#### ANNEX-E Agronomy/Farm Management

#### ANNEX E

#### Agronomy and Farm Managment

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# Summary of Soil Profile in the Study Areas

### BOLIKHAMXAY Province

Inundated area (flood affected area)

Lat: 18° 24' 21"N; Long: 103° 15' 59"E. Haplic LUVISOLS (LVh). [56m. above sea level. BI. 01. P. 087 Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

Alluvial deposits/Siltstone and Claystone. Geology/parent materials FAO/UNESCO)

Flat or almost flat plain with 0-2% slope. N-P-K fertilizer applied. Well drained. 3.5-4.0T/ha. Paddy rice. None. Vegetation and/or Land Use Average crop yield Saline-sodic soil Physiography Soil fertility Drainage

Soil sample No. BI. 01 (0-19cm); BI. 01 (19-40cm); BI. 01 (40-79cm) None. Soil erosion

#### Profile Description:

Loam; structureless; slightly sticky and slightly plastic when wet; Friable when moist, slightly hard when dry; few micro interstital Gradual smooth boundary; yellowish brown (10YR 5/4 moist) 0-19 cm: Αp

pores; very few, very fine roots; pH  $H_2O = 5.0$  no effervescent.

Loam; moderate medium subangular blocky, slightly sticky and Plastic when wet; firm when moist, hard when dry; few micro Gradual smooth boundary; dark brown (7.5YR 3/4 moist) Interstital pores; very few, very fine roots; pH  $H_2O = 5.0$ ; no effervescent. 19-40 cm: Bt1

Clay Loam; weak fine subangular blocky; sticky and plastic when wet; Diffuse smooth boundary; dark brownish (7.5YR 6/8 moist), interstitial pores; none roots; pH  $H_2O = 5.0$ ; no effervescent. firm when moist, hard when dry; few with micro, 40-79 cm: Bt2

Clay loam; weak fine subangular blocky; slightly sticky and slightly Diffuse smooth boundary; strong brown (5YR 4/6 moist) 79-125 cm:

plastic when wet; firm when moist, hard when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 4.0$  no effervescent.

# **BOLIKHAMXAY Province**

Inundated area (flood affected area)

Alluvial deposits/Siltstone and Claystone. Flat or almost flat plain with 0-2% slope. Lat: 18° 27' 02"N; Long: 103° 30' 05"E. Ferric ACRISOLS (ALh). 150m. above sea level. Well drained. Paddy rice. P. 441 Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Soil Classification FAO/UNESCO) Soil Profile No. Physiography Elevation ocation Drainage

None. Saline-sodic soil

N-P-K fertilizer applied. 3.5-4.0T/ha. Average crop yield Soil fertility

Soil sample No. BI. 02 (0-16cm); BI. 02 (16-37cm); BI. 02 (37-60cm) None. Soil erosion

### Profile Description:

Loam; structureless; slightly sticky and slightly plastic when wet; friable when moist; slightly hard when dry; few micro interstital pores; very few, very fine roots; pH  $H_2O = 5.2$  no effervescent. Clear smooth boundary; very pale brown (10YR 7/3 moist) J-16 cm:

when dry; few micro interstital porcs; very few, very fine roots; pH  $H_2O =$ subangular blocky, sticky and plastic when wet; friable when moist, hard common with yellowish red fine faint mottles; Loam; moderate fine Clear smooth boundary; yellowish brown (10YR 5/6 moist); 5.0 no effervescent. .6-37 cm: Bts1

when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 4.8$  no subangular blocky; sticky and plastic when wet; friable when moist, hard many with yellowish red medium faint mottles; Clay Loam; weak fine Clear smooth boundary; strong brown (7.5YR 5/6 moist), effervescent. 37-60 cm: Bts2

subangular blocky; sticky and plastic when wet; friable when moist, hard many with red coarse prominent mottles; Clay Loam; weak midium when dry; few with micro, interstitial pores; none roots; Clear smooth boundary; red (2.5YR 5/6 moist), pH H,O = 5.0 no effervescent. 50-125 cm: Bts3

Inundated area (flood affected area)

Lat: 18° 23' 42"N; Long: 103° 41' 31"E. Ferric ACRISOLS (ACf.) 150m. above sea level. PS.23 Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

Alluvial deposits/Siltstone and Claystone. Geology/parent materials FAO/UNESCO)

Flat or almost flat plain with 0-2% slope. N-P-K fertilizer applied. Well drained. 2-2.5 ton/ha. Paddy rice. None. Vegetation and/or Land Use Average crop yield Saline-sodic soil Physiography Soil fertility Drainage

Soil sample No. BI. 03 (0-14cm); BI. 03 (14-32cm); BI. 03 (32-61cm) None. Soil erosion

#### Profile Description:

Clay Loam; weak fine subangular blocky, sticky and slightly plastic when wet; firm when moist, slightly hard when dry; few micro interstital pores; when moist, slightly hard when dry; few micro interstital pores; very fine Loam; structureless; slightly sticky and slightly plastic when wet; friable Diffuse smooth boundary; olive brown (2.5YR 4/4 moist) Diffuse smooth boundary; olive brown (2.5YR 4/4 moist) very few, very fine roots; pH  $H_2O = 5.0$  no effervescent. roots; pH  $H_2O = 5.5$  no effervescent. 14-32 cm: 0-14 cm: AB Ap

subangular blocky; sticky and plastic when wet; firm when moist, hard when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 5.0$ few with reddish yellow fine faint mottles; Clay Loam; weak fine Clear smooth boundary; pale yellow (2.5YR 7/4 moist) no effervescent. 32-61 cm: Bts1

common with yellowish red medium distinct mottles; Clay Loam; weak hard when dry; few with micro. Interstitial pores; none roots; pH  $H_2O =$ fine subangular blocky; sticky and plastic when wet; firm when moist, Clear smooth boundary; light reddish brown (2.5YR 6/4 moist) 4.5 no effervescent. 61-125 cm: Bts2

# **BOLIKHAMXAY Province**

inundated area (flood affected area)

Flat or almost flat valley bottom 0-2% slope. Alluvial deposits/Siltstone and Claystone. Lat: 18° 04' 54"N; Long: 104° 18' 20"E. Gleyic ALISOLS (ALg) N-P-K fertilizer applied. Moderate well drained. 140m. above sea level. 2.5 - 3.0 T/ha. Paddy rice. BI. 04. P. 425 None. Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification (FAO/UNESCO) Saline-sodic soil Soil Profile No. Physiography Soil fertility Soil erosion Elevation Drainage ocation

#### Profile Description:

Soil sample No. BI. 04 (0-17cm); BI. 04 (17-36cm); BI. 04 (36-75cm)

when moist, slightly hard when dry; few micro interstitial pores; very few, Loam; structureless; slightly sticky and slightly plastic when wet, friable Gradual smooth boundary; light browish gray (10YR 6/2 moist) very fine roots; pH  $H_2O = 5.5$  no effