süty loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown (SYR2/4); Structure=Granulat & fine; Pore=Many & fine; Oxidative sediments(Salis)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very slicky; Welness=Dry; Roots=Many & fine.
B) .	40-80	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat much=No; Coloe= Reddish brown(SYR4/4); Structure=Granular & fine; Pore=Moderate & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=dry; Roots=MOderate & fine.
B2	80-100+	Texture=Clay; Gravel & stone=No; Humus=No; Color=Reddish brown(5YR4/4); Sincture=Granular fine; Pore=Moderate & fine; Oxidative sediments(Salts)=No; Mn= No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=dry; Roots=Few & very fine.

Information on the Soil Site			
1 Location	BMUNPAKIT	10.Parent material or	; Basalt
2.Ekvadom	: S62mMSL	mode of deposition	
3. Land use	: Upland field	11.Vegetation	: Upland rice
4. Weather of Examination	: Fine	12.Application of kstill	261:
5.Precipitation	: Just rain	13.Drainage	: Well
6.Slope	:0-2%	14.Data	: 02/05/1995
7.Ecosion	: Slightly	15.Serveyer	: JICA Sarvey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			

Soil Profile

lonizon	Depth	Description
A	ста 0-20	Texture=Silly loam; Gravel & stone=No; Humas=2-3%; Peat mock=No; Color=Dark reddish brown (SYR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
AB	20-60	Texture=Silty loam; Gravel & stone=No; Humus=No; Peal muck=No; Colot=Dark reddish brown (2.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Weiness=Dry; Roets=Many & fine.
В	60-100	Texture=Clay; Gravel & stone=No; Hurans=No; Peat ranck=No; Color=Dark reddish biown(2 SYR3/4); Structure=Granulus & fine; Pore=Moderate & fine; Oxidative sediments(Salus)=No; Mn=No; Fe2=No; Hurdness=Soft; Masticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & very fine.

Symbol of Survey Site :B-16

1 Location	: B.VANGKHANAN	10 Parent material or	: Basalt	
2 Elevation	: 300mMSL	mode of deposition		
3 Land usc	: Upland field	11.Vegetation	: Upland rice	
4. Weather of Examination	: Fine	12 Application of fertility	261:	
5 Precipitation	: No	13.Drainage	: Well	
6 Slope	:0-2%	14.Data	: 03/05/1995	
7. Erosion	: Slightly	15.Surveyer	: RCA Survey Team	
8. Topography : Very gently sloping		16 Soil group	: Soil Code 6- Dystric Nitosol	
9.Geology			· · · · · · · · · · · · · · · · · · ·	

all Profile

Horizon	Depth	Description	
A ,	0-18	Texture=Silty clay loam; Gravel & stone=No; Hamus=2-3%; Peat muck=No; Color= Dark reddish brown (2 5YR2.5/4); Structure=Granolar & Bne; Porc=Many & Ene; Oxidative sediments(Salts)=No; Mn=No; Pc2+=No; Hardness=Soft; Plasticity=Very Plastic; Stekness=Very sticky; Wetness=Dry; Rools=Many & Ene.	
Bl	18-65	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown (2.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative scdiments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stichness=Very sticky; Wetness=Dry; Roots=Many & medium.	
B2	65-100+	Texture-Silly clay; Gravel & stone-No; Humas-No; Peat muck+No; Color-Dark Red (2 5YR3/6); Structure-Granslar & very fine; Pore-Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & very fine.	

: B-17 Symbol of Survey Sile

te formation on the Soil Site

· · · · · · · · · · · · · · · · · · ·		
B SONGHONG GNAL	10 Parent material or	: Basalt
: 330mMSL	mode of deposition	
: Upland field	11.Vegelation	: Upland rice
: Fine	12.Application of fertilit	266:
: No	13.Drainage	: Well
: 2-8%	14.Data	: 03/05/1995
: Slightly	15.Surveyer	: JICA Survey Team
: Undalating	16 Soil group	: Soil Code 6- Dystric Nitosols
	: 330mMSL : Upland field : Fine : No : 2.8% : Slightly	: 330mMSL mode of deposition : Upland field 11.Vegetation : Fine 12.Application of fertilities : No 13.Drainage : 2.5% 14.Data : Slightly 15.Sarveyer

sai1	D	e	

Horizon	Depth	Description
	C11	
A	0-15	Texture=Süty koam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dark brown (7.5YR4/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments (Salis)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=dry; Roots=Many & fine.
AB	15-45	Texture=Silty clay loarn; Gravel & stone=No; Harnus=No; Peat muck=No; Color= Reddish brown (SYR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salls)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & medium.
Bi	45-80	Texture=Silty clay; Gravel & stone=No; Humus=No; Peat runck=No; Color=Reddish brown(SYR4/6); Structure=Sub-rounded & Ene; Pore=Moderate & Ene; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very slicky; Wetness=Dry; Roots=Moderate & Ene.
B2	80-100+	Texture=Silty clay; Gravel & stone=No; Humas=No; Peal muck=No; Color=Reddish brown(SYR4/6); Structure=Sub-rounded & fine; Pore=Moderate & fine; Oxidative sediments(Salis)=No; Mn=No; Fe2=No; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & very fine.

: **B-18** Symbol of Survey Site

Information on the Soil Site			·
1 Location	: B NONO TOUA	10 Parent material or	: Basalt
2 Elevation	: 430mMSL	mode of deposition	1
3 Land use	: Coffee guiden	11.Vegetation	: Coffee
4. Weather of Examination	: Fine	12 Application of Artili	zci:
5.Precipitation	: No	13 Drainage	: Well
6.Slope	:0-2%	14 Data	: 03/05/1995
7.Frosion	: Slightly	15. Surveyer	: JICA Survey Team
8 Topography	: Very gently stoping	16 Soil group	: Soil Code 6 Dystric Nitosols
9.Geology			

Horizon		Depth	Description
		on	
	A :	0-20	Texture=Clay loam; Gravel & stone=No; Humus=3-4%; Peat mack=No; Color=Dark reddish brown (SYR3/3); Structure=Granular & Enc; Pore=Many & Enc; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Many & moderate.
	B1	20-60	Texture=Clay loam; Gravel & stone=No; Hamus=No; Peat muck=No; Color=Dark reddish brown (2.5YR2.5/4); Structure=Granglar & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & coarse.
	B2	60·100+	Texture=Clay; Gravel & stonc=No; Humus=No; Peat muck=No; Color=Dark red (2.5YR3/6); Structure=Granular & Enc; Porc=Many & Enc; Oxidative sediments(Salu) No; Mn=No; Pe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Welness=Moist; Rools=Moderate & Enc.

Information on the Soil Sile	: B NABON	10 Parent make rist or	:Basalt
2.Elevation	: 420mMSL	mode of provision	··
3 Land use	: Upland field	11.Vegetation	: Upland rice & chilli
4.Weather of Examination	: Fine	12 Application of fertili	201:
5.Precipitation	: No	13.Drainage	: Well
6.Slope	:0-2%	14.Data	: 03/05/1995
7.Erosion	: Slightly	15.Surveyer	: ЛСА Servey Team
8.Topography	: Yery gently sloping	16 Soil groop	: Soil Code 6- Dystric Nitosols
9. Geology			

Sail Profile

Horizon	Depth	Description
A	0-15	Texture-Silty loam; Gravel & stone=No; Hamus=2-3%; Peat muck=No; Color=Dark reddish brown (SYR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Saits)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=dry; Roots=Many & fine.
АВ	15-40	Texture=Silty loam; Gravel & stonc=No; Humus=No; Peat muck=No; Color=Dark reddish brown (SYR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & coarse.
81	45-75	Texture-Sitty clay bain; Gravel & stone=No; Humus=No; Peat mock=No; Color=Dark reddish brown(2.5YR3;4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Moderate & fine.
B2	75-100+	Texture=Clay; Gravel & stone=No; Humas=No; Peat mack=No; Color=Dark reddish brown(2.5YR3/4); Stracture=Sub-rounded & fine; Pore=Medium & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Webness=Moist; Reots=Few & very fine.

Symbol of Survey Sile

: B-20

Information on the Soil Sile			<u> </u>
1 Location	BLEN	10 Parent material or	: Basali
2 Elevations	: 500mMSL	mode of deposition	
3 Land use	: Upland field	11.Vegetation	: Rice & banana
4.Weather of Examination : Fine		12 Application of fertilizer:	
5. Precipitation	: No	13.Drainage	: Well
6 Slope	: 2-8%	14 Data	: 03/05/1595
7.Exosion	Slightly	15.Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology		L	

Soil Profile Description Horizon Depth O) Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dark 0-1S A reddish brown (SYR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salis)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & finc. Texture=Silty loam; Gravel & stone=No; Humus=No; Peat rouck=No; Color=Dark AB 15-40 reddish brown (SYR3/3); Structure=Granalar & fine; Pore=Many & fine; Oxidative sediments(Selis)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Dry; Rools=Many & fine. Texture=Clay loam; Gravel & sione=No; Humus=No; Peat muck=No; Color=Dark 40-80 **B1** reddish brown(SYR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & medium. Texture=Clay; Gravel & stone=No; Humus=No; Peal muck=No; Color=Dark 80-100+ **B**2 reddish brown (2.5YR3/4); Structure=Granulas & fine; Pore=Moderate & fine; Oxidative sediments(Salls)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Few & fine.

Information on the Soil Site				
1.Location	: B SIXIANGMAI 10 Parent material or		: Basalt	
2 Elevation	: 700mMSL	mode of deposition	e e e	
3 Land psc	: Coffee gardes	11.Vegetation	: Coffee	
4.Weather of Examination	: Fine	12.Application of fertilizer:		
S.Precipitation	: No	13.Drainage	: Well	
6 Slope	:0.2%	14.Data	: 03,05/1995	
7.Erosion	: Slightly	15.Surveyer	: ЛСА Survey Team	
8.Topography	: Gently sloping	16.Soil group	: Soil Cede 6- Dystric Nitosols	
9 Geology				

Soil Profile

Horizon	Depth	Description
	[c	25
A	Q-15	Texture=Clay loan; Gravel & stone=No; Humas=2-3%; Peal mack=No; Color=Dark reddish brown (5YR2/5); Structure=Granalar & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetress=dry; Roots=Many & fine.
AB	15-40	Textare=Clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown (2.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Haidness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
BI	40-80	Texture=Clay; Gravel & stone=No; Humas=No; Peal muck=No; Color=Dark red (2 SYR3/6); Structure=Granalsr & fine; Pore=Moderate & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetress=Dry; Roots=Moderate & fine.
B2	80-100+	Texture=Clay; Gravel & stone=No; Humas=No; Pest muck=No; Color=Dark red (2.5YR3/6); Structure=Granelar & fine; Pore=Few & fine; Oxidative sediments(Salts)= No; Mn=No; Fe2=No; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Few & very fine.

Symbol of Survey Site : B-22

1 Location	: B BENO	10 Parent material or	: Besalt	
2.Ekvation	: 550mMSL	mode of deposition		
3 Land use	: Collee garden	11.Vegetation	: Coffee	
4. Weather of Examination : Fine		12 Application of festilizer:		
S.Precipitation	: No	13 Drainage	· : Well	
6.Slope	:0-2%	14.Data	: 03/05/1995	
7.Erosion	: Slightly	15. Sarveyer	: ЛСА Survey Team	
8.Topography	: Very gently sloping	16 Soil group	: Soil Code 6- Dystric Nitosol	
9.Geology	· · · · · · · · · · · · · · · · · · ·			

Soit Profile

Horizon	Depth	Description
	. ca	
Α.	0-20	Texture=Silty losm; Gravel & stone=No; Humas=2-3%; Fest mark=No; Color=Dark brown (7.5YR3/4); Structure=Granular & fine; Fore=Many & fine; Oxidative
	1	sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic,
	<u> </u>	Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
AB	20-60	Texture=Süty clay loam; Oravel & stone=No; Haraus=No; Peat mack=No; Color=Darl reddish brown (SYR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Masticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & coarso.
8	60-100+	Texture=Clay; Gravel & stone=No; Hurzus=No; Peat muck=No; Color=Reddish yellov (SYR4%); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)= No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky Wetness=Dry; Roots=Few & fine.

Information on the Soil Site

1.Location	: B KENGKIA	10 Parent material or	: Basalt
2.Ekvitom	: 450mMSL	mode of deposition	
3 Land use	: Upland field	11.Vegetation	: Rice & grenade
4.Weather of Examination : Pine		12 Application of fertilizes:	
S.Precipitation	: No	13 Drainage	: Well
6 Slope	:2-8%	14.Data	: 02/05/1995
7.Erosion	: Slightly	15.Sarveyer	: JICA Survey Team
8.Topography	: Gently sloping	16.Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			

Soil Profile

Horizon	Depth	Description
	ć	au l
A	0-20	Texture=Siliy loam; Gravel & stone=No; Humus=2-3%; Peat mack=No; Color=Dark
		reddish brown (SYR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Weiness=Dry; Roois=Many & fine.
8	20-55	Texture=Silty loam; Gravel & stone=No; Humas=No; Peat mack=No; Color=Dark
		reddish brown (2.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very slicky; Wetness=Dry; Roots=Moderste & very fine.
с	55+	Gravel & stone=>50% of basaltic rock(20-200mm in diameter).

Symbol of Survey Site

: B-24

Information on the Soil Site 10.Parent material or 1 Location B HOUAYXANG : Basali : 1080mMSL mode of deposition 2.Elevation 3.Land use : Coffee garden 11.Vegelation : Coffee 12 Application of fertilizer: 4. Weather of Examination : Aine : Well S Precipitation : No 13 Drainage : 04/05/1995 6.Slope :2.8% 14 Data 7.Erosion Slightly 15.Surveyer : ЛСА Sorvey Team 8.Topography 9.Geology : Soil Code 6- Dystric Nitosols : Undulating 16.Soil group

Soil F	ofile	
Horiz	on	

oil Profile		
orizon	Depth	Description
	ດາ	
A	0-20	Teature=Silty loam; Gravel & stone=No; Humus=2-3%; Peat mack=No; Color=
		Dark brown (7.5YR3/4); Structure=Granular & fine; Pore=Many & fine;
		Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very
		Plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine
AB	20-60	Texture=Silty clay loam; Gravel & slone=No; Humus=No; Peat mack=No; Color=Dark
		yellowish brown (10YR4/4); Structure=Granular & fine; Pore=Many & medium;
		Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft, Plasticity=Very
		plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & medium.
В	60-100+	Texture=Clay; Gravel & slone=No; Humus=No; Peat muck=No; Color=Dark yellowish
		brown(10YR4/4); Structure=Sub-rounded & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	1.1	Stickness=Very sticky; Wetness=Moist; Roots=Maay & medium.

: B-25 Symbol of Sarvey Site

Information	in the Soi	1 Site	· · · · · · · · · · · · · · · · · · ·
1.Location			B PHANOVAN

Information on the Soil Sile				
1 Location	B PHANOVAN, GNAI	10 Parent material or	: Basalt	
2 Flevations	: 1080mMSL	mode of deposition	· · · · · · · · · · · · · · · · · · ·	
3.Land use	: Coffee gardea	11.Vegetation	: Coffee	
4. Weather of Examination : Fine		12 Application of kerilizer:		
S.Precipitation	: No	13.Drainage	: Well	
6 Slope	: 2-\$%	14.Data	: 04/05/1995	
7 Frosion	: Slightly	15 Surveyer	: JICA Survey Team	
8 Topography	: Undulating	16 Soil group	: Seil Code 6- Dystric Nitosols	
9.Geology				

Soil Profile

сла 0-20	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dail
0-20	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dan
	brown (7.5YR3/3); Structure=Granular & Bne; Pore=Many & Ene; Oxidative sediments(Salis)=No; Ma=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Slickness=Very slicky; Weiness=Meist; Rools=Many & Ene.
20-55	Texture=Silty citay; Gravel & stone=No; Hamas=No; Peat mark=No; Color=Strong brown (7.5YR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments[Salts]=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist, Roots=Many & modererate to coarse.
S-100+	Texture=Clay; Gravel & stone=No; Humus=No; Peal mack=No; Color=Strong brown(7.5YR4/6); Structure=Granular & fine; Pore=Modesate & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weineus=Molst; Roots=Many & fine.
	20-55 5-100+

: B-25 Symbol of Survey Site

1 Location	BPAKYONG	10 Parent material or	: Basalt
2 Ekvation	: 1190mMSL	mode of deposition	
3 Land use	: Coffee garden	11.Vegetation	: Coffee
4.Weather of Examination	: Fine	12 Application of Sertific	201:
S.Precipitation	: No	13.Drainage	: Well
6.Stope	:2-8%	14.Data	: 04/05/1395
7 Erosion	: Slightly	15. Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 6- Dystric Nitosol
9.Geology		I	

Horizoa	Depth	Description
	CT1	
Α	0-15	Texture=Silty loam; Gravet & stone=No; Huraus=2-3%; Peat muck=No; Color=Dark brown (7.5YR3/3); Strocture=Granutar & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist, Roots=Many & mediura.
Bi	15-45	Texture=Silty clay loam; Gravel & stone=No; Hurnus=No; Peat muck=No; Color=Dark brown (7.5YR4/4); Structure=Granalar & fine; Pore=Many & Ene; Oxidative sediments(Salts)=No; Mn=No; Pe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Meist; Roots=Many & modiara.
B2	45-70	Texture=Silty clay; Gravel & stone=No; Huraus=No; Peat mack=No; Color=Strong brown(7.5YR4/6); Structure=Sub-tounded & Ene; Pore=Moderate & very Ene; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Moderate & Ene.
C	70+	Gravel & stonc=>90% of basaltic sock(20-200mm in discussor).

B-27 Symbol of Sarvey Site

1.Location	: B PAKYONG	10.Parent material or	: Basalt
2 Ekviton	:1180mMSL	mode of deposition	
3.Land use	: Scrub forest & trop grass	11.Vegetation	: Sareb forest & tropical grass
4. Weather of Examination	: Fiac	12 Application of fertiliz	201:
S.Precipitation	: Cloudy	13.Drainage	: Well
6.Slope	:2-8%	14.Dzta	: 04/05/1995
7.Exosion	: Sligh By	15. Surveyer	: JICA Survey Team
8.Topography	: Undulating	16 Soil group	: Soil Code 6- Dystric Nitesel
9.Geology			

e'r

Horizon	Depth	Description
	C 13	
Α	0-15	Texture=Silty loam; Gravel & stone=No; Humos=2-3%; Peat mock=No; Color=Dark
		brown (7.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
AB	15-60	Texture=Silty clay loam; Gravel & stone=No; Humas=No; Peat mack=No; Color=Dark
		brown (7.5YR4/4); Structure=Granular & fine; Pore=Moderate & fine; Oxidative
		sediments(Salis)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; sticky; Wetness=Moist; Roots=Many & fine.
B	60-100+	Texture=Siliy clay; Gravel & stone=No; Humus=No; Pest muck=No; Color=Strong
		brown (7.5YR4/6); Structure=Sub-rounded & fine; Pore=Moderate & very fine; Oxidative
		rediments(Salis)=No; Ma=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic;
-	1	Stickness=Very sticky; Wetness=Moist; Roots=Few & very fine.

B-28 Symbol of Survey Sile

1 Location	: B XEPIAN	10 Parent material or	: Bisalt
2 Elevation	: 1250mMSL	mode of deposition	-
3.Land use	: Grassland & clear forest	11.Vegetation	: Grass & clear forest
4. Weather of Examination	: Fine	12 Application of kertili	zer:
5 Precipitation	Just rain	13 Dreinage	: Well
6.Slope	:2-8%	14 Data	: 04/05/1995
7 Frosion	: Slightly to moderately	15. Surveyer	: JICA Survey Team
8. Topography	: Undalating	16. Soll group	: Soil Code 8- Lithic Nitosols
9.Geology			the second second second

<u>So</u> 14

Horizon	Depth	Description
A	en 0-20	Texture=Silty loam; Gravel & stone=No; Hunnus=2.3%; Peat mock=No; Color=Dark yellowish brown (10YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Pe2+=No; Hardness=Soft; Flasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Many & fine.
Bl	20-55	Texture=Silty kam; Gravet & stone=No; Humus=No; Peat muck=No; Color=Strong brown (J.5YR4/6); Structure=Sub-rounded & fine; Pore=Many & fine; Oxidative sedi- ments(Salts)=No; Mn=No; Fe24=S-10% of 20-100mm in size; Hardness=Soft; Plasticity =Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Moderate & very fine.
B2	55-100+	Texture=Silty chay loarn; Gravel & stone=No; Humus=No; Feat muck=No; Color=Strong brown(7.5YR4/6); Structure=Sub-rounded & very fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2a=No; Hardness=Soft; Plassicity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Few & very fine.

Information on the Soil Site	<u> </u>		
1 Location	: BNONG LOUANG	10 Parent material or	: Basalt
2 Elevation	: 1220mMSL	mode of deposition	
3 Land use	: Coffee garden & grassland	11 Yegetstion	: Coffee & grass
4. Weather of Examination	: Fine	12 Application of Artiliz	¢r:
5. Precipitation	: No	13 Drainage	: Well
6 Slope	:2-8%	14.Data	: 05/05/1995
7 Erosion	: Slightly	15.Surveyer	: JICA Servey Team
8 Topography	: Vadolating	16 Soil grosp	: Soil Code 6- Dystric Nitosols
9 Centroy			-

Soil Profile

Horizon	Depth	Description
	0	n1
•	0-15	Texture=Silty loam; Gravel & stone=25mm-concretion; Humus=2-3%; Peat mack=No; Color=Dark yellowish brown (10YR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Sults)=No; Mn & Pe2+=3-5% of 2-Sera; Hardness=Mediam; Masicity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
8	15-50	Texture=Silty loam; Gravel & stone=25mm-concretion; Humus=No; Peat muck=No; Color=Dark yellowish brown (10YR4/5); Structure=Sub-rouonded & fine; Pore=Many & fine; Oxidative acdiments(Salts)=No; Mn & Fe2+=3-5% of 2-5cm; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Molst; Roots=Many & fine.
Bst	50-80	Terture=Silty clay loam; Gravel & stone=25mm concretion; Humus=No; Peat muck=No Color=Yellowish brown(10YR5/4); Structure=Sub-rounded & fine; Pore=Moderate & fine; Oxidative acdiments(Salts)=No; Mn & Fe2+=3-5% of 2-Scm; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Welness=Molst; Roots=Moderate & fine.
Въ2	80-100+	Texture=Silty clay; Gravel & stone=25mm-concretion; Hamas=No; Pest mack=No; Color=Yellowish brown(10YR5/4); Structure=Sub-rounded & face; Porc=Few & fine; Oxidative sediments(Sults)=No; Mn & Fe24=3-5% of 2-5cm; Hardness=Mediam; Plasticity=Very plastic; Stichness=Very sticky; Wetness=Moist; Roots=Few & very fine.

Symbol of Survey Site : B-30

Information on the Soil Site	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -		
1 Location	BPAKYONG	10 Parent material or	: Basalt
2 Ekvationa	: 1190mMSL	mode of deposition	· · ·
3 Land use	: Coffee girden	11.Vegetation	: Coffee
4. Weather of Examination	: Fine	12 Application of fertiliz	x1:
5 Precipitation	: No	13 Drainage	: Well
6.Slope	: 2-8%	14.Data	: 04/05/1995
7 Erosion	: Slightly	15. Sarveyer	: JICA Survey Team
8 Topography	: Genly sloping	16.Soil group	: Soil Code 6- Dystric Nitosola
9.Geology		· · ·	-

Soil Profil

Horizon	Depth	Description
	a	a
•	0-15	Texture=Silly loam; Gravel & stonc=No; Humas=2.3%; Feat muck=No; Color=Dark brown (7.5YR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very sticky; Wetness=Moist; Roots=Many & medium.
B1	15-45	Texture=Silty clay lozin; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark brown (7.5YR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Many & medium.
B2	45-70	Texture=Silly clay; Gravel & Mone=No; Humus=No; Pest mock=Ho; Color=Strong brown(7.5YR4/6); Structure=Sub-rounded & fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very Micky; Wetness=Molst; Roots=Moderate & fine.
с	70+	Gravel & stone=>90% of basatuc rock(20-200mm in diameter).

Information on the Soil Sile			·
1.Location	: B PHOUMAKKO	10 Parent material or	: Basah
2 Elevation	: 1290mMSL	mode of deposition	: <u></u> .
3 Land use	: Grassland	11.Vegetation	: Tropical grass
4. Weather of Examination	: Fine	12 Application of fertili	ZC (:
5 Precipitation	: No	13.Dminage	: Well
6 Slope	:2-8%	14.Data	: 05/05/1995
7.Erosion	: Slightly	15.Surveyer	: IICA Servey Teara
8. Topography	: Undelating	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			

Soil Profile

lorizoa	Depth	Description
	- car	
A	0-20	Texture=Silty loam; Gravel & stone=No; Hamas=2-3%; Peat mock=No; Color=Dark yellowish brown (10YR4%); Structure=Granular & fine; Pore=Many & fine; Oxidative seediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
Bt1	20-65	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Strong brown (7.5YR5/5); Structure=Sub-rounded & fine; Pore=Moderate & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Few & fine.
Bt2	65-100+	Texture=Clay; Gravel & stone=No; Humus=No; Peat mack=No; Color=Strong brown(7.5YR5/6); Structure=Sub-rounded & fine; Pore=Fow & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Hard; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Very few & very fine.

Symbol of Survey Sile : B-32

Information on the Soil Site			
1 Location 2 Elevation	: PHOU OY : 1303mMSL	10 Parent material or mode of deposition	: Basalt
3 Land use	: Grassland & scrub forest	11.Vegetation	: Grass & scrub
4. Weather of Examination	: Cloudy	12 Application of fertili	266:
S Precipitation	: No	13 Drainage	: Well
6 Slope	:2-8%	14.Data	: 05/05/1995
7.Erosion	: Stightly	15 Surveyer	: JICA Survey Team
8. Topography 9. Geology	: Undelatingly	15 Soil group	: Soil Code 8- Lithic Nitosols

Horizon	Depth	Description
	¢	a contraction of the second
A	0-20	Texture=Silty loam; Gravel & stonc=No; Humus=2-3%; Peat mock=No; Color=Dark
		brown (7.5YR4/4); Structure=Granulas & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Very plastic;
•		Stickness=Very sticky; Welness=Moist; Roots=Many & fine.
Bist	20-50	Texture=Silty clay loam; Gravel & stone=Several concreations & 5-10% Fe+(2-10mm);
		Humus=2-3%; Peat mach=No; Color= Strong brown (1.5YK4/6); Structure=Sob-
		grounded & fine; Pore=Few & fine; suidative sediments(Salts)=No; Ma+Fe2+=5-10%;
		Hardness=Medium: Plasticity=Very plastic; Stickness= Very; Wetness=Moist; Roots=
		Few & fine.
Bis2	50-75	Texture=Clay loam; Gravel & stone=5-10% of Fe+; Humas=No; Peat mack=No; Color=
		Strong brown (7.5YR4/6); Structure=Sub-rounded & fine; Pore=Few & very fine;
		Oxidative sediments(Salts)=No; Ma+Fe+=5-10%; Hardness=Hard; Plasticity=Very
· · ·	1997 - A.S.	plastic; Stickness=Very uticky; Wetness=Moist; Roots=Very few & very fine.
c	75+	Texture=Clay; Gravel & stone=>90% of basultic concretion; Color=Strong brown (7.5YR
		7.54/6
		40); Ma+Fe2+= >90% of baselic rock

Information on the Soil Site			
1 Location	B KATM TOK	10 Parent material or	: Sand stone
2.Elevation	: 900mMSL	mode of decosition	
3I and use	: Coniferous forest	11.Vegetation	: Coniferons forest & savannah
4. Weather of Examination	: Hise	12 Application of krilli	221:
5 Precipitation	: No	13.Drainage	: Well
6 Slope	: 8-10%	14.Data	: 08/05/1995
7.Erosion	: Moderately	15. Surveyor	: JICA Survey Team
8.Topography	: Rolling	16. Soil group	: Soil Code 5- Lithic Scrisols
9.Geology		_	

Horizoa	Depth	Description
٨٥		ns Color=Dask grayish brows{10YR4/2}.
A	2-10	Texture=Loamy sandy; Gravel & stone=No; Humus=1-2%; Peat mock=No; Color= Yellowish brown (10YR5/6); Structure=Single grain & compact; ; Pore=Few; Oxidative sediments(Salts)=No; Mn=No; Pe2+=No; Hardness=Hard; Plasticity=No; Stekness=No; No.
	10+	Graved & stone=Sand stone.

: **B-34** Symbol of Survey Sile

1 Location		10.Parent material or	: Sand stone
2.Elevation	: 980raMSL	mode of deposition	
3.Land use	: Savannah & clear forest	11.Vegetation	: Savvanah & clear forest
4. Weather of Exemination	: Hine	12 Application of fertili	zet :
5 Precipitation	: No	13 Drainage	: Well
6.Slope	: 8-16%	14 Data	: 08/05/1995
7.Erosion	: Moderately	15. Surveyer	: JICA Survey Team
8. Topography	: Rolling	16 Soil group	: Soil Code 5- Lihic Acrisol:
9.Geology	· · · · · · · · · · · · · · · · · · ·		:

Horizon	Depth	Description
•	C712	
A 1	0-10	Texture=Sandy loam; Gravel & stone=No; Humus=0-1%; Peat mack=No; Color=Dark yellowish brown (10YR4/6); Structure=Single grain & compact; Pore=Few & fine;
· :		Oxidative sediments(Salls)=No; Mn=No; Fe24=No; Hardness=Moderste; Plasticity=No; Plastic; Slickness=No; Wetness=Dry; Roots=Many & fine.
AB	10-35	Texture=Loamy sand; Gravel & stone=No; Hunaus=No; Peat muck=No; Color=Strong brown (7.5YR5/6); Structure=Single grain & compact; Pore=Few & fine; Oxidative sediments(SAIts)=No; Ma=No; Fe24=No; Hardness=Moderate; Plasticity=No; Stickness
		No; Weiness=Dry; Roots=Few & Very fine.
BI	35-70	Texture=Sandy clay loaw; Gravel & stone=No; Humus=No; Peat muck=No; Color= Yellowish red(SYR5/8); Structure=Single grain & compact, Pore=Few & fine; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Moderate; Plasticity=No; Stickness =No; Weiness=Dry; Roots=Very few & very fine.
B2	70-100+	Texture=Sandy clay loam; Gravel & stone=No; Hamus=No; Peat muck=No; Color=Red (2 SYR48); Structure=Single grain & compact; Pore=Few & fine; Dxidative sediments= No; Mn=No; Fe2+=No; Hardness=Hard; Plasticity=No; Stickness=No; Wetness=Dry; Roots=No.

Symbol of Sorvey Site

: B-35

1.Location	<u> </u>	10.Parent material or	: Sarid sload
2 Elevation	: 1020mMSL	mode of deposition	
3.Land asc	: Evergreen forest	11.Vegetation	: Evergreen forest
4.Weather of Examination	: Fine	12 Application of fertili	201:
5.Precipitation	: No	13 Drainage	: Well
6.Slope	: 8-16%	14 Data	: 08/05/1995
7.Erosion	: Slightly	15.Surveyer	: IICA Survey Team
8.Topography	: Rolling	16 Soil group	: Soil Code 5- Lihic Acrisols
9.Geology			

Soil Profile (is same as B-34)

Horizon	Depth	Description
Α	0-10	n Texture=Sandy loam; Gravel & stone=No; Humas=0-1%; Prat mock=No; Color=Dark yellowish brown (10YR4/6); Structure=Single grain & compact; Pore=Few & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Moderate; Plasticity=No; Plastic; Stickness=No; Wetness=Dry; Roots=Many & fine.
ΑB	10-35	Texture=Loamy sand; Gravel & stone=No; Humas=No; Peat muck=No; Color=Strong brown (7.5YR5/6); Structure=Single grain & compact; Pore=Few & fine; Oxidative sediments(SAIt)=No; Mn=No; Fe24=No; Hardness=Moderate; Plasticity=No; Stickness No; Wetness=Dry; Roots=Few & Very fine.
B1	35-70	Texture=Sandy clay loam; Gravel & stone=No; Humos=No; Peat muck=No; Color= Yellowish red(5YR5/8); Structure=Single grain & compact; Pore=Few & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Moderate; Masticity=No; Stickness =No; Weiness=Dry; Roots=Very few & very fine.
B2	70-100+	Texture=Sandy clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Colox=Red (2.5YR4/8); Structure=Single grain & compact; Pore=Few & fine; Oxidative sediments= No; Mn=No; Fe2+=No; Hardness=Hard; Masticity=No; Stickness=No; Wetness=Dry; Roots=No.

Symbol of Survey Sile : B-36

information on the Soil Site		· · · · · · · · · · · · · · · · · · ·	
1 Location	: B	10 Parent material or	: Sand stone
2.Elevation	: 920mMSL	mode of deposition	
3.Land use	: Evergreen forest	11.Vegetation	: Evergreen forest
4. Weather of Examination	: Finc	12 Application of fertiliz	er:
5 Precipitation	No	13 Drainage	: Well
6.Slope	: 8-16%	14 Data	: 08/05/1995
7.Ecosion	: Slightly	15.Surveyer	: JICA Survey Team
8.Topography	: Rolling	16 Soil group	: Soil Code S- Lthic Acrisols
9.Geology			

Soil Profile

Horizon	Depth	Description
	- caa	
A	0-15	Texture=Loaray sand; Gravel & stone=No; Humus=1-2%; Peat mack=No; Color=Dark yellowish brown (10YR3/4); Structure=Single grain & compact; Pore=Many & fine; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Moderate; Plasticity=No; Plastic; Stickness=No; Welness=Dry; Roots=Moderate, & fine.
Bil	15-50	Texture=Sandy clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark yellowish brown (10YR4/0); Structure=Sub-rounded & fine; Pure=Moderate & fine; Oxidative sediments(SAlts)=No; Mn=No; Fe2+=No; Hardness=Moderate; Plasticity=No; Stickness=No; Wetness=Dry; Roots=Moderate & fine.
B12	\$0-100+	Texture=Sandy clay loam; Gravel & stone=No; Humus=No; Peal muck=No; Color= Strng brown(7.5YR5/6); Structure=Sub-rounded & fine; Pore=Very few & very fine; Oxidative sediments(Salls)=No; Mn=No; Fe2+=No; Hardness=Moderate; Plasticity=No; Stickness=No; Wetness=Dry; Roots=Few & very fine. ⁴

Information on the Soil Site		- 1 	
1 Location	B NONGUPHANOUAN	10.Parent material or	: Bush
2.Ekvation	: 820mMSL	mode of deposition	
3. Land asc	: Evergreen finest	11.Vegetation	: Evergreen forest
4. We ther of Examination	: Fine	12 Application of fertBi	sel :
5.Precipitation	: No	13 Drainage	: Well
6.Slope	: 2-8%	14.Data	: 02/05/1995
7. Erosion	: Slightly	15. Surveyer	: IICA Servey Team
8.Topography	: Polling	16 Soil group	: Soil Code 7- Dystric Nitosols
9. Geology]	

Soil Profile

Horizon	Depth	Description
	വ	
A	0-20	Texture=Silty elay loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dar trown (7.5YR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=melst; Roots=Many & fine.
AB	20-60	Texture=Silty clay loam; Gravel & stone=No; Humes=No; Peat mack=No; Color= Strong brown (7.5YR4/6); Structure=Granslar & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Masticity=Very plastic; Stickness=Very sticky; Wetness=Molst; Roots=Moderate & fine.
В	60-100	Texture=Silty clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark brown (7.5YR4/5); Structure=Sub-rounded & fine; Porc=Moderate & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Piasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Few & fine.

Symbol of Sarvey Sile :B-38

Information on the Soil Site

1 Location	BCUPAXA	10.Parent material or	: Basalt
2.Ekvation	:840mMSL	mode of deposition	
3 Lind asc	: Upland rice	11.Vegetation	: Upland noe
4. Weather of Examination	:Fine	12 Application of fertili	201:
5 Precipitation	: No	13.Drainage	: Well
6.Slope	: 0-2%	14.Data	: 03/05/1995
7 Erosion	: Stightly	15.Surveyor	: JICA Servey Team
8.Topography	: Very geatly sloping	16.Soil group	: Soil Code 7- Dystric Nitosols
9 Geology		1	

Soil Profile (is same as P-37)

Horizoa	Depth	Description
	03	
• •	0-20	Textore=Silty clay loam; Gravel & stone=No; Humus=2-3%; Peat mock=No; Color=Dar
		brown (1.5YR4/4); Structure=Granular & fine; Fore=Many & fine; Oxidative
		sediments(Salis)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	:	Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
AB	20-60	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peal mack=No; Color=
		Strong brown (7.5YR4/6); Structure=Granular & fine; Porc=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic;
		Stickness=Very sticky: Wetness=Moist; Roots=Moderste & fine.
В	60-100	Texture=Silty clay; Gravel & stone=No; Hamas=No; Peat muck=No; Color=Dark brown
		(7.5YR4/6); Structure=Sub-rounded & fine; Pore=Moderate & fine; Oxidative
		sediments(Salis)=No; Mn=No; Fe2=No; Hardness=Soft, Plasticity=Very plastic;
<u>.</u>	[Stickness=Very sticky; Wetness=Moist; Roots=Few & Ene.

1 Location	NONGMEK	10 Parcal material or	: Baselt
2 Elevation	: 900mMSL	mode of deposition	
3.Land uso	: Evergreen forest	11.Vegetation	: Evergreen forest
4.Weather of Examination	: Cloudy	12 Application of knills	ter:
5.Precipitation	:No	13 Drainage	: Well
6 Stope	:0-2%	14 Data	: 08/05/1995
7.Erosion	: Slighuy	15.Surveyer	: ЛСА Sarvey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 5- Likie Acrisol
9. Goology			

Soil Profile

Horizon	Depth	Description
-		ian .
A	0-18	Texture=Silty loam; Gravel & stone=No; Humas=2.3%; Peat muck=No; Color=Dark brown (7.5YR43); Structure=Granular & finet; Pore=Few & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
AB	18-45	Texture=Silly clay losmLosm; Gravel & stone=No; Hamas=No; Peal mack=No; Color= Dark brown (7.5YR4/4); Structure=Granalas & fine; Pore=Many & fine; Oxidative sediments(SAlts)=No; Mn=No; Fe2+=No; Hardness=Soft, Plasticity=Very plastic; Stickness=Very Nicky; Wetness=Moist; Roots=Many & moderate.
В	45-75	Texture=Sily clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark brown(7.5YR4/4); Structure=Granslar & fine; Pore=Moderate & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hurdness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & very fine.
	75+	Gravel & stone = >80% ofbassitic fragments (2-20cm in size).

Symbol of Survey Site :B-40

Information on the Soil Site			
1 Location	B NONOTAY	10 Parent material or	: Basalt
2 Elevation	:900mMSL	mode of deposition	<u></u>
3.Land use	: CClear forest & rice	11.Vegetation	: Clear forest & rice
4.Weather of Examination	: Fine	12 Application of krtili	265:
5. Precipitation	: No	13.Drainage	: Well
6 Slope	:0-2%	14.Data	: 08/05/1995
7 Erosion	: Slightly	15. Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16.Soil group	; Soil code 6-Dystric Nitosols
9.Geology			· · · · · · · · · · · · · · · · · · ·

Soil Profile (is almost same as B-39)

ปวก่ะจก	Depth	Description
	CTA	
A	0-18	Texture=Silty loam; Gravel & stone=No; Humus=2.3%; Peat mork=No; Color=Dark brown (7.5YR4/3); Structure=Granular & finet; Pore=Few & fine; Oxidative
		sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
AB	18-45	Texture=Silly clay loamLoam; Gravel & storie=No; Humus=No; Peat mack=No; Color=
λ.	10-01	Dark brown (7.5YR4/4); Structure=Granular & Ene; Pore=Many & Ene; Oxidative
		sediments(SAlts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & moderate.
в	45-80	Texture=Silty clay loam; Gravel & stonc=No; Hamus=No; Peat muck=No; Color=Dark
		brown (7. SYR4/4); Structure=Granular & fine; Pore=Moderate & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=Moist; Roots=Many & very fine.
	80+	Gravel & stone = >80% ofbasaltic fragments(2-20cm in size).
1. A.	`	

information on the Soil Site		1	······································
1 Location	: HOUAYKONG	10 Parent material or	: Basalt
2 Ekvationa	: 900aMSL	mode of deposition	· · · · · · · · · · · · · · · · · · ·
3 Land use	; Upland field	11.Vegetation	: Evergreen forest & rice
4. Weather of Examination	: Cloudy	12 Application of femili	201:
5.Precipitation	: No	13.Dralnage	: Well
6 Slope	:2-8%	14 Dita	: 08/05/1995
7.Erosion	: Slightly	15.Sarveyer	: JICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 5- Linic Acrisols
9. Geology			

Soil Profile

Horizon	Depth	Description
A	0-15	a Texture=Siliy loza; Gravel & stone=No; Humus=2-5%; Peat muck=No; Color=Dark
		brown (7.5YR4/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No;Hardness=Soft; plasticity=Very Plastic; Stickness=Very slicky; Wetness=Dry; Roots=Many & fine.
BI	15-35	Texture=Silly clay loam; Gravel & stone=No; Humas=No; Peat muck=No; Color=Dath brown (7.5YR4/4); Siruciure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salls)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very slicky; Wetness=Moist; Roots=Many & medium.
B2	35-90	Texture=Siliy loam; Gravel & stone=No; Humas=No; Prat mack=No; Color=Dark brown(7.5YR4/3); Structure=Granalar & Ene; Pore=Many & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Slightly sticky; Wetness=Moist; Roots=Many & very fine.

Symbol of Sarvey Site :B-42

Informati	as on the	Soit	Sile

1 Location	: B NONGTAY	10 Parent material or	: Basalt
2.Ekvatiom	: 900mMSL	mode of deposition	· · · · · · · · · · · · · · · · · · ·
3 Land uso	: Clear forest & rice	11.Vegetation	: Clear forest & rice
4. Weather of Examination	: Finc	12 Application of fertili	izer:
5 Precipitation	: No	13 Drainage	: Well
6 Slope	:0-2%	14 Data	: 08/05/1995
7 Erosion	: Stightly	15. Sarveyer	: JICA Servey Team
8. Topography	: Ocntly sloping	16.Soil group	; Soil code 6-Dystric Nitosols
9.Geology			

lorizoa	Depth	Description
$f_{i,j} = - \frac{1}{2} \int_{-\infty}^{\infty} dx dx$	01	
A	0-18	Texture=Silty loam; Gravel & stone=No; Humas=2-3%; Peat muck=No; Color=Dark
:		brown (7.5YR4/3); Structure=Granular & finet; Pore=Few & fine; Oxidative
		sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
AB	18-45	Texture=Silty clay loamLoam; Gravel & stone=No; Humas=No; Peat muck=No; Color
		Dark brown (7.5YR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative
	1	sediments (SAlts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	[Stickness=Very sticky; Wetness=Moist; Roots=Many & moderate.
B	45-80	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark
		brown(7.5YR4/4); Structure=Granular & fine; Pore=Moderate & fine; Oxidative
		sediments(Salis)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	i	Stickness=Very sticky; Wetness=Moist; Roots=Many & very fine.
	80+	Gravel & slone=>80% ofbasaltic fragments(2-20cm in size).
	1	

Information on the Soil Site (is	same as B-42)		
1 Location	: B HOUAY KONO	10 Parent material or	: Basalt
2 Elevation	: 940rsMSL	mode of deposition	
3 Land use	: Clear forest & rice	11 Vegetation	: Clear forest & nice
4. Weather of Examination	: Fine	12 Application of fertili	281:
S.Precipitation	: No	13 Drainage	r Well
6 Slope	:2-8%	14 Data	: 09/05/1995
7.Erosion	: Stightly	15.Surveyer	: HCA Survey Team
8. Topography	: Gently stoping	16 Soil group	; Soil code 6-Dystric Nitosols
9. Geology			

 Soil Profile (is slowest size as B-39)

 Horizon
 Description

 cm
 Cm

	<	
А	0-18	Texture=Silty barn; Gravel & stone=No; Humus=2-3%; Peat mack=No; Color=Dark brown (1.5YR4/3); Structure=Granulas & finel; Pore=Few & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Many & fine.
AB	18-45	Texturc=Silty clay loamLoam; Gravel & stone=No; Humos=No; Peat mock=No; Color= Dark brown (7.5YR4/4); Structurc=Granular & fine; Pore=Many & fine; Oxidative sediments(SAlts)=No; Mn=No; Fe2t=No; Hardness=Soft; Flasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & moderate.
В	45-80	Texture-Silty clay loam; Gravel & stone=No; Humus=No; Peal mock=No; Color=Dark bnywn[7.5YR4/4]; Structure=Granular & fine; Pore=Moderate & fine; Oriéative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & very fine.
	80+	Gravel & stone = >80% ofessaltic fragments(2-20cm in size).

Symbol of Survey Site : B-44

nformation on the Soil Site 1. Location	: B NONGKIN	10 Parent material or	: Baselt
2 Elevation	: 990mMSL	mode of deposition	
31and use	: Clear forest & grassland	11 Vegetation	: Clear forest & grassland
4. Weather of Examination	Cloudy	12 Application of fertili	201:
S Precipitation	: No	13.Drainage	: Well
6 Slope	:2-8%	14.Dala	: 09/05/1995
7. Erosion	: Stightly	15. Surveyer	: JICA Survey Team
8. Topography	: Gently sloping	16 Soil group	; Soil code 6-Dystric Nitosols
9.Geology			·

Horizon	Depth	Description
А	сл 0-18	Texture=Silty loam; Gravel & stone=No; Hurnus=2-3%; Peat mack=No; Color=Dark brown (1.5YR4/3); Structure=Granular & finet; Pore=Few & fine; Oxidative sediments(Salts)=No; Mn=No; Pe2+=No; Hardness=Soft; Plasticity=Very plastic;
AB	18-45	Stickness=Very sticky; Wetness=Moist; Roots=Many & fune. Texture=Silty clay loam Loam; Gravel & stone=No; Humns=No; Peal muck=No; Color= Dark brown (7.5YR4;4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(SAIs)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & moderate.
B	45-80	Texture=Sitty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark brown(7.5YR4/4); Structure=Granalar & Bne; Pore=Moderate & Bne; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Mois'; Roots=Many & very Bne.
	80+	Gravel & stone=>80% ofbasultic fragments(2-20cm in size).

Information on the Soil Site

1 Location	: B NONGKHUANG	10 Parent material or	: Basalt
2 Ekvition	: 1080mMSL	mode of deposition	
3.Landuse	: Clear forest & grassland	11.Vegetation	: Clear forest & grassland
4. Weather of Examination	: Cloudy	12 Application of fertility	ui:
5. Precipitation	: No	13.Drainage	: Well
6.Slope	:2-8%	14.Data	: 09/05/1995
7.Erosioa	: Slightly	15. Surveyer	: IICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 8- Lithic Nitosols
9.Geology			

Soil Profile

Horizon	Depth	Description
	a	<u>م</u>
•	0-20	Texture=Silty clay loam; Gravel & stone=S-10% of basaltic fragments(2- -20cm in size); Humos=2-3%; Peat muck=No; Color=brown (7.5YR3/4); Structure= Granular & fine; Oxidative sediments(Salis)=No; Mn=No; Fe2+=No; Hardness=Soft Plasticity=Very plastic; Stickness=Very sticky; Wetness=ruoist; Roots=Many & fine.
с 	20+	Gravel & stone=>80% of basaltic fragments(2-20cm in size).
:		

Symbol of Survey Site : B-46

Information on the Soil Site

1 Location	: B NONGKHUANG	10 Parent material or	:Bistil
2 Ekvation	: 1235mMSL	mode of deposition	
3.Land use	: Grassland & clear forest	11.Vegetation	: Grassland & clear forest
4. Weather of Examination	: Cloudy	12 Application of fertility	2611
S. Precipitation	: No	13 Drainage	: Well
6 Slope	:0-2%	14 Data	: 09/05/1995
7.Erosion	: Slighdy	15 Surveyer	: JICA Servey Team
8. Topography	: Gently sloping	16 Soil group	: Seil Code 8- Lithic Nitosola
9. Geology			

Soil Profile (is same as P-20)

Horizon	Depth	Description
A	¢-15	210 Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Pest muck=No; Color=Dark brown (10YR4/2); Structure=Granular & Ene; Pore=Many & Ene; Oxidative sediments(Salta)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	15-40	Stickness=Very sticky; Welness=moist; Roots=Many & fine. Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat mock=No; Color=
		Dark brown (7.5YR4/4); Structure=Granalar & fine; Pore=Many & fine; Oxidative scdiments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Moderate & fine.
B2	40-75	Texture=Silly clay loam; Gravel & stone=No; Humus=No; Pest muck=No; Color=Dark brown(7.5YR4/6); Structure=Granulat & very fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very Stickness=Very sticky; Welness=Moist; Roots=Few & very fine.
B3	75+	Texture=Clay; Gravel & stone=No; Hunaus=No; Peat muck=No; Color=Strong brown (7.5YR4/6); Pore=Granular & Enc; Pore= Modernte & very Enc;Oxidative sediments (Salts)=No; Mn=No; Pe2t=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness= Moist; Roots=Few & very Enc.

:8-47 Symbol of Sarvey Site

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1 Location	:BLAK 15	10 Pacent material or	Bisilt
2 Elevation	: 1180mMSL	mode of deposition	
3 Land asc	: Grassland & clear forest	11.Vegetation	: Grassland & clear forest
4. Weather of Examination	: Cloudy	12 Application of fertili	241:
S. Precipitation	: No	13.Datus	: Well
6.Slope	:0-2%	14.Data	: 09/05/1995
7.Erosion	: Slightly	15.Sorveyee	: ЛСА Sarvey Техль
8.Topography	Very gently stoping	16 Soil group	: Soil Code 8- Lithle Nitosol
9 Geology	· · · · ·		

Soil Profile (is same as P-20)

Horizoa	Depth	Description
A	0-15	on Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peal muck=No; Color=Dark brown (10YR4/2); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
Bl	35-40	Texture=Sitty clay boam; Grivel & stone=No; Hamus=No; Peat mack=No; Color= Dark brown (7.5YR44); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Ma=No; Pe2+=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very sicky; Wetness=Moist; Roots=Moderate & fine.
B2	40-75	Texture=Silty clay loam; Gravel & stone=No; Hassus=No; Peal mack=No; Color=Dark brown(7.5YR4/6); Structure=Granular & very fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Few & very fine.
B3	75+	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Strong brown (7.5YR4/6); Pore=Granular & Ene; Pore= Moderate & very Ene;Oxidative sediments (Salus)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Slickness=Very sticky; Wetness= Molst; Roots=Few & very Ene.

: B-48 Symbol of Survey Site

the Soil Site

Information on the Soil Sile			<u></u>
1.Location	:BLAK 11	10 Parent material or	: Basalt
2.Ekvation	; 1230mMSL	mode of deposition	
3 Land use	: Grassland & clear forest	11.Vegetation	: Grassland & clear forest
4.Weather of Examination	: Fine	12 Application of fertiliz	261:
5.Precipitation	:No	13.Drainage	: Well
6 Slope	:0-2%	14.Data	: 09/05/1995
7 Ecosion	: Slightly	15.Surveyer	: JICA Survey Team
8 Topography	:Gently sloping	16 Soil group	: Soil Code 8- Lithic Nitosols
9 Grolom		1	

Profile

Horizon	Depth	Description
	03	
А	0-15	Texture=Silty loam; Gravel & stone=No; Humus=%; Pest muck=No; Color=Datk
		brown (10YR4/4); Structure=Greauler & Enc; Pore=Many & Enc; Oxidative
		sediments(Salis)=No; Ma+No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
AB	15-40	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=
		Dark yellowish brown (10YR4/6); Structure=Granular & fine; Porc=Many & fine;
		Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft, Plasticity=Very
	1. A.	plastic; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
Bil	40-70	Texture=Clay loam; Gravel & stone=3-5% of Iron concretion(2-10mma); Humas=No;
		Peat mack=No; Color=Dark yellowish brown(10YR4/C); Structure=Sub-rounded & fine;
		Pore=Few & fine; Oxidative sediments(Salts)=No; Ma=No; Fe2+=Exist; Hardness=Soft
	-	Plasticity=Very plastic; Stickness=Very slicky; Wetness=Moist; Roots=V.few & v.fine.
B12	70+	Texture=Clay; Gravel & stone=3-5% of Iron concretion; Humans=No; Peat muck=No;
	1.5	D.Y.brown (7.SYR4/6); Structure=Sub-rounded & fine; Pore=Few & fine; Oxidative
		sediments(Salts)=No; Ma=No; Fe2+=Exist; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness= Moist; Roots=Few & very fine.

Information on the Soil Site			
1 Location	BLAK 9	10.Parcal material or	: Basalt
2 Elevation	: 1270mMSL	mode of deposition	· · · · · · · · · · · · · · · · · · ·
3.Land ase	: Grassland	11. Yegelation	: Grassland
4.Weather of Examination	: Cloudy	12 Application of fertili	361:
5.Precipitation	: No	13.Dminage	: Well
6 Slope	:0-2%	14.Data	: 09/05/1995
7.Erosion	: Slightly	15.Serveyer	: JICA Survey Team
8.Topography	: Almosi fisi	16.Soil groap	: Soil Code 8- Lithic Nitosols
9. Geology			

Soil Profile(is same as B-48)*

Horizon	Depth	Description
	- Cri	
А	0-15	Texture=Silty loam; Gravel & stone=No; Harnas=1-2%; Peat muck=No; Color=Dark
		brown (10YR4/4); Structure=Granular & Ene; Pore=Many & fine; Oxidative
	Í	sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic;
		Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
AB	15-40	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=
		Dark yellowish brown (10YR4/6); Structure=Granular & fine; Pore=Many & fine;
		Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very
		plastic; Stickness=Very eticky; Weiness=Moist; Roots=Many & fine.
911	40-70	Texture=Clay loam; Gravel & stone=3-5% of Iron concretion(2-10mm); Humus=No;
		Peat mock=No; Color=Dark yellowish brown(10YR4/6); Stracture=Sub-rounded & fine;
		Pore=Few & fine; Oxidative sediments(Salte)=No; Mn=No; Fe2+=Exist; Hardness=Soft,
		Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Rools=V. lew & v. fine.
B12	70+	Texture=Clay; Gravel & stone=3-5% of Iron concretion; Humus=No; Peat mack=No;
	1	D.Y.brown(75YR4/6); Structure=Sub-rounded & fine; Pore=Few & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=Exist; Hardness=Soft; Plasticity=Very plastic;
• `		Stickness=Very sticky; Wetness= Moist; Roots=Few & very fine,
	*Concretions of	2-20mm in size are found in concentration of 5-8% from the horizon of 40cm-depth.

Symbol of Survey Sile : B-50

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Information on the Soil Si	ite		
1.Location		10 Parent material o	r : Basalt
2 Elevation	: 1290mMSL	mode of depositi	00
3 Land use	: Grassland	11.Vegetation	: Gressland
4.Weather of Examination : Cloudy		12. Application of fertilizer:	
5 Precipitation	: No	13.Drainage	: Well
6 Stope	:0-2%	14.Data	: 09,05/1995
7. Erosion	: Slightly	15 Surveyer	: JICA Survey Team
8.Topography	: Almost fiat	16 Soil group	: Soil Code 8- Lithic Nitosols
9.Geology			

Soil Profile (is same as B 48)* Description Horizon Depth an 0-20 A Texture=Silty chy loam; Gravel & stone=No; Humas=1-2%; Peat mack=No; Color=Darl brown (10YR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Welness=moist; Roots=Moderate & fine. Ba 20-50 Texture=Clay; Gravel & stone=No; Humas=No; Peat muck=No; Color=Dark brown (7.5YR4/4); Structure=Sub-rounded & fine; Pore=Moderate & fine; Oxidative sediments (Salts)=No; Ma=No; Fc2+=No; Hardness=Medium; Plasticity=Very plastic; Stickness= Very sticky; Welness=Moist; Roots=Few & fine. BQ 50-50 Texture=Clay; Gravel & stone=No; Humas=No; Peat muck=No; Color=Yellowish red (SYR5/6); Structure=Sub-rounded & fine; Pore=Few & fine; Oxidative sediments(Salts) =No; Mл=No; Fe2+=No; Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Weiness=Moist; Roots=Very few & very fine. 80-100+ BØ Texture=Clay; Gravel & stone=No; Humas=No; Peat muck=No; Color=Yellowish red (SYRS/8); Structure=Sub-rounded & fine; Pore=Very few & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Hard; Plasticity=Slightly plastic; Stickness=Very sticky; Wetness= Moist; Roots=No.

Information on the Soil Sile			
1 Location	: B.PAKXONG	10. Parent material or	: Basalt
2 Elevation	: 1316mMSL	mode of deposition	
3 Land use	: Grassland	11.Vegetation	: Orassland
4. Weather of Examination	: Cloudy	12 Application of fertilizes:	
S.Precipitation	: No	13.Drainage	: Well
6 Slope	:0-2%	14 Data	: 09,05/1995
7. Erosion	: Slightly	15.Surveyer	: JICA Sarvey Tears
8.Tepography	: Almost fiel	16.Soil group	: Soil Code 8- Lithic Nitosols
9. Geology			

Soil Profile

Horizon	Depth	Description		
	0-15	Texture=Silty loam; Gravel & stonc=No; Humus=2-3%; Peat mock=No; Oolor=Dark		
A	- CE-U	brown (7. SYR4/4); Structure=Granular & fine; Pore=Muny & fine; Oxidative		
÷ .	:	sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=moist; Rools=Many & Enc.		
B11	15-50	Texture=Silty clay losin; Gravel & stone=No; Humos=No; Peat mack=No; Color= Strong brown (7.5YR4/6); Structure=Sub-rounded & fine; Pore=Few & fine;		
		Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic: Stickness=Very sticky; Wetness=Moist; Roots=Few & fine.		
BQ	50-80	Texture=Clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Reddish brown(SYR4/4); Structure=Sub-rounded & fine; Pore=Very lew & very fine; Oxidative		
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Medium; Weiness=Moist; Masúcity =Very plastic; Stichness=Very sticky; Weiness=Moist; Roots=Very &w & very fine.		
BB	80-100+	Texture=Clay; Gravel & stone=No; Humus=No; Feat mack=No; Color= Yellowish red (SYR4/6); Structure=Angular & fine; Pore=Very &w & very fine; Dxidative sediments(Salts)=No; Mn=No; Fe2t=No; Hardness=Hard; Masticity=Slightly plastic; Stickness=Very sticky; Welness= Moist; Rools=No.		

Symbol of Survey Site : B-52

1.Location	BLAK 5	10 Parent material or	: Basalt
2.Ekvation	:1310mMSL	mode of deposition	
3. Land use	: Grassland	11.Vegetation	: Grassland
Weather of Examination	: Cloudy	12 Application of fertili	zet:
S. Precipitation	: No	13.Drainage	: Well
5 Slope	: 2-8%	14.Data	: 09/05/1995
7. Erosion	: Moderately	15.Sarveyer	: JICA Sarvey Team
8. Topography	: Slightly sloping	16.Soil group	: Soil Code 8- Lithic Nitosols
9.Geology			

Horizon	Depth	Description
A	сл 0-15	Texture=Sity clay foam; Gravel & stone=No; Humus=2-3%; Peat mack=No; Color=Dark yellowish brown (10YR4/4); Structure=Granular & Enc; Pore=Many & Enc; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Herdness=Soft; Masticity=Very plastic; Stickness=Very sticky; Wetness=moist; Roots=Many & Ane.
Bi	15-45	Texture=Silty clay loaro; Gravel & stone=No; Humus=No; Peat mack=No; Color=Dark brown(7.5YR4/4); Structure=Granular & Ene; Pore=Few & Ene; Oxidative sediments (Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Sikkness= Very sticky; Weiness=Moist; Roots=Moderate & Ene
B¢1	45-80	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Strong brown (7.5YR4/6); Structure=Sub-rounded & fine; Pore=Very lew & very fine; Oxidative sediments(Selis)=No; Mn=No; Fe2+=3-5% of concretion(2-15mrn); Hardness=Medium; Masticity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Few & very fine;
B132	80+	Texhire=Clay; Gravel & stone=No; Humus=No; Peel muck=No; Color=Strong brown (7.5YR5:6); Structure=Angular & fine; Pore=No; Oxidative sediments(Salts)=No; Mn=No; Fe2+=5-10% of concretion; Hardness=Hard, Hasticity=Very plastic; Stickness= Very sticky; Weiness= Moist; Roots=Very few & very fine.

Information on the Soil Site			
1 Location	:BLAK 5	10 Parent material or	: Besalt
2 Elevation	: 1303@MSL	mode of deposition	
3.Land use	: Grassland	11.Vegelation	: Grassland
4. Weather of Examination	: Cloudy	12 Application of fertile	265:
5 Precipitation	: No	13 Drainage	: Well
6 Slope	:2-8%	14.Dete	: 09/05/1995
7.Erosion	: Moderately	15.Serveyer	: JICA Sarvey Team
8.Topography	: Stightly sloping	16.Soil group	: Soil Code 8- Lithic Nitosols
9. Geology	· · · · · ·		

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Soil Profile

Horizon	Depth	Description
	c	02
A	0-15	Texture=Silty clay loam; Gravel & stonc=No; Humus=2-3%; Peat mack=No; Color=Dar brown (7.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Ozidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=tmoist; Roots=Many & fine.
Bţ	15-45	Texhire=Clay loam; Gravel & stone=No; Hamus=No; Peat muck=No; Color=Reddish brown(5YR4/4); Structure=Sub-rounded & fine; Pore=Few & fine; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness= Very sticky; Wetness=Moist; Roots=Moderate & fine.
С	45+	Gravel & stone= >80% of basaltic fragments(2-30cm in size).
Bu2	80+	

Symbol of Survey Site : B-54

Information on the Soil Site

1 Loceton	BLATBOK	10.Parent material or	: Basalt
2 Elevation	350mMSL	mode of deposition	
3 Land use	Mixed deciduous forest	11.Vegetation	: Banana, papaya & forest
4.Weather of Examination	: Cloudy	12 Application of fertile	
5 Precipitation	: Rain	13.Drainage	: Well
6 Slope	2.8%	14.Data	: 10/05/1995
7.Erosion	: Moderately	15.Sarveyer	: ЛСА Sarvey Теат
8.Tepography	: Undalating	16 Soil group	: Soil Code 6- Dystric Nilosols
9.Geology		1 .	• • • •

Soil Profil

Horizon	Depth		Description
A	0-35		Texture=Silly cloy loam; Gravel & stone=Exist; Humus=2-3%; Peat muck=No; Color= reddish brown (SYR3/3); Structure=Granular & Ene; Porc=Many & Ene; Oxidative rediments(Salis)=No; Mn=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic;
c		·	Stickness=Very sticky; Welness=moist; Roots=Many & Ene. Gravel & stonc= >80% of basalt & iron concretions(2-30cm in size).
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Information on the Soil Site

1.Location	: B.THONGSALA	10 Parent material or	: Bissh
2.Elevation	: 220mMSL	mode of deposition	
3 Land use	: Mixed dociduous forest	11.Vegetation	: Banana, papaya & foresi
4. Weather of Examination	: Cloudy	12 Application of fertili	241:
5 Precipitation	: Rein	13.Dreinago	: Well
6.58000	: 8-16%	14.Data	: 10/05/1995
7.Erosioa	t Moderately	15. Sarveyer	: ЛСА Survey Team
8. Topography	: Undulating to rolling	16 Soil group	: Soil Code 6- Dystric Nitosola
9.Geology			

ดก่ะดล	Depth	Description	<u></u>
	¢t		
A	0-35	reddish brown (SYR3/3); Structure=Gra sediments(Salis)=No; Mn=No; Fe2i=No	=Exist; Humos=2-3%; Peat muck=No; Color: πalar & Ene; Pore=Many & fine; Oxidative o; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=moist;	
С	35+	Gravel & stone= >80% of basalt & iron concretions(2-30cm in size).	
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Symbol of Survey Sile ; B-56

aformation on the Soil Site						
1.Location	: B.KENGGNAO	10.Parent material or	: Basalı			
2 Elevation	: 190mMSL	mode of deposition		·	<u> </u>	
3 Land use	: Poddy field	11.Vegetation	: Paddy nee		<u></u>	
4.Weather of Examination	: Cloudy	12 Application of fertiliz	ser:			
S. Precipitation	:Ruin	13.Drainage	: Well			
6 Slope	:0-2%	14 Dala	: 10/05/1995		<u></u>	
7. Erosion	:No	15.Sarveyer	: JICA Survey	Teaca		
8.Topography		16.Soil group	: Soil Code 8	Littic	Nitosols	5
9.Geology			· .			

Soil Profile

lorizon	Depth	Description
	c	
Ар	0-15	Texture=Clay loam; Gravel & stone=No; Humus=1-2%; Peat muck=No; Color=Dark
	1	(10YR5/1), Structure=Angular & coarse; Pore=Very few & very fine; Oxidative
		sediments(Sulu)=No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Slightly
		plastic; Stickness=Very sticky; Wetness=moist; Roots=Very few & very fine.
AB	15-40	Texture=Clay; Gravel & stone=No; Hamos=No; Peat mack=No; Color=Gray
		(10YRS/1); Structure=Angular & coarse; Pore=Very few & very fine; Oxidative sedimen
		(Salta)=No; Ma=No; Fe2+=No; Hardaesa=Medium; Plasticity=Slightly plastic; Stickness
		=Very sticky; Wetness=Moist; Roots=Very lew & very fine.
Bigl	40-80	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Light yellowish
-		brown(10YR6/4); Structure=Angular & coarse; Pore=No; Oxidative sediments(Salts)=
		No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Slightly plastic; Stickness=Very
		sticky; Welness=Moist; Roots=No.
Btg2	80+	Texture=Clay; Gravel & stone=No; Humas=No; Peat much=No; Color=Light yellowish
		brown(10YR6/4); Structure=Angular & coarse; Pore=No; Oxidative sediments(Salts)=
1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -		No; Mn=No; Fe2+=No; Hardness=Hard; Plasticity=Slightly plastic; Stickness=Very
		Welness= Moist, Roots=No.

Information on the Soil Site	· · · · · · · · · · · · · · · · · · ·		
I Location	: B.THONGKIM	10 Parent material or	: Basali
2 Elevation	: 205mMSL	mode of deposition	
31 and use	: Mixed desiduous forest	11.Vegelation	: Mixed decideous forest
4.Weather of Extenination	: Cloudy	12 Application of fertiliz	861:
5.Precipitation	: Rein	13 Drainage	: Well
6 Slope	: 2-8%	14.Data	: 10/05/1995
7.Erosion	: Moderately	15.Surveyer	: JICA Survey Team
8 Topography	: Undeleting	16 Soil group	: Soil Code 6- Dystric Nitosols
9. Geology			

Soil Profile

Horizon	Depth	Description
	C/13	
A	0-20	Texture=Silty loam; Gravel & stone=No; Humas=2-3%; Peal mack=No; Color=Dark brown (7.5YR4/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Very plastic;
		Sickness=Very sticky; Welness=moist, Roots=Many & fine.
B1	20-60	Texture=Silty rlay loarn; Gravel & stone=No; Humus=No; Peat muck=No; Color= Strong brown (7.5YR4/5); Structure=Sub-rounded & fine; Pore=Medium & fine; Oxidative sediments[Salts]=No; Mn=No; Fe2+=No; Hardness=Hard; Plasticity=No; Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
B2	60-100	Texture=Clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Strong brown(7.5YR4/6); Structure=Sub-rounded & mediume; Pore=Few & Ene; Oxidative sediments(Salts)=No; Mn=No; Fe2=No; Hardness=Hard; Plasticity=Moderately plastic; Slickness=Very slicky; Welness=Moist; Roots=Few & Ene.

Symbol of Survey Site : B-58

Information on the Soil Site

1.Location	: B.NONGBOK	10 Parent material or	: Basalt
2 Elevation	: 220mMSL	mode of deposition	·
3.Land use	: Mixed deciduous forest	11.Vegetation	: Mixed deciduous forest
4. Weather of Eximination	: Cloudy	12 Application of fertilit	861:
5 Precipitation	: Rein	13.Drainage	: Well
6.Slope	: 2-8%	14.Data	: 10/05/1995
7.Erosion	: Slightly	15 Surveyer	: JICA Survey Team
8 Topography	: Undulating	16 Soil group	: Soil Code 6 - Dystric Nitosols
9.Geology			· •

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Soil Profile		······································
Horizon	Depth	Description
	01	
А	0-20	Texture=Silty loars; Gravel & stone=No; Hamus=2-3%; Peat muck=No; Color=Dark
		brown (7.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative
· · · ·		sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Masticity=Very plastic;
		Stickness=Very sticky; Wetness=moist; Roots=Maay & fine.
BI	20-60	Texture=Silty clay loam; Gravel & stone=No; Humas=No; Peat muck=No; Color=
		Reddish brown (SYR4/4); Structure=Sub-rounded & fine; Poie=Moderate & fine;
		Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Hard; Plasticity=Very
		plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
B2	60-100	Texture=Clay; Gravel & stone=No; Humos=No; Peat muck=No; Color=Yellowish red
		(SYR4.6); Structure=Sub-rounded & medium; Pore=Few & fvery fine; Oxidative
		sediments(Salts)=No; Ma=No; Fe2=No; Hardness=Hard; Plasticity=Very plastic;
		Stickness=Very slicky; Wetness=Day; Rools=Many & very fine.

Information on the Soil Site			· · · · · · · · · · · · · · · · · · ·
1 Location	: B. BACHLANG	10 Parent material or	: Basalt
2.Ekvation	:230mMSL	mode of deposition	<u>`````</u>
3 Land aso	: Clear forest	11.Vegetation	: Clear forest
4 Weather of Examination	: Cloudy	12 Application of ferbli	201 :
S. Precipitation	: No	13 Drainage	: Well
6 Slope	:2-8%	14 Data	: 10,05/1995
7.Erosion	: Moderately	15. Sarveyer	: JICA Survey Team
8.Topography	: Undelsting	16.Soil group	: Soil Code 6- Dystric Nitosols
9. Geology			

Soil Profile

lorizon	Depth	Description
	a 16	a Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Datk
A	0-15	yellowish brown (5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salus)=No; Mn=No; Fe2+=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=moist; Roots=Many & fine.
AB	15-40	Texture=Silty clay loam; Gravel & stone=No; Humas=No; Peat muck=No; Color= Yellowish red (SYR4/6); Structure=Sab-roanded & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
Bi	40-80	Texture=Clay loam; Gravel & stone=No; Humus=No; Peat mock=No; Color=Yellowisd red(5YR4/6); Structure=Angular & fine; Pore=Few & very fine; Oxidative sediments (Salts)=No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Slightly plastic; Stickness=Very sticky; Wetness=Dry; Roois=Moderate & very fine.
Bu	80+	Texture=Clay; Gravel & stone=No; Huraus=No; Peat mack=No; Color=Yellowish red (5YR4/6); Structure=Angular & fine; Fore=Very & & & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Hard; Plasticity=Slightly plastic; Stickness=Very sticky; Weiness= Dry; Roots=Few & very fine

Symbol of Survey Sile : B-60

nformation on the Soil Site	·		
1 Location	: B PHOLAT	10 Parent material or	: Basalt
2 Ekvation	: 250nsMSL	mode of deposition	
3 Land use	: Mixed deciduous forest	11.Vegetation	: Grassland
4.Weather of Examination	: Cloudy	12.Application of fertiliz	er:
5 Precipitation	: No	13.Drainage	:Well
6.Slope	:2-8%	14.Data	: 09/05/1995
7.Erosion	: Slightly	15.Surveyer	; JICA Survey Team
8 Topography	: Stightly stoping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			

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Horizon	Deoth	Description
	an	
A	0-20	Texture=Silty clay loam; Gravel & stone=No; Hurnus=2-3%; Peat muck=No; Color=Darl reddish brown (2 SYR3/2); Structure=Granular & Enc; Pore=Many & Enc; Oxidative
		sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	· .	Stickness=Very sticky; Weiness=Dry; Roots=Many & Enc.
81	20-60	Texture=Silty etay kam; Gravel & stone=No; Humus=No; Peal muck=No; Color=Dark reddish brown(2.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine
B2	60-100+	Texture=Clay; Gravel & stonc=No; Humus=No; Peat muck=No; Color=Dark red (2 SYR3/6); Structure=Sub-rounded & Ene; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn+No; Fe2+=3.5% of concretion(2-15mm); Hardness=Medium;
<u> </u>	· · · · · · · · · · · · · · · · · · ·	Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & v.fine.
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1.Location	: B MONANGKHAI	10.Parent material or	: Basalt
2 Elevation	: 290mMSL	mode of deposition	
3 Land uso	: Mixed decideous forest	11.Vegetation	: Kspok & nice
4. Weather of Examination	: Cloudy	12 Application of fertilit	201:
5 Precipitation	: No	13.Dreinage	: Well
6 Slope	: 2-8%	14.Dəta	: 10/05/1995
7.Erosioa	: Sightly	15.Surveyer	: IICA Survey Team
8.Topography	: Slightly sloping	16.Soil group	: Soil Code 6- Dystric Nitosola
9.Geology			· · · ·

Soil Profile

Horizon	Depth	Description
	On	
A	0-15	Texture=Silty clay loam; Gravel & Rone=No; Humus=2-3%; Peat muck=No; Color=Dar reddish brown (2.5YR3/3); Structure=Granular & fine; Porc=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Rools=Many & fine.
AB	15-40	Texture=Clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown (2.5YR3/4); Stutcture=Granslas & fine; Pore=Many & fine; Oxidative sediments(Sakts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Welness=Dry; Roots=Many & medium.
B1	40-50	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown(2.5YR3/4); Siructure=Granalar & fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & fine.
B2	80+	Texture=Clay; Gravel & stonc=No; Hamus=No; Peat muck=No; Color=Dark reddish brow n(2.5YR3/4); Structure=Granular & fine; Pore=Very Moderate & very fine; Oxidative sediments(Salis)=No; Mn=No; Fe24=No; Hurdness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Welness= Dry; Roots=Fow & very fine.

Symbol of Survey Site : B-62

Information on the Soil Site			
1 Location	B KENGLAI	10 Parent material or	: Baselt
2.Ekvation	: 350mMSL	mode of deposition	
3 Land use	: M. decidaous forest & rice	11.Vegetation	: Rice & M decideous forest
4. Weather of Examination	: Cloudy	12 Application of fertiliz	xt:
S.Precipitation	: No	13.Drainage	: Well
6.Stope	:2.8%	14.Data	: 10/05/1995
7 Erosion	: Slightly	15 Surveyer	: JICA Survey Team
8.Topography	: Slightly sloping	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			• • • •

Horizon	Depth	Description
	O1	
A	0-20	Texture=Silly clay loam; Gravel & stone=No; Humus=2-3%; Peal mark=No; Color=Dar reddish brown (2.5YR3/2); Structure=Granulai & fine; Pore=Many & fine; Ozidative sediments(Salls)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
Bl	20-60	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown(25YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salty)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Slickness=Very sticky; Wetness=Dry; Roots=Many & fine.
B2		Texture=Clay; Gravel & stone=No; Hamus=No; Peat muck=No; Color=Dark red (2 SYR3/6); Structure=Sub-rounded & fire; Pore=Modernte & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=3-5% of concretion(2-15mm); Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & v.fine.

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Lefor	1C	ntion	0fi	the	Soil	Site

1 Location	: B DHIN	10 Parent material or	: Basalt
2.Ekvation	:430mMSL	mode of deposition	
3 Land use	: Rice & darian tree	11 Vegetation	: Rice & durian tree
4. Weather of Examination	: Cloudy	12 Application of fertilit	261:
S. Precipitation	: No	13.Drainage	: Well
6 Slope	:2-8%	14.Data	: 10/05/1995
7.Erosion	: Slightly	15 Surveyor	: JICA Survey Team
8. Tepography	: Undalshing	16.Soll group	: Soil Code 6 - Dystric Nitosols
9.Geology			

Soil Profile(is same as B-62)

lorizon	Depth	Description
	C/I	
А	0-15	Texture=Silty clay loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dar
		reddish brown (2.5YR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Stichness=Very sticky; Wetness=Dry; Roots=Many & Enc.
AB	15-40	Texture=Clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark
		reddish brown (2 SYR3/4); Structure=Granalar & Ene; Pore=Many & Ene;
		Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very
		plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & medium.
B1	40-80	Texture=Clay; Gravel & stone=No; Humus=No; Peal muck=No; Color=Dark reddish
		brown(2.5YR3/4); Structure=Granular & fine; Pore=Moderate & very fine; Oxidative
		sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
		Sickness=Very nicky; Wetness=Dry; Roots=Moders & & fine.
B2	80+	Texture=Clay; Gravel & stone=No; Haraus=No; Feat mack=No; Color=Dark readish
		brown(2.5YR3/4); Structure=Granular & Ene; Pore=Very Moderate & very Ene;
		Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very
		plastic; Stickness=Very sticky; Wetness= Dry; Roots=Few & very fine.

Symbol of Survey Site : 8-64

Information on	the Soil	Site
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Mormanon on the soli she			<u> </u>
1.Location	BNONGBOUATHONG	10.Parent material or	: Basalt
2.Ekvation	:250mMSL	mode of deposition	
3.Land use	: Banana, durian & cie forest	11.Vegetation	: Banana, durian & cle forest
4. Weather of Examination	: Cloudy	12 Application of fertiliz	er:
S Precipitation	: No	13.Dminige	: Well
6 Slope	:2-8%	14 Dita	: 10/05/1995
7.Erosion	: Slightly	15.Surveyer	: IICA Servey Team
8. Topography	: Cently sloping	16.Soil group	: Soil Code 6- Dystric Nitosols
9. Geology			

Horizoa	Horizoa Depth Description	
	C01	
A	0-20	Texture=Silty clay kam; Gravel & stonc=No; Humus=2.3%; Peat mack=No; Colot=Darl #ddish brown (2.5YR3/2); Structure=Granelar & Ene; Pore=Many & Ene; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very sticky; Wetness=Dry; Roots=Many & Ene.
Bl	20-60	Texture=Siliy clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown(2.5YR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Sal(s)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Sickness=Very slicky; Weiness=Dry; Roots=Many & fine.
B2	60-100 <i>+</i>	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark red (2 SYR3/6); Structure=Sub-rounded & fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Ma=No; Fe24=3-5% of concretion(2-15mm); Hardness=Medium; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & v. fine.

Information on the Soil Site			<u></u>
1 Location	: B.NONSAAV	10 Parent material or	: Basali
2 Elevation	: 290mMSL	mode of deposition	
3.Land usc	: Scrub forest & clear forest	11.Vegetation	: Rice & durian tree
4.Weather of Exemination	: Cloudy	12 Application of lertiliz	xer:
S.Precipitation	: No	13.Dralnage	; Well
6 Slope	:2-8%	14 Data	: 10/05/1995
7. Erosion	: Slightly	15.Sarveyer	: JICA Survey Team
8. Topography	: Undelating	16 Soil group	: Soil Code 6- Dystric Nitosols
9. Geology			

Soil Profile(is same as B-64)

Horizon	Depth	Description
	C00	
A .	0-15	Texture=Silty clay losin; Gravel & stone=No; Humas=2-3%; Peat inuck=No; Color=Dar reddish brown (2.5YR3/3); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
AB	15-40	Texture=Clay keam; Gravel & stone=No; Humus=No; Peat mock=No; Color=Dark reddish brown (2 SYR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & credium.
BI	40-80	Texture=Clay; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark reddish brown(2 SYR3/4); Siructure=Granular & Bne; Pore=Moderste & very Bne; Oxidative sediments(Salts)=No; Ma=No; Fe2t=No; Hardness=Soft; Masticity=Very plastic; Slickness=Very sticky; Wetness=Dry; Roots=Moderate & fine.
B2	80+	Texture=Clay; Gravel & stonc=No; Humas=No; Peat muck=No; Color=Dark reddish brown(2.5YR3/4); Structure=Granular & fine; Pore=Very Moderate & very fine; Oxidative se diments(Salts)=No; Ma=No; Fe24=No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Weiness= Dry; Rooks=Few & very fine.

Symbol of Sarvey Site : B-66

Information on the Soil Site			
1.Location	: B LAK23	9.Geology	
the second second	(B HOUAYAMOUANG)	10 Parent material or	: Basalt
2 Elevation	: 250mMSL	mode of deposition	
3 Land use	: Banana, derian & cle forest	11.Vegetation	: Banana, durian & cle forest
4.Weather of Examination	: Cloudy	12 Application of fertilit	ice :
S. Precipitation	: No	13.Drainage	: Well
6 Slope	: 2-8%	14.Data	: 10/05/1995
7 Erosion	: Stightly	15.Surveyer	: JICA Survey Team
8.Topography	: Gently sloping	16 Soil group	: Soil Code 6 Dystric Nitosots

Soil Frofile (is same as B-63)

lorizon	Depth	Description
	CUE	
•	0-20	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dark
	-	reddish brown (SYR3/3); Structure=Granalar & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic;
	- 	Stickness=Very sticky; Wetness=Moist; Roots=Many & fine.
Bl	20-60	Texture=Clay loare; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark
		reddish brown(SYR3/4); Structure=Granular & fine; Pore=Many & fine; Oxidative
		sediments(Salts)=No; Ma=No; Fe2#=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=Dry; Roots=Many & very fine.
B2	60-100+	Texture=Clay loam; Gravel & stone=No; Humus=No; Peat mack=No; Color=Dark red
		brown(SYR3/4); Structure=Granulas & fine; Pose=Few & very fine; Oxidative
		seditionals(Salts)=No; Ma=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic;
		Stickness=Very sticky; Wetness=Dry; Roots=Many & very fine.

Symbol of Sarvey Site :B-67

Information on the Soil Site						
1 Location	: BLAK28	10. Parent material or	: Basalt			
2 Elevation	: 680mMSL	mode of deposition	· · · · · · · · · · · · · · · · · · ·			
3 Land asc	: Durian & coffee	12.Vegetation	: Durian & collee			
4.Weather of Examination	: Cloudy	12 Application of fertilizer:				
S.Precipitation	: No	13 Drainage	: Well			
6.Slope	:2-8%	14.Data	: 10/05/1995			
7.Erosioa	: Stightly	15. Surveyer	: JICA Survey Teara			
8.Topography	: Undelating	16.Soil group	: Soil Code 6- Dystric Nitosols			
9.Geológy						

Soit Profit

an	
0-25	Texture=Sülty clay loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dail brown (7.5YR3/4); Stracture=Granular & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & fine.
25-65	Texture=Clay loam; Gravel & stone=No; Hamus=No; Peat muck=No; Color=Strong brown (J.SYR4/6); Structure=Granular & Bae; Pore=Moderate & very Bne; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & medium.
65-100+	Texture=Clay; Gravel & stone=No; Hornes=No; Peat mack=No; Color=Strong brown (7.5YR4/6); Structure=Granular & fine; Pore=Moderate & very fine; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roois=Many & fine.
	25-65

Symbol of Survey Site : B-68

Information on the Soil Sile	·		<u></u>
1 Location	BKAK36(BPHAKKOUT	10 Parent material or	: Basalt
2 Licvation	:900mMSL	mode of deposition	
3 Land use	: Tes colfee & durian	11.Vegetation	: Tez, coffee & durian
4. Weather of Examination	: Cloudy	12 Application of fertiliz	ær:
5.Precipitation	: No	13.Drainage	: Well
6 Slope	:2-8%	14.Data	: 10/05/1995
7.Erosion	: Slightly	15. Surveyer	: JICA Survey Team
8.Topography	: Rolling	16 Soil group	: Soil Code 6- Dystric Nitosols
9.Geology			

Horizon	Depth	Description
	CTL	
^	0-20	Texture=Silty loam; Gravel & stone=No; Humus=2-3%; Peat muck=No; Color=Dark trown (7.5YR3/4); Structure=Granular & Ene; Pore=Many & Ene; Oxidative sediments(Salts)=No; Mn=No; Fe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Many & Ene.
Bl	20-60	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark yellowish brown(10YR4/6); Structure=Granular & fine; Poic=Many & fine; Oxidative sediments(Salts)=No; Ma=No; Fe2+=No; Hardaess=Soft, Plasticity=Very plastic; Stickness=Very slicky; Weiness=Dry; Rools=Many & fine,
B2	60-90	Texture=Silty clay loam; Gravel & stone=No; Humus=No; Peat muck=No; Color=Dark yellowish brown(10¥R4/6); Structure=Granular & Ene; Pore=Moderate & Ene; Oxidativ sediments(Salts)=No; Mn=No; Pe2+=No; Hardness=Soft; Plasticity=Very plastic; Stickness=Very sticky; Wetness=Dry; Roots=Moderate & fine.
Вц	90+	Texture=Clay; Gravel & stone=No; Hornus=No; Peat mock=No; Color=Dark yellowish brown(10YR4/5); Strocture=Sub-rounded & fine; Pore=Few & very fine; Ozidative sediments(Salts)=No; Mn=No; Fe2+=3-5% of Iron concretion(2-10mm); Hardness=Soft; Plasticity=Slightly plastic; Stickness=Very sticky; Wetness=Dry; Roots=Few & very fine

Symbol of Survey Site : B-69

Information on the Soil Site		<u> </u>	:
1 Locatioa	:BLAK47	10 Parent material or	: Basəlt
2.Elevetion	: 1200mMSL	mode of deposition	·
3 Land use	: Tes & colles	11.Vegetation	: Tei& colfee
4. Weather of Examination	: Cloudy	12 Application of fertili	Z# { ;
5 Precipitation	: No	13.Drainage	: Well
6 Stope	:2-8%	14.Deta	: 12/05/1995
7 Erosion	: Slightly	15.Surveyer	: JICA Sarvey Team
8.Topography	: Rolling	16.Soil group	: Soil Code 8- Lithic Nitosels
9.Geology			

Horizon	Depth	Description
	01	
A	0-20	Tenture=Clay loam; Gravel & stone=No; Huinds=2-3%; Peal muck=No; Color=Dark brown (7.5YR3/4); Structure=Grandar & fine; Pore=Many & fine; Oxidative sediments(Salts)=No; Mn=No; Fe24±No; Hardness=Soft; Hasticity=Very plastic; Stickness=Very sticky; Weiness=Moist: Roots=Many & fine.
B1	20-60	Texture=Clay; Gravel & stone=No; Humus=No; Peat canck=No; Color=Dark brown (7.5YR4/4); Structure=Sub-rounded & fine; Pore=Moderate & fine; Oxidative sediments(Sults)=No; Mn=No; Fe2+=No; Hardness=Medium; Plasticity=Slightly plastic; Slickness=Very sticky; Wetness=Moist; Roots=Many & fine.
B2	60-100+	Texture=Clay; Gravel & stone=No; Humus=No; Peat ranch=No; Color=Strong brown (7.5YR4/6); Structure=Sub-rounded & fine; Pore=Few & very fine; Oxidative sediments(Salts)=No; Ma=No; Fe2f=No; Hardness=Hard; Plasheity=Very plastic; Stickness=Very sticky; Wetness=Moist; Roots=Moderat & very fine.

İI-46

Table 1-3 Soil Description of Pit Profiles

nple No	General	information	Depth	Color	Texture	Structure	Plasticity	pH(1120
P-1	Elevation	:1290mMSL	0-15	5YR3/3	Light loam	Gr.	Very	5.5
• •	Land use	:Grassland	15-50	7.5YR4/6	Silty loam	Gr.	Very	6.0
	Slope	:0-2%	50-100	7.5YR5/6	Clay	Gr.	Very	7.0
	Topography	:Almost flat						
	Parent material	:Basalt				·		
	Soil group	:Lithk Nitosols		-				1
P-2	Elevation	:900mMSL	0-15	5YR3/3	Light loam	Gr.	Very	6.
1-2	Land use	:Coffee garden	15-60	7.5YR4/6	Silty Joam	Gr.	Very	6.
	Slope	:8-16%	60-100	7.5YR5/6	Clay	Gr.	Very	6.3
	• .	:Foot slope	00100	1.5110,0	~1	•	••••	
	Topography Parent material	:Basalt						1
								1
	Soil group	:Dystric Nitosols	0-20	5YR3/3	Light loam	Gr. & fine	Slightly	4.0
P-3	Elevation	:1120mMSL			Silty clay loam			5.0
	Land use	:Coffee garden	20-55	SYR4/4			Slightly	6.
	Slope	:16-25%	55-100	SYR4/6	Clay loam	Gr. & fine	Very	0.,
	Topography	:Moderately sloping						
	Parent material	:Basalt			1			:
	Soil group	:Dystric Nitosols						
P-4	Elevation	:530mMSL	0-20	5YR3/3	Silty loarn	Gr, & fine	Very	6.
	Land use	:Rice	20-60	5YR3/4	Silty clay loan		Very	5.
	Slope	:0-2%	60-100	5YR4/4	Clay	Gr. & fine	Very	5.5
	Topography	:Gently sloping						
	Parent material	:Basalt					+	
	Soil group	:Dystric Nitosols						
P-5	Elevation	:685mMSL	0-15	5YR3/4		Gr. & very fine	C	6.
	Land use	:Grassland	15-60	5YR4/4	Silty clay	Gr. & very fine		5
	Slope	:2-8%	60-100	5YR4/6	Clay	Gr. & fine	Very	5.
	Topography	:Gently sloping						1
	Parent material	:Basalt		1		an An an an An		
	Soil group	:Dystric Nitosols					·	· .
P-6	Elevation	:1010mMSL	0-15	5YR3/2		Gr. & very line		7.
	Land use	:Coffee & forest	15-30	5YR3/3	Silty clay	Gr. & very fine	Very	
	Slope	:2-8%	30 F		Clay			
	Topography	:Undulating	:					
	Parent material	:Basalt						
	Soil group	:Lithic Nitosols	·			[L
P-7	Elevation	:225mMSL	0-15	10YR6/4	Losmy sand	No structure	No	6.
	Land use	:Paddy field	15-35	10YR7/3	Siky loam	Sub-angular	Slightly	5.
	Slope	0-2%	35-55	10YR6/4	Silty clay loan	Sub-angular	Slightly	5
	Topography	:Flat	55-75	10YR5/4	Clay Loam	Sub-angular	Slightly	5.
	Parent material	:Sand stone	75+	10YR5/4	Loamy clay		:	
	Soil group	Lithic Nitosols						<u> </u>
P-8	Elevation	:920mMSL	0-15	7.5YR3/3	Silty clay loan	Gr, & very fine	Very	7
	Land use	Forest, colfee, cic.	F	10YR4/4	Chay	Gr. & fine	Very	6
	Slope	:2-8%	60-100	SYR4/6	Clay	Gr. & fine	Very	6
	Topography	:Very gently slope						
	Parent material	:Basalt			1		· ·	
	at one interestal	:Lithic nitosols	1	I	1 .	1	1	1

Saropie No	General	information	Depth	Color	Texture	Structure	Plasticity	pH(H20
P-9	Elevation	:690 m MSL	0-20	10YR3/3	Silty clay	Gr. & very fine	Very	6.
	Land use	:Coffee garden	20-00	7.5YR4/6	Silty clay Joan	Gr. & fine	Very	6.
	Slope	:2-8%	60-100	7.5YR4/4	Clay	Gr. & fine	Very	6.
	Topography	:Very gently slope						
	Parent material	:Baselt]	
	Soil group	:Dystric Nitosols						
	Elevation	:580mMSL	0-20	7.5YR3/4	Silty loam	Gr. & fine	Very	5.
	Land use	:Coffee garden	20-60	2.5YR3/4	Silty clay loam	Gr. & fine	Very	5.
	Slope	:0-2%	60-100	2.5YR3/4	clay	Gr. & fine	Very	5.
	Topography	:Very gentle slope						
	Parent material	:Basalt						
	Soil group	:Dystric nitosols						
	Elevation	:290mMSL	0-20	SYR3/4	Clay loam	Gr.& fine	Very	6.
	Land use	:Evergreen forest	20-60	2.5YR3/4	Clay loam	Gr. & fine	Very	5.
	Slope	:2-8%	60-100	2.5YR3/4	Cla	Gr. & fine	Very	6.
	Topography	:Undulating						
	Parent material	:Basalt						
	Soil group	:Dystric Nitosols						
	Elevation	:390mMSL	0-18	7.5YR4/4	Silty loam	Gr. & fine	Very	7.
	Land use	:Scrub forest	18-45	2.5YR4/4	Light loam	Gr. & fine	Very	6,
	Slope	:2-8%	45-80	2.5YR3/4	Silty clay loan	Gr. & fine	Very	5
:]	Topography	:Undulating						
	Parent material	:Basali	}			· · · ·	· ·	
	Soil group	Dystric Nitosols						
	Elevation	:360mMSL	0-20	5YR3/3	Silty clay loan	Gr. & fine	Very	7
	Land use	:Evergreen forest	20+	1			,	
	Slope	:2-8%						
	Topography	:Undulating						
	Parent material	:Basalt						
· .	Soil group	:Lithic Nitosols				- 1		
P-14	Elevation	:620mMSL	0-15	5YR3/4 :	Silty clay loan	Gr. & fine	Very	5.
	Land use	:Coffee garden	15-40	2.5YR3/4	Silty clay	Gr. & fine	Very	5.
	Slope	:0-2%	40-50	2.5YR3/4	Clay	Gr. & fine	Very	
-	Topography	:Gentle sloping	80-100	2.5YR3/4	Clay loam	Gr.	Very	· ·
ч і .	Parent material	:Basalt					,	
	Soil group	Dystric nitosols		}		. :		
P-15	Elevation	:420mMSL	0-15	5YR3/2	Silty clay	Gr. & fine	Very	7.
	Land use	:Banana garden	15+				,	
	Slope	:2.8%						
	Topography	:Undulating						
	Parent material	:Baselt		· ·				
	Sell group	:Lithic Nitosols		:				
	Elevation	:1060mMSL	0-15	10YR3/3	Silty loam	Gr. & fine	Very	5.
	Land use	:Coffee garden	15-50	7.5YR3/4	Silty loam	Gr. & fine	Very	5.
-	Slope	:2-8%	50-80	7.5YR4/4	Silty clay loan		Very	5.
	Topography	:Slightly sloping	80-100	7.5¥R4/4	Clay	Gr.	Very	6.
	Parent material	:Basalt			- ,		}	U.
	Soil group	:Dystric Nitosols					 	
	Elevation	:1290mMSL	0-15	7.5YR3/4	Silty loam	Gr. & fine	Very	5.
	Land use	:Grassland	15+		ony ivan	on or this		J.
	Slope	:2-8%						
	Siope Tépography	:Undulating						
	Topograpny Parent material	:Basalt		. ·			Í	
	n ettis midici idi		1 · · ·		1			

mple No	General	information	Depth	Color	Texture	Structure	Plasticity	pH(H20)
P-18	Elevation	:900mMSL	0-15	1.6YR4/3	Loamy sand	Sub-rounded	No	5.
	Land use	Paddy field	15-40	10YR7/2	Silty clay loam	Sub-rounded	No	7.
	Slope	:0-2%	40-75	10YR6/1	Silty clay	Angular	Slightly	
	Topography	:Flat to almost flat	75-110	10YR5/1	Süly clay	Clay	Slightly	7.
	Parent material	;Basalt				-		
	Soil group	:Gleylic Acrisols						
P-19	Elevation	:920mMSL	0-15	7.5YR2/3	Silty clay loam	Gr. & fine	Very	6.
-15	Land use	:Evergreen forest	15-45	7.5YR4/4	Silty clay loam		Very	5.
	Slope	:2-8%	45-80	7.5YR4/6	Silty loam	Gr. & fige	Very	5.
	1 . 7	:Gently sloping	80-100	1.5 1 (billy iouna	Soft		
	Topography Parent material	Basalt	00-100			0011		
	Soil group	:Lithic Nitosols	0-15	10YR4/2	Silty loam	Gr. & fiae	Very	7.
P-20	Elevation	:1130mMSL			-			6
	Land use	:Grassland	15-40	7.5YR4/4	Silty clay loam		Very	. 0.
	Slope	:2-8%	40-75	7.5YR4/6	Silty clay loam		Very	6.
	Topography	:Gently sloping	75-100	7.5YR4/6	Claÿ	Gr. & fiae	Very	
	Parent material	:Basalt						
	Soil group	:Lithic Nitosols		<u> </u>				
P-21	Elevation	:530m MSL	0-16	7.5YR3/2	Silty loam	Gr. & fine	Very	5
	Land use	Ground nut, etc.	16-40	7.5YR3/4	Silty clay loam	· .	Very	5.
	Slope	:2-8%	40-75	5YR3/4	Clay loam	Gr. & fine	Yery	5
	Topography	:Geatly sloping	75-100	2.5YR3/6	Clay loam	Sub-rounded	Very	6
	Parent material	.Basalt				:		
	Soil group	Dystric Nitosols						
P-22	Elevation	:530mMSL	0-28	2.5YR3/3	Silty loam	Gr. & 50e	Very	6
	Land use	:Cardamom, etc.	28-75	2.5YR3/4	Silty clay loam	Gr. & fine	Slightly	6
	Stope	:2-8%	75-120	5YR4/4	Clay	Sub-angular	Slightly	6
· ·	Topography	:Geatly sloping	4		ri B			
	Parent material	:Basalt		· .		:		
	Soil group	:Dystric Nitosols						
P-23	Elevation	:225mMSL	0-23	7.5YR4/3	Silty clay loam	Gr. & fine	Very	6
	Land use	:Rice,soybean,etc.	23-62	7.5YR4/4	Silty clay	Gr. & fine	Slightly	6
	Slope	:2-8%	62-120	7.5YR4/6	Silty clay	Sub-angular	Slightly	6
	Topography	:Undulating	1					
	Parent material	:Basalt						1. A.
	Soil group	Dystric Nitosols		1. A.			. *	
P-24	Elevation	:1390mMSL	0-20	7.5YR3/4	Silty clay loam	Sub-rounded	Very	5
	Land use	:Grassland	20-50	7.5YR4/6	Silty clay loam	4 .	Very	6
	Slope	:0-2%	50-75	7.5YR4/4	Clay	Angular	Very	6
	Topography	:Very gently slope	1.1.1	7.5YR4/4	Clay loam	Sub-rounded	Very	6
	Parent material	:Basalt				·		
	Soil group	:Lithic Nitosols					a de la composición d	
P-25	Elevation	:350mMSL	0-28	7.5YR3/4	Silty clay loam	Gr. & fine	Very	5
5-23	Land use	:Fruit tree garden	28-50	5YR3/4	Clay loam	Gr. & fine	Very	5
		:2-8%	50-80	7.5YR4/4	Clay toani Clay	Gr. & fine	Very	é
	Slope					Gr. & fine	Very	
	Topography Parent material	:Very gently slope :Basalt	100-100	7.5YR4/6	Clay	()1. of 101¢	****	ļ
		• 1446 5 17			1			T

		1				Nitr	ogen	Available		Excha	ingeable	ana ana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'n	Availabl
Samole	Symbol	Horizoa	Depth	D	н	Ammicola	Nitrate	poosoborus	Potassium	Culcium	Magnesium	Manganese	lroa
No	of Site			H20	ка	NH4-Nmg	NO3-Nmg	P205-00g	K20-mg	Cr0 mg	Mg0-mg	Mo-	R-
			യ			100gSol	100gSoii	100gSol	100gSoll	100gSod	100gSofi	pper	ppui
1	P- 1	A	0-15	5.5	5.5	1	<1	S-10	25	200	50-75	25-50	25-50
2	P-1	Bl	15-50	6	5.5	1	<1	5	70	100	25-50	50-75	50-75
3	P-1	B2	50-100	7	6	<1	<1	5	20	200	50-75	50-75	50-75
4	P-2	A	0.15	65	5.5	<1	<1	75-100	35	200	25-50	25-50	25-50
5	P-2	AB	15-60	6.5	5.5	ব	4	5-10 5-10	20	200	25-50 25-50	25-50	25-50
6	P-2	B	60-100	63	6	4	ব	5	20	200	50-75	50-75	23-30 50-75
7	P-3		0 20	4.6	4.7	1-5	< <u>-</u>	10-25	20	200	10-50	25-50	· · · · · · · · · · · · · · · · · · ·
8	P-3	AB	20-55	4.0 S	5	1-5	<1 <1	5-10	70	-100	100 C		25-50
°. 9		B		65	5	1	· ·	5-10			25-50	25-50	50-75
	P-3		55-100	65 65		. < <u>1</u> 1-5	<u> </u>	10-25	100	100	25-50	25-50	50-75
10	P-4 P-4	A	0-20 20.60	0.5 5.5	6.3 4.7	1-5	্ব	10-25	70 20	100 50	5-10	25-50	25-50
11 12		AB	20-60 60 100				<]			50 50	10-25	10-25	25-50
12	<u>P-4</u>	B	60-100	5.5 6.7	5 5.1	1.5	<1	5-10 5-10	<u>20</u>	50	25-50	25-50	50-75
13	P-5	A	0-15			1-5	<1 .1		20	100	1-10	25-50	10-25
14	P-5	AB	15-60	5.2	4	1-5 1-5	<1	10-25	10-20	100	10-25	10-25	10-25
15 16	P-5 P-6	<u>.</u> B	60-100	5.5 7.2	4.8 6.9	1-5 1-5	<1 6	5-10	1-10	50-100	25-50	25-50	50-75
		. A 50	0-15		6.6			10-25	35	200	75-100	25-50	25-50
17	P-6	8	15-30	7		1-5	1.5	10	25	100-200	100-150	50-75	25-50
18	P-7	Å	0-15 16 AC	62	6.5	· 4	1	5-10	35-70	100-200	10-25	\$-10	10-25
19 63	P-7	B	15-35	5.9	5.5	4		10	10	50	10-25	5-10	5-10
20	P-7	Bul box	35-55	5.6	5.8	4	<1	5	5	50	25-50	10-25	5-10
21	P.7	<u>BQ</u>	55-75	5.5	6.7	2	<1	5	S	50	25-50	5-10	- ব
22	P-8	A	0-15	7.2	6.8	1-5	1-5	5-10	35	100	10-25	25-50	25-50
23	P-8	AB	15-50	67	5.8	1-5	<1	10-25	20	50-100	25-50	25-50	25-50
24	P-8	B	60-100	62	\$.5	2.5	<1	5-10	10-20	\$0-100	50-75	25-50	50-75
25	P-9		0-20	67	S.S.	1-5	<1	5-10	35	200	75-100	25-50	25-50
26 27	P-9	B1	20-60	6.6	5.4	1-5	<1	10-25	 	200	50-75	50-75	25-50
	P-9	82	60-100	6.5 53	5.5	1-5	<1	5-10	70	100	50-75	50-75	75-100
28	P-10	- A -	0-20		4.2 4.7	1-5	<1	10-25	35-70	100-200	50-75	25-50	25-50
29	P-10	B1	20-60	5.5		1-5	<1	10-25	10-20	100-200	50-75	25-50	25-50
30	P-10	<u>82</u>	60-100	5.5	4.5	1-5	<1	5-10	10-20	100-200	50-75	50-75	75-100
31	P-11	A JP	0-20	67 < 7	5	15		5-10	1-10	\$0-100	25-50	>5	25-50
32	P-11	AB	20-60	5.7	4.4	15		5-10	1 10	50-100 60-100	10-25	S-10	25-50
<u> </u>	P-11 P-12	8	60-100	62 7	4.5	15	4	5-30	1-10	50-100	10-25	10-25	50-75
34 15	P-12	A	0-18		5.5	1-5	4	5-10 10.05	35-70	,50 (1) (1)	10-25	5-10	10-25
35	P-12	AB	18-45	67	4.7	1.5	ব	10-25	35-70	50-100	10-25	5-10	25-50
36	P-12	B:	45-80	5.7	4.6	1-5	<u>d</u>	10-25	10-20	50-100	10-25	10-25	5-10
37	P-13	Al	0-20	1	6.8	<1 16	<1	5-10	70-100	100-200	50-75	10-20	10-25
38	P-14	A	0-15	5.5	4.5	1.5	<1	5-10	10-20	50-100	25-50	5-10	10-25
39	P-14	AB	15-40	5.4°	4.4	1-5 1-5	<1	5-10	1-10	50-100	25-50	5-10	25-50
40	P-14	82	80-100	5.5	44	15	ব	5-10	10-20	50-100	25-50	5-10	5-10
41	P-15	<u>A1</u>	0-15	7.2	7	1.5		25-50	70-100	50-100	10-25	10-20	10-25
42	P-16	A	0-15	S.4	4.2	1.5	<1	ব	1-10	50-100	25-50	5-10	10-25
43	P-16	AB	15-50	5.5	4.7	<}	<1	5-10	1-10	50-100	25-50	5-10	25-50
44	P-16	Bì	50-80	5.2	6.2	<1 .	. <1	5-10	1-10	50-100	25-50	10-25	10-25
45	P-16	B2	80-100	6.6	7	1.5	<1	5-10	10-20	50-100	25-50	5-10	5-10

Table I.4 Chemical Analysis Data of Pit Samples

				:	Ţ	Nit	0250	Available Exchaoscable					Available
Simple	Syinbol	Horizon	Dopta		eH	Annosta	Nitrate	Photocons	Potassium	Calcien	Magazetives	Mangalace	<u>tos</u>
Na	of Site			H20	Ka	NH-Smg	NO3-Net	7205-mg	1.20-mg	Ca0-mg	Mathe	Ma-	E Fe-
	:		¢ø			1003501	100gSall	100gSol1	100gSof1	10015-0	190 ₈ Solt	<u> </u>	çom
46	8-17	A	0-15	5.4	4.7	1.5	ব	5-30	10-20	\$0-100	1-10	10-20	10-25
47	7-15	ŇØ	0-15	53	5.2	. 1.5	्व	5-10	20-35	50-100	25-50	10-25	5-10
48	P-18	AB	15-10	7.2	7	1.5	ব	10-25	35-70	100-200	25-50	ব	5-10
49	P-18	Rgl	40-75	1	7.5	4	<u>a</u>	5-10	35-70	200-400	50-75	5-10	5-30
50	P-19	~	0-15	6.8	5.2	1-5	्व	5-10	20-35	50-100	1-10	5-30	5-10
\$1	8-12	AB	15-45	\$.5	5.3	1.5	4	10-25	20-35	50-100	10-25	5-10	10-25
52	8-19	B	45-100	5.6	Ś	1-5	4	5-10	10-20	50-100	10-25	5-30	5-10
53	1-20	٨	0-15	7.2	6.3	1-5	<1	10-25	20-35	50-100	25-50	5-10	10-25
54	2-20	Bi	15-40	6.6	5.6	4	<1	ব	20-35	50-100	25-50	10-25	10-25
55	8-20	- 10	75-100	6.7	6.7	-	4	10-25	10-20)00-200	25-50	5-10	5-10
56	P.TH	~~~~	0-16	5.6	5.5	<1	-1	5-10	35-70	50-100	25-50	5-10	25-50
รา	P.TH	AB	16-10	5.5	5.4	-	-1	5-10	20-35	50-100	50-75	5-10	25-50
58	P.TH	Bl	40-67	5.9	5.5	1.5	1-5	\$-10	10-20	SO-100	50-75	5-10	25-50
59	P-TH	82	67-320	6	5.5	ব	ন	10-25	10-20	100-200	25-50	5-10	75-100
60	P-1.0	Ā	0-28	6.7	6.7	4		\$-10	35-70	50-100	10-25	5-10	25-50
61	1-10	B1	28.75	6.8	5.8	1.5	4	5-10	35-70	100-200	25-50	5-10	\$0-75
62	P-10	12	75-120	6.5	6.2	1.5	4	5-10	35-70	50-100	25-50	5-10	25-50
63	P-BCI	- <u>A</u>	6-23	6.9	6.7	1-5		5-10	20-35	50-100	25-50	5-10	10-25
64	P-BCI	B	23 62	6.7	6.8	1.5	4	10-25	10-20	50-100	25-50	5-10	\$0-75
65	P-BCI	B2	62-120	6.3	5.6	1.5	a	5-10	1.10	50-100	50-75	10-25	50-75
66	1-7X	······································	0-20	5.4	5.5	1.5	4	5-10	1-10	50-100	25-50	5-10	10-25
67	P-PX	Bu	20.50	6.2	6.4	1-5	a	10-25	1-10	50-100	25-50	10-25	10-25
68	PIX	BC	50-75	6.5	6.5	1.5	a	5-10	1-10	100-200	25-50	1-10	10-25
69	P-7X	c	754	6.5	6.7	3	4	5-10	1-10	50-100	25-50	5-30	5-10
56	P-BC2	Ň	0.78	5.6	4.2	1-5	4	5-10	1.10	50-100	25-50	5-10	25-50
57	P-BC2	AB	25-50	5.5	5.7	1.5		5	1-10	50-100	25-50	5-10	25-50
58	P-BC2	B1	50-50	6.5	6.7	1-5		ँ	1-30	50-100	25-50	5-10	25-50
59	P-BC2	82	80-100	6.3	5.6	a		5-10	1-50	50-100	25-50	5-10	25-50
58	P-TH	B1	40-67	5.9	5.5	1-5	1.5	5-10	10-20	50-100	50-75	5-10	25-50
59	P-1H	22	67-120	6	5.5		<1	10-25	10-20	100-200	25-50	5-10	75-100
. 60	1-10	Å	0-25	6.7	6.7		4	5-10	35-70	50-100	10-25	5-10	25-50
61	P-10	B1	28-75	6.8	5.8	1.5	4	5-10	35-70	100-200	25.50	5-10	50-75
62	P-1.0	B2	75-120	6.5	6.2	1.5	4	5-10	35-70	50-100	25-50	5-10	25-50
63	P-BCI	~	0-23	6.9	6.7	1-5	4	5-10	20-35	50-100	25.50	5-10	10-25
64	P-BC1	B1	23.62	6.7	6.8	1-5	a	10-25	10-20	50-100	25.50	5-10	50-75
65	F-BCI	B2	62-120	6.3	5.6	1.5	4	5-10	1-10	50-100	50-75	10-25	50-75
66	2-2X	٨	0.20	5.4	5.5	1.5	-	5-10	1-10	\$0-100	25.50	5-10	10-25
67	1-12	BC	20-50	62	6.4	1-5		10-25	1-10	50-100	25-50	10-25	10-25
68	2-PX	BC	50-75	6.5	6.5	1.5		5-10	1-10	100-200	25-50	1-10	10-25
69	P-PX	c	75+	6.5	6,7	्त	<1	5-10	1-10	50-300	25-50	5-10	5-10
56	P-BC2	~	0.28	5.6	4.2	1-5	4	5-10	1-10	50-300	25-50	5-10	25-50
57	2-BC2	AB	28-50	5.5	5.7	1-5		3	1-10	50-100	25-50	5-10	25-50
58	P-BC2	B 1	50-80	65	6.7	1-5		5	1-10	50-100	25-50	5-10	25-50
59	P-8C2	B2	80-100	63	5.6	<1	a	5-10	1-10	50-100	25.50	5-10	25-50

Table 1-5 Soll Units in the Study Area

Geological	Soil Unit (Association)		Area (ba: %)								
Origin		code	Pakzong	Baching	Leongara	Selavao	Thateog	Total			
Allavial	Orthic Acrisols (Dystric Cambisol and Fuluvisol)	1	\$10 0	-	•	•	-	51(
	Gleyic Acrisols (Putric and Dystric Gleysol)	2	310 (0.05)	*	• .	•		31(
	Onhic Acrisols (Perric Acrisols)	3		•	•		·				
	Onbic Acrisols (Dystric Cambisol)	4	2,250 (0.34)	2,010 (0.31)		840 (0.13)		5,100			
	Lithic Acrisols (Lithosols)	5	148,570 (22.72)	510 (0.08)	1,000 (0.15)		4,610 (0.70)	159,90(
Basait	Dystric Nitosols	6	99,250 (15.17)	50,070 (7.55)	61,310 (9.37)	16,740	13,330 (2.04)	240,700			
	Dystric Nitosols (Lithic Nitosols)	7	42,630 (6.52)	-	4,690 (0.72)	160 (0.02)	13,440 (2.05)	60,920			
	Lithic Nitosols (Lithosols)	8	47,960 (7.33)	1,650 (0.25)	27,680 (4.23)	8,980 (1.37)	150 (0.03)	86,430			
Steep land		9	59,580 (9.11)	12,660 (1.94)	3,380 (9.52)	16,290 (2.49)	8,270 (1.26)	100,180			
Total			401,060 (61.32)	\$6,910 (10.23)	98,050 (14.99)	48,220	39,800 (6.09)	654,050 (100.0			

Table I- 6 Land Capability Classification

Land	/11	/111	۸v	/V	/vi	/VII	1/11	11/11	11/DI	шлі	IV/V	Total
Capability												
Classes*	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha
Pakxong	83,570	23,230	2,250	9,980	141,160	59,580	5,000	26,860	26,620	22,810		401,060
Bachiang	41,880	8,000	1,980	530	· - `	12,660	· •	1,860	-		_	66,910
Laongam	59,810	2,880	· •	990		3,530	5 -	36,850		• •	-	98,060
Salavan	14,880	2,290	840	4,180	-	16,130	· -	9,140	-	÷.,	760	48,220
Thateng	5,020	6,000	-	1,910	2,900	8,270	-	14,920	570	210	-	39,800
Total ha	205,160	42,400	5,0 70	17,590	144,060	100,170	5,000	83,630	27,190	23,020	760	654,050
(%)	(31.37)	(6.48)	(0.78)	(2.69)	(22.03)	(15.32)	(0.76)	(12.79)	(4.16)	(3.52)	(0.12)	(100.0)

*Classes may be outlined as follows: II and III are arable if moderate reqirement is satisfied; IV has very severe limitatic for cropping use; V to VIII are not suitable for cropping. Numerator in fraction indicates the class under the condition paddy field.

Suitable Cla	ISS	Wet season rice	Dry season rice	Upland crops	Horticulture
					plants
		ha(%)	ha(%)	ha(%)	ha(%)
Pakxong	S1	860 (0.55)	CALIFORNIA CONTRACTOR AND A CONTRACTOR	1,370 (0.88)	25,130 (16.21)
Ŭ	S2	860 (0.55)		1,380 (0.89)	25,320(16.33)
	S3	10 (0.01)		30 (0.02)	280 (0.18)
	N1	40 (0.03)			· -
	N2	-	-	-	• • · · ·
	Total	1,770 (1.14)	2,990 (1.93)	2,770 (1.79)	50,730 (32.71)
Bachiang	S1		-		nic kang sun intertusionini T
Ű	S2	160 (0.10)	1,350 (0.87)	480 (0.31)	200 (0.13)
	S 3	540 (0.35)		-	210(0.14)
	N1	1,950 (1.26)	16,880 (10.89)		2,480 (1.60)
	N2	170 (0.11)	1,500 (0.97)	-	220 (0.14)
	Total	2,820 (1.82)	24,400 (15.73)	480 (0.31)	3,110 (2.01)
Salavan	S 1				-
	S2	90 (- 0.06)	20 (0.01)	230(0.15)	20 (0.01)
	S 3	200 (0.13)	20 (0.01)	540 (-0.35)	50 (0.03)
	N1	2,300 (1.48)	240 (0.15)	6,190 (3.99)	610 (0.39)
	N2	130 (0.08)	20 (0.01)	340 (0.22)	30 (0.02)
	Total	2,720 (1.75)	300 (0.19)	7,300 (4.71)	710 (0.46)
Laongam	S 1	180 (0.12)	100 (0.06)	700 (0.45)	160 (0.10)
	S2	2,290 (1.48)	1,250 (0.81)	8,770 (5.66)	1,950 (1.26)
an a	S3	2,510 (1.62)	1,400 (0.90)	9,640 (6.22)	2,140 (1.38)
	N1	2,910 (1.88)	1,620 (1.04)	11,150 (7.19)	2,480 (1.60)
	N2	160 (0.10)	100 (0.06)	600 (0.39)	130 (0.08)
	Total	8,050 (1.82)	4,470 (2.88)	30,860 (19.91)	6,860 (4.42)
Thateng	S1	_	-	•	-
	\$2	360 (0.23)	650 (0.42)	650 (0.42)	2,720 (1.75)
	S3	10 (0.01)	10 (0.01)	10 (0.01)	40 (0.03)
	N1 -	20 (0.01)	40 (0.03)	40 (0.03)	180 (0.12)
	N2		-	an a	an a
	Total	390 (0.25)	700 (0.45)	700 (0.45)	2,940 (1.90)
Grand To	ital	15,750 (10.16)	32,860 (21.19)	42,110 (27.16)	64,350 (41.50)

Table I-7 Land Suitability Classification

Land use	Pakxong	Bachiang	Laongam	Salavan	Thateng	Total
categories	ha (%)	ha (%)	ha (%)	ha (%)	ha (%)	ha (%)
Agricultural land	18,590 (2.84)	4,010 (0.61)	13,260 (2.03)	2,630 (0.40)	2,630 (0.40)	41,120 (6.29)
Coffee	16,100	560	6,700	50	97 0	24,380 (3.73)
Tea	3 80	-	•	-	-	380 (0.06)
Lowland rice	240	540	460	2,390	270	3,900 (0.60)
Upland rice	710	2,260	4,700	160	1,110	8,940 (1.37)
Cardamom	. 76 0	650	1,400	30	280	3,120 (0.48)
Vegetables	400		•	•	•	400 (0.06)
Grass land	29,100 (4.45)	8,370 (1.28)	3,590 (0.55)	910 (0.14)	960 (0.15)	42,960 (6.57)
Dense forest lan	218,790 (33.45)	24,480 (3.74)	7,270 (1.11)	18,410 (2.81)	15,220 (2.33)	284,170 (43.45)
Clear forest land	123,580 (18.89)	27,370 (4.18)	82,240 (12.57)	25,810 (3.95)	22,220 (3.40)	281,220 (42.99)
Other area*	2,650 (0.41)	700 (0.11)	630 (0.10)	450 (0.07)	150 (0.02)	4,580 (0.70)
Total	392,710 (60.04)	64,930 (9.93)	106,990 (16.36)	48,240 (7.38)	41,180 (6.30)	654,050 (100.0)

Table I-8 Present Land Use in Total Study Area

Table I-9 Present Land Use in Tentatively Selected Priority Development Areas

								ba:
Area No.	1	2	3	4	5	6	7	8
Area Name	Upper Champi	Upper Tapoung	Lower Xe Pian	Upper Makchan	Middle Xe Katan	Middle Namtang	Lower Makchan- gnai	Lower Champi
Agricultural land	80	50	80	210	150	60	140	770
Grass land	140	20	-	280	340	50	160	500
Forest land	130	90	270	110	240	210	130	1,510
Others	1,100	40	790	220	70	30	20	120
Total	1,450	200	1,140	600	800	350	450	2,900
Area No.	9	10	11	12	13	14	15	16
Area Name	Upper Kapheu	Middle Tapoung	Lower Tapoung	Lower Xe Set	Lower Namsai	Upper Thon	Middle Laophan	Upper Tay-Un
Agricultural land	850	370	1,790	690	7,840	480	320	70
Grass land	20	640	1,440	1,710	950	330	1,170	580
Forest Land	530	• · · · ·	1,990	400	-	90	1,550	210
Others	÷ ; .	- 30	180	. .	210	•	460	-
Total	1,400	1,000	5,400	2,800	9,000	900	3,500	86(

Table 1.10 Agricultural Polential Area in the Study Area

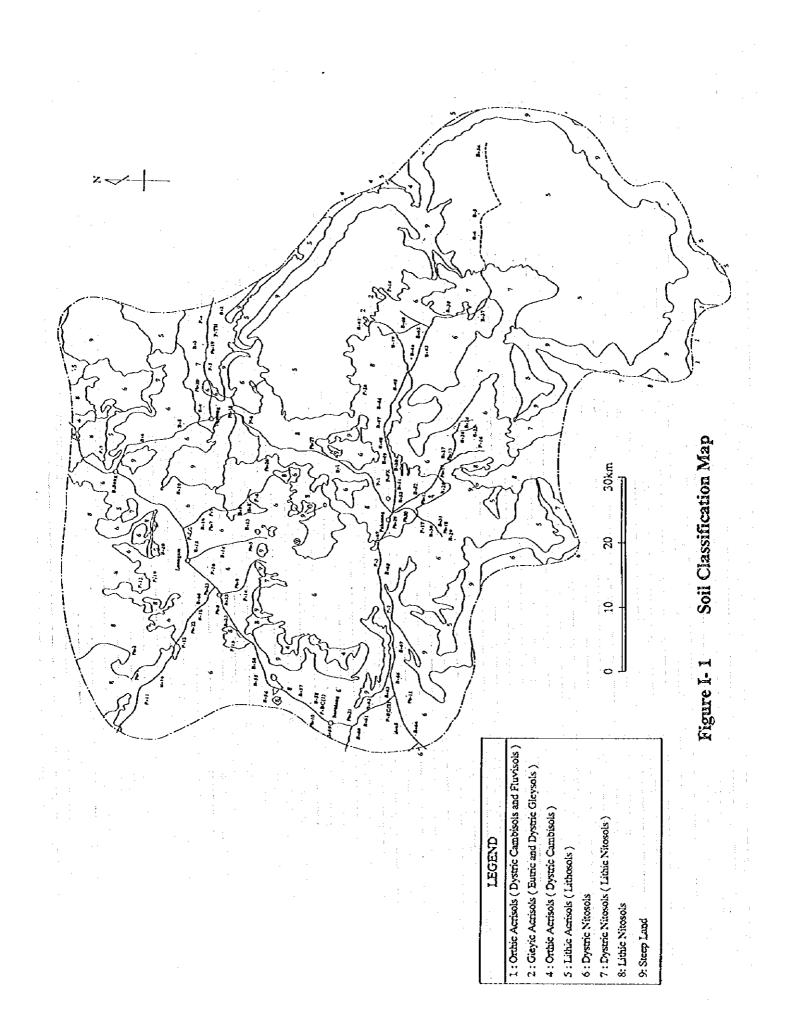
Province	District	2002	Whole	Fotestial				Alutura	i	·		Sub-Percettal	Forest	Other
			Area	Ana	<200	200-400	400-600	600-800	800-1,000	1,000-1,200	>1,200	Area	Area	Area
Champanik	Palaong	1	23,520	5,900	•	•	•	•	•	730	5,170	2,450	7,550	7,62
•	Ť	2	22,580	5,930	-	40	200	1,060	2,810	1,620	200	5,380	11,060	21
		3	13,450	1,280		•	•	•	•	1,250	20	1,740	9,780	66
		4 -	13,870		•	•	•	20	4,900	1,730	•	5,660	1,390	17
		5	27,200	1,950			-	•	340	570	1,040	2,440	15,950	6,86
		6	62,020	14,120		•	•	110	4,570	6,170	3,270	4,230	19,740	23,93
		2	36,100	10,150		-	-	•	3,120	4,410	2,620	13,200	5,700	7,05
		8	59,660	12,280		10	120	720	11,400	30 -		4,160]	41,280	1,94
		9	142,650		•	•	÷	•		· •	•		141,130	1,52
	· ·	Tota)	401,060	58,260	0	50	1,910	1,910	27,140	16,520	12,320	39,250	253,580	49,95
	Bachlang	1	9,640	6,390		1,640	4,750	*	-	•	•		730	2,52
	2043000	2	21 490		1,250	6,160	90		1,670	•	-		6,290	4,03
		3	13,960	6,180	270	5,870	•		- 40	•	-	.	4,520	3,26
		4	7,190	4,140	•	3,080	1,060				-		1,940	in
		5	1,820	1,820		1,820	•		-	-	-		•	
		6	12,810	1,110	370	740	-	•	-	-	•		11,000	-70
		Tota)	66,910	30,810	1,890	21,310	5,900	0	1,710	0	0	0	24,480	11,62
Salavia	Salayan	1	680			-	مغندةت مدينة. •	,	• • •	*	*		280	40
244.910	Seruta	2	13,530		450	2,200	-		-	•	-	470	3,150	7,25
		3	8,930	2,340	70	2,270	-	•	•				-	6,59
		4	11,490	6,040		4,870	820	350		-			1,710	3,74
		6	320						-	-	•			32
		9	680			•			-	· _	•		680	
		10	12,590						•	-			12,590	-
		Total	48,220	11,030	520	9,340	820	350	0	0	0	470	18,410	18,31
	1.000	1	5,880	5,880			4,870	1,010	· · · · ·				•	
	Liongam	2	3,690				2,670	1,020						_ ·
		3	8,360					3,280	1,970	670		1,920		52
		Ĩ	8,610	4,960			1,430	1,670	1,390	470	-	1,350	1,780	51
		5	20,540		890	10,720	200			-	-			9,134
		6	17,180		80	3,650	2,750	•	-	-	-			10,70
		7	15,380	3,590		2,800	790	•	-	•	-		450	11,33
		8	3,530	2,380	•	990	1,390	•	. .	-			210	94
		9	3,300	2,170			1,590	580	-	-	-		\$90	14
		10	11,190	3,360				2,830	530	- 1 - 1	:		3,830	4,00
		Total	\$8,060	50,240	970	18,160	15,630	10,390	3,890	1,140	0	3,280	7,270	31,27
Schong	Thateng	1	5,450									1,160	4,140	15
octory	tnereng	2	14,270	3,780		· · ·		3,150	630	-	•	2,630	4,010	3,85
		3	13,660	950	•	250	60	600	-		•	7,320	2,720	2,67
		4	6,420	· · · · ·				-	•			1,420	4,350	65
		4 Total	39,800	4,730	0	290	60	3,750	630	0	0	12,530	15,220	7,32
	[ota]	Teat	654,050	155,070	3,380	49,150	22,790	15,400	33,370	17,650	12,320	55,540	318,960	124,43

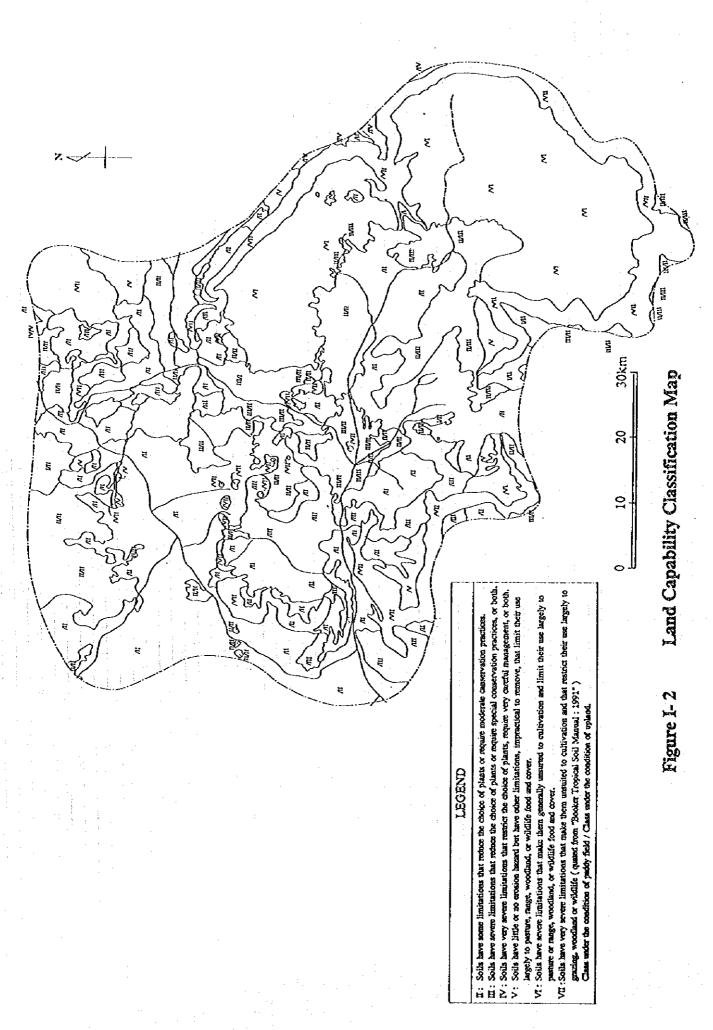
Notes:

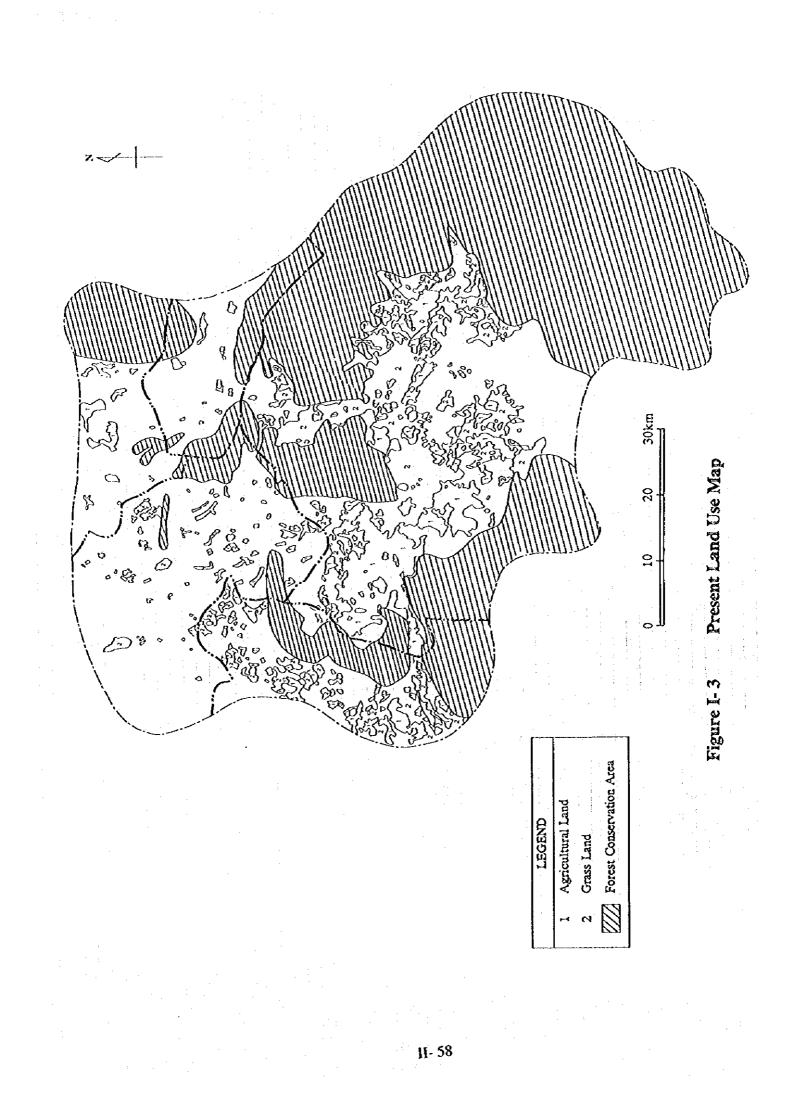
Forest Area = High Mountain, Forest Conservation Area and Steep Land

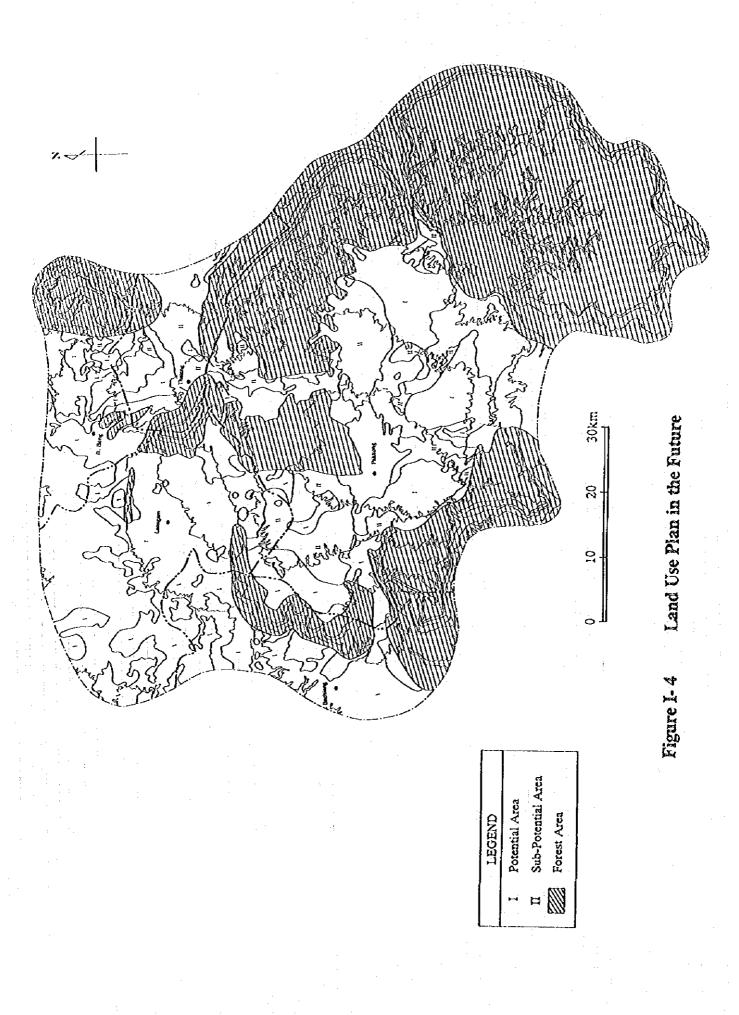
Potential Ares: Expect Present Rice Field on Other Projects

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ANNEX II SOILS AND LAND USE

PART II THE FEASIBILITY STUDY

I GENERAL

The present study (Phase III) on soils and land use aim at estimating in details soil units and their distribution in five selected priority Schemes (namely, Upper Champi, Upper Tapoung, Upper Kapheu, Lower Xe set and Upper Tay-Un) to evaluate the land resources and to estimate the feasibility of land development.

Soils and land use examination was made in five kinds of procedure, that is analysis of existing data, field survey, intake rate determination, soil chemical analysis and physical analysis. In addition to existing topographical maps and the results of the previous soil examination, two sets (one with a scale of 1 to 20 000 and another with a scale of 1 to 10 000) numbering fifty five sheets of aerial photographs, respectively, which were taken by the study team in this investigation (Phase II) for the abovementioned Schemes and twenty six pieces of topographical charts (with a scale of 1 to 5 000) which were prepared from the aerial photographs were arranged. Soil classification of the five priority project Schemes was made by using the system FAO/UNESCO (1974), and land evaluation was done in conformity with the procedure for land capability classification legislated by USDA (1961), with taking the procedure for land suitability classification systems enacted by USBA, or by FAO in account.

II SOILS

2.1 Methods of Soil Survey

On the basis of the data obtained by soil survey, properties and distribution of soils are revealed, the soils are classified into their several sorts, and the soil maps are prepared. At the same time, the land is evaluated by rating its capability, and the land capability and suitability map is produced. Moreover, the present land use aspect is observed on the way of soil survey and the results obtained are illustrated on the map and estimated in every kinds of use. In this way enforcement of soil survey is indispensable for carrying forward a project to cope with both agricultural development (e.g. increase in crop production) and environmental conservation (e.g. decrease in erosion risk) on selected priority schemes. Therefore, the techniques to be utilized for soil survey, land evaluation and land use examination must be ones which have been backed by authorized methodologies.

2.1.1 Data Collection

Certain existing data relating to soils and present and proposed land use in collected from the Ministry prior to the previous investigation (Phase I) to execute efficiently the study. In the present study (Phase III), all of aerial photographs and topographical and land use maps that were prepared closely on five selected priority Schemes at the Phase II in the study were collected. Among the data to be collected, the maps are very important.

According to FAO's information, in the stage of feasibility study, the types of land resource survey belong to both of reconnaissance and semi-detailed ones and their content are summarized as follows:

(Table a)	Types of land resource survey
-----------	-------------------------------

	Reconnaissance survey	Semi-detailed survey
Aim and level	Prefeasibility	Feasibility
	Regional planning	Development
	Project location	Planning
Site Intensity and survey method	Free survey of variable intensity usually <1% 100 ha	Flexible or rigid grid. Intensity 1 per 15 to 50 ha
Preferred scales: Aerial photos	1: 40 000 to 1: 20 000	1: 25 000 to 1: 10 000
: Final map	≨ 1: 50 600	I: 25 000 to 1: 10 000

Source: Extracted from Table 2.1 in "BOOKER TROPICAL MANUAL" ed. by J.R. Landon (1991). Furthermore, the mapping units used before this in land resource survey are selected and summarized as follows:

		:	Reconnaissance survey	Semi-detailed survey
Final mapping unit			1. Physiographic units/land systems	1. Geomorphic units 2. Soil Scrics/associations
			2. Soil associations	 Land suitability/management
			3. Land capability units	classes
			4. Poténtial development areas	4. Major constraints or parameters
Land	scare com	vnent		1917 - 1964 - 1955 - 1964 - 1964 - 1964 - 1975 - 1974 - 1974 - 1974 - 1974 - 1974 - 1974 - 1974 - 1974 - 1974 -
	:	Geomorphology	Relief units, major landforms	Detailed landforms and elements, slope units
•	:	Soil	Associations	Series, compleses or associateions: soil phases and selected parameters
	:	Vegetation	SoiVelimate-related types, plant associations	Plant associations and distribution
1	:	Land use	Land use systems, cultivation	Land use and farming systems,
	•••		density	specific parameters, cropping patterns

(Table b) Mapping units used in land resource survey

Source: Extracted from Table 2.2 in "BOOKER TROPICAL SOIL, MANIAL" of by J.R. Landon (1991).

In this study, general topographical charts (in a 1 to 5 000 in scale) and the reports on soils and land use which were published as the results of the previous study were used fully. Furthermore, aerial photographs of 1: 20 000 and of 10 000 in scales were utilized for checking the topography and the present land use.

2.1.2 Field Survey

Field survey for soils and land use in five priority project Schemes was carried out in collaboration with a counterpart provided by the Ministry. The field work including landscape examination including topography and vegetation survey, institution of soil mapping units by boring with soil auger, pit preparation and its profile observation, soil description, soil sampling, etc., for soil and land use survey was enforced in conformity to the same procedures as that used in the previous study. In this investigation, the intake rate determination was additionally done to obtain the suggestion for adequate water supplying method in every two sites in each Scheme.

(1) Boring Spot Test with Soil Auger

Boring spot test was done in two steps with two different kinds of soil auger. In practice, the work was made as follows:

For instance, in Upper Champi Scheme, in the first step, thirty spots were cored by a slender shaped auger to know an outline of soil distribution, and in second step, nine spots were bored by a thick garret type of auger to examine and describe the properties of individual soil column.

The number of boring sites in the first step work is one, twelve, twelve, and ten in Upper Tapoung, Upper Kapheu, Lower Xe Set and Upper Tay-Un, respectively. The density of the boring site is one per 74 ha in average. The number of boring sites in the second step work is seven, ten, six and five in Upper Tapoung, Upper Kapheu, Lower Xe Set and Upper Tay-Un, respectively. The density of the boring site is one per 104 ha in average.

As a result of the work, texture, color, more or less of organic matter, contents of big fragments such as gravel or stone, effective depth, consistence, etc., of soils were realized. Furthermore, slope of land surface, presence of surface stones or rock outcrops, biological state, drainage condition, degree of humidity, depth of the ground water table, aspects of erosion and erodibility were observed.

(2) Preparation of Excavating Pit and Observation of Soil Profile in the Pit

The observation of soil profiles was executed in excavating pits. The number of the pit was one every Scheme. The sites of the pits were chosen in consideration of land topography by using the charts of 1: 5 000 in scale. Pits were dug with shovel and hoe. The pits were prepared fundamentally in a size of one hundred twenty centimeters depth in maximum, two hundred centimeters long, and one hundred twenty centimeters wide. However, at the place that rock bed lies in relatively shallow situation, digging couldn't but be ceased at very thin horizon.

The procedure of soil description was mostly done in accordance with the Guidelines for Soil Profile Description (FAO) and the Soil Survey Manual (USDA, 1951). On each profile, horizon sequence, effective depth, color., texture, structure, consistence, gravel and stone content, hardness, ground water level, root spread, drainage, etc. were observed and recorded. Furthermore, landscape, land slope and vegetation were recorded.

(3) Sample Collection

Thirty one bulky samples of the soils were taken from thirteen boring spots and fourteen ones from five profiles for chemical analysis in laboratory. Two core samples that the volume of one sample is approximately one hundred milliliter were taken from each of one boring spot and five excavating pits for the determinations of pF-moisture content and particle size distribution.

(4) Intake Rate Determination

Cylinder intake rate of soil was determined in two sites for each of the Schemes by using iron cylinder (with 39.5 cm in diameter and 60 cm in high) and hook gage. In practice, the iron cylinder was sunk thirteen cm into the ground, and water was poured twenty five cm into the cylinder, and change of water surface by infiltration was traced in the period of two hundred and forty minutes. In the case that infiltration rate is relatively fast, water was added in the course of a test.

2.1.3 Laboratory Analysis of Soil Samples

(1) Physical Properties

The core samples were sent to Soil Survey & Classification Center, Ministry Agriculture and Forestry, Lao PDR, Vientiane and employed for analysis of water content at pF 2.5 and pF 4.2 and of particle size distribution.

(2) Chemical Properties

The soil samples taken from some boring spots and excavating pits were analyzed on chemical properties by using a set of simplified soil testing apparatus at the office room in Pakse City. The items of chemical analysis are as follows: pH(H20), and pH(KCl), ammonia nitrogen, nitrate nitrogen, available phosphorus, exchangeable potassium and exchangeable calcium. These constituents except for pH value were extracted from each soil sample with unified solution and estimated by color and turbidity.

2.2 Results of Field Survey and Laboratory Analysis

2.2.1 Field Survey

(1) Soil Descriptions on Boring Sites and Pit Profiles

The observational data obtained for the soils of boring sites and pit profiles in five sleected priority Schemes are given in Tables II- 1 to II- 5.

(2) Cylinder Intake Rate Determination

The data concerning the determination of cylinder intake rate are in Figures II-1 to II-5.

2.2.2 Laboratory Analysis

(1) Physical Analysis

The data obtained by physical analysis which was made in the laboratory of Soil Survey & Classification center, Ministry of Agriculture and Forestry, Lao PDR, Vientiane are shown in Table II-6.

(2) Chemical Analysis

The obtained by chemical analysis which was done in the office room, Pakse are given in Tables II-7 to II-11.

2.3 Interpretation and Classification of Soils

On the basis of the data obtained by field survey and laboratory analysis abovementioned, the characteristics of the soils found in five selected prior Schemes were considered and classified.

2.3.1 Upper Champi Scheme

In this Scheme (about 870 ha in area and 600 to 1 000 m in altitude), topography is almost plane to slightly undulant. The surface and sub-surface soils assume brown, dark brown to dark reddish brown color. The effective depth is medium to deep (50 to 100 cm). The texture is generally medium (silty loam) in surface layer and medium to heavy (clay loam to clay) in sub layer. The content of large mineral fragments such as gravel and rock is very low (less than 5%). The moisture condition is dry to moderately dry.

The intake rate values lie in the 23.95 mm to 8.89 mm/hr. The content of available water for plant growth is medium to high (8 to 15%).

The reaction is nearly neutral (pH 6.7 to 6.5 in KCl) across the whole extent of the soil horizon. It is assumed that the soils are moderate in nutrient holding capacity, because, in general, sub soils are rich in clay materials. The fertility is on relatively high level.

In conclusion, the soil derived from basalt rock (Dystric Nitosols) is found in almost all the places. However, another sorts of basaltic soil (Dystric Nitosols (Lithic Nitosols) and Nitosols (Lithosols)) are found in very small area of 15 ha in total.

2.3.2 Upper Tapoung Scheme

In this Scheme, (about 100 ha in area and 1200 m in altitude), the topography is plane to gently sloping with exception of one site near the saddle in the foothills. The surface and sub-surface soils assume dark to dark-reddish brown color. The effective depth is shallow (less than 30 cm) in some sites and deep (more than 90 cm) in another some sites. The texture is medium (silty loam) in surface layer and medium to heavy (silty clay loam to clay loam) in sub layer. The content of large mineral fragments such as gravel and rock is very low (less than 5%). The moisture condition is dry to moderate.

The intake rate values are on the low level (2.93 mm to 2.18 mm/ha). The content of available water for plant growth is medium (about 15%).

The reaction is almost neutral to feebly acid (pH 6.7 to 6.2 in KCl) across the whole extent of the soil horizon. It is expected that soils are moderate in nutrient holding capacity, because that soil horizons are rich in exchangeable potassium (150 to 70 K20 mg/100 g soil) and clay content is rather high in bottom layers. The fertility is on the high level.

In conclusion, the soils occurring extensively in the Scheme are two units of representative ones which are derived from basalt rock, that is, Dystric Nitosols and Dystric Nitosols(Lithic Nitosols).

2.3.3 Upper Kapheu Scheme

In this Scheme (about 1 2400 ha in area and 600 to 760 m in altitude), the topography is plane or undulant on the whole. The surface and sub-surface soils assume very dark reddish to dark reddish brown color. The effective depth is deep in the same way and is more than 100 cm with sites. The texture is medium (silty clay loam) in surface layer and medium to heavy (silty clay loam to clay) in sub layer. The content of large mineral fragments such as gravel and rock is very low (less than 5%). The moisture condition is wet to moderately dry.

The intake rate values lie on the middle level (12.87 mm to 16.04 mm/hr) in comparison with the values that has been obtained at another Schemes. The content of available water for plant growth is medium (about 14%).

The reaction is neutral to weak acid (pH 7.0 to 5.7 in KCl) across the whole of the soil horizons. It is presumed that the soils are moderate to high in nutrient holding capacitly, because that the soil horizons are rich in both exchangeable potassium (100 to 150 K20 mg/100 g soil) and clay material in the whole of the horizons. The fertilitly is on the high level.

In conclusion, the soils found in the Scheme is only a unit of one derived from basalt rock, Dystric Nitosols.

2.3.4 Lower Xe Set Scheme

In this scheme (about 1250 ha in area and 310 to 370 m in altitude), the topography is plane, undulant, rolling or gently sloping with places. The color of the surface and sub-surface soils also changes variously in the range from dark reddish brown to dull yellowish brown.

In the light of such soil condition, it is evident that three units of soils, that is, Alluvial soils (Orthic Acrisols (Dystric Cambisols and Fluvisols)), Soils derived from Sand stone and clay stone (Orthic Acrisols (Dystric Cambisols)) and Soils derived from basalt rock (Dystric Nitosols) distribute in the Scheme.

(1) Alluvial soils

Alluvial soils are scattered in low land fields and their outskirts that spread at the back slough of both rivers of Xe Set and Lanan. The area is about 170 ha in total, and the topography is almost plane. The effective depth is generally shallow (less than 30 cm), and the texture is medium (silty loam). The fertility is on the middle to high level.

(2) The soils derived from sand stone and clay stone

The soils derived from sand stone and clay stone also are found in low land rice fields and their outskirts at the back slough of two rivers above-mentioned. The area is about 240 ha in total, and the topography is almost plane. The effective depth is shallow to deep (23 to 75 cm), and the texture is in the middle level between coarse (sandy loam) and medium (silty loam). The reaction is weak acid and the fertility is on the middle level.

(3) The soils derived from basalt rock

The soils derived from basalt rock found in main areas of the Scheme. The area is about 840 ha in total, and the topography is undulant, rolling or gently sloping. The effective depth is shallow (less than 20 cm in general), and the texture is usually medium (silty clay loam). Numbers of the large mineral fragments such as gravel and rock are found in the soil horizon and/or on the surface of the land with sites.

The intake rate values are on the middle level (5.71 mm and 6.03 mm/hr), and the contents of available water for plant growth are low (about 5%).

The reaction is weak acid (pH 5.5 to 6.7 in KCl) across the whole extent of the soil horizon. It is assumed that the soils are relative high in nutrient holding capacity, because that the soil horizon is rich in both available phosphorus (10 to 100 mg P20s/ 100 g soil) and exchangeable potassium (70 to 150 mg K20/ 100 g soil). The fertility is on the high level.

2.3.5 Upper Tay-Un

In this Scheme (about 420 ha in area and 550 to 590 m in altitude), the surface and sub-surface soils that assume reddish brown to dark reddish brown color are distributed. However, those soils are divided into two units in the light of the soil conditions, that is, low land and upland. One unit is Alluvial soils and another is the soils derived from basalt rock.

(1) Alluvial Soils

Alluvial soils(Orthic Acrisols (Dystric and Fluvisols)) are found in low land rice fields that spread mainly at central area and scatteringly at northwest and south west parts. The area is 50 ha in total and the topography is plane. The effective depth is deep (more than 100 cm) and the texture is medium (silty clay loam) to heavy (clay loam).

The intake rate value is middle (6.85 mm/hr) and available water content is medium (about 11%).

The reaction is almost neutral (pH 6.7) across the whole extent of the soil horizon. It is guessed that soils are moderate in nutrient holding capacity, because that soil horizons are rich in exchangeable potassium (150 K20 mg/ 100 g soil). The fertility is on high level.

(2) The soils derived from basalt rock

The soils derived from basalt rock (Dystric Nitosols) are found in bush and forest areas that spread with accounting for the Scheme. The area is 360 ha in total and the topography is gently undulant. The effective depth is shallow to medium(20 to 60 cm) and the texture is medium (silty loam) to Heavy (clay).

The intake rate value is middle (9.41 mm/hr). It is assumed that the fertility is on the high level.

The distribution area of soil units in the five Schemes is shown in Table II-12.

III PRESENT LAND USE

3.1 Present Land Use Observation

Present land use in five selected priority Schemes were examined by using the same procedure in previous study (Phase I). In this study (Phase III), the topographical and land use charts (a scale of 1 to 5 000) which were prepared from aerial photographs taken by the study team in Phase II were utilized effectively for present land use survey. The results obtained are summarized as follows:

3.1.1 Upper Champi Scheme

In Upper Champi Scheme, coffee and tea are cultivated in wide area which approximately 72% of the Scheme. Mixed land of bush and grass that is borders of this area in the northeast and is surrounded by tall trees is promising for agricultural development.

3.1.2 Upper Tapoung Scheme

In Upper Tapoung Scheme, almost all the area is covered bush and grass, and trees are dotted.

3.1.3 Upper Kapheu Scheme

In Upper Kapheu Scheme, coffee is cultivated in the area of about 45% of the Scheme. Upland rice also is cultivated in the area of about 15%, but bush accounts about 36% of the Scheme.

3.1.4 Lower Xe Set Scheme

In Lower Xe Set Scheme, low land rice and upland rice are cultivated in the area of about 8% and of about 11%, respectively. Upland crops, cotton, nuts, chili, etc. are cultivated at approximately about 7% of the Scheme. Fruits such as banana also are planted in small area (about 2%), but almost area of the remaining land is covered by bush, grass and tree.

3.1.5 Upper Tay-Un

In Upper Tay-Un Scheme, slash and burn is practiced in large extent and upland rice and upland crops are cultivated in the area of about 8%. In the Scheme, distribution of swamp and pond is distinctively found. Therefore low land rice is cultivated where water is available in the wet season, but the area is only less than 4%. The main area of the remaining land is covered by bush, tree and grass.

The result on present land use survey is shown in Table II-13.

The actual state of land use in each Scheme is still more shown in Figures II-6 to II-10.

IV LAND SUITABILITY

4.1 Method of Land Evaluation

Land evaluation was done in confority with the procedure for land capabulity classification systems enacted by USBA, or by FAO in account in the same way that was described in PART II of this ANNEX.

4.2 Land Suitability of Five Selected Priority Schemes

Land suitability of five project Schemes was examined by the land use capability classes indicating suitable land use intensity of Paddy/Upland/Orchard. A brief description for capacity classes is as follows:

Class I.	Soils have few limitations that restrict their use.
Class II.	Soils have some limitations that reduce the choice of plants or require moderate conservation.
Class III.	Soils have severe limitations that reduce the choice of plants, require special conservation practices. or both.
Class IV.	Soils have very limitations that restrict the choice of plants, require very careful management, or both.

4.3 The results of land suitability

The results obtained on land suitability for the areas which are suitable to cultivation of five selected priority Scheme are as follows:

4.3.1 Upper Champi Scheme

In Upper Champi Scheme, the suitability was estimated from the view point of land use under /upland/orchard. The result is as follows:

As the land for upland use, Class I is 5.7%; Class II is 44.3%; Class III is 49.4%; and Class IV is less than 1%. As the land for orchard use, Class I is 5.7%; Class II is 63.8%; Class III is 28.2%; and Class IV is 2.3%.

4.3.2 Upper Tapoung Scheme

In Upper Tapoung Scheme, the suitability was estimated from the view point of land use under /upland/orchard. The result is as follows:

As the land for upland use, Class I is 20%; Class II is 50%; and Class III is 30%. As the land for orchard use, Class I is 30%; Class II is 65%; and Class III is 5%.

4.3.3 Upper Kapheu Scheme

In Upper Kapheu Scheme, the suitability was estimated from the view point of land use under Paddy/upland/orchard. The result is as follows:

As the land for lowland use, Class II is 71.8%; and Class III is 28.2%. As the land for upland use, Class I is 37.1%; Class II is 41.1%; and Class III is 21.8%. As the land for orchard use, Class I is 19.4%: Class II is 53.2%; Class III is 22.6%; and Class IV is 4.%.

4.3.4 Lower Xe Set Scheme

In Lower Xe Set Scheme, the suitability was estimated from the view point of fand use under Paddy/upland. The result is as follows:

As the land for lowland use, Class I is 16%; Class II is 47.6%; and Class III is 52%. As the land for upland use, Class II is 8.4%; and Class III is 91.6%.

4.3.5 Upper Tay-Un Scheme

In Upper Tay-Un Scheme, the suitability was estimated from the view point of land use under lowland/upland/orchard. The result is as follows:

As the land for lowland use, Class I is 25.6%; Class II is 22.0%; and Class III is 52.4%. As the land for upland use, Class I is 19.5%; Class II is 65.9% and Class III is 14.6%. As the land for orchard use, Class I is 12.2%; Class II is 57.3%; and Class III is 30.5%.

The actual state concerning the land suitability of each Scheme is given in Tables II-14 to II-19 and Figures II-11 to 15 by showing with the match-markings of soil units and land suitability classes.

It may be given as a conclusion that, according to the results obtained by soil condition survey, it is evident on that soil resources in five selected Schemes are irrigable and favorable to agricultural development with irrigation in all cases.

Prospective Land Use V

With taking the results of soil survey, present land use and land evaluation into consideration, the following prospective land use plan may be stated for five selected priority Scheme.

Upper champi Scheme 5.1

In this Scheme, the representative basaltic soils colored in reddish brown are distributed in almost areas. The effective depth of horizon is medium to deep and the fertility level is relatively high. In practice, considerably wide area is use as coffee garden in which much amounts of coffee are produced. Additionally, tea plantation is made tea plantation is made in not a few area. In view of such a situation, it is desirable that irrigation will be enforced to accomplish an increase in production of a good quality of coffee and of tea. Furthermore, it is looked forward to use the parts of bush and grass land as the land under highland vegetable cultivation by operation of irrigation.

Upper Tapoung Scheme 5.2

In this Scheme, basaltic soils assuming with reddish brown color are distributed Their fertility is on the high level. However, supply in nature condition of water is not satisfactory. For this reason, the land use as farmland is not always sufficient. If the effective irrigation is put in practice, land utilization as upland farm and orchard will be realized.

Upper Kapheu Scheme 5.3

In this Scheme, the basaltic soils colored in reddish brown are distributed. From the view point of land capability, it is clear that the soils are good quality in the whole areas. Consequently, if the execution of irrigation works is carried out, various sorts of crops involving coffee, garden vegetables, rice, fruits, etc. will become to be cultivated with a high yield.

5.4 Lower Xe Set Scheme

In this Scheme, three kinds of soils, namely, alluvial soils, the soils derived from sand stone and clay stone and basaltic soils are found with different areas. In the areas of the two former, paddy field are distributed in almost parts.

The fertility is on the middle to high level, but soil horizon is generally shallow. Accordingly, it is considered that the land is suited for cultivation of rice and upland crops by enforcement of irrigation. 5.5

Upper Tay-Un

In this Scheme, alluvial soils and basaltic soils are distributed at the rate of 1 to 7 in area. Additionally, swamp is found in not a few area. At present, alluvial soil areas are used as paddy field, though, in future, swamp areas also will became to be used for paddy field by enforcement of drainage work.

The feitility is on the high level. Therefore, this Scheme will be use for paddy field, Upland farm and orchard by execution of irrigation and drainage works.

Prospective land use is given in Table 20.

Tables

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Tuble 25-26 Soft Description and Burling Spots and Pit Profiles in Scheded Priority Schedur - Upper Tapes ago

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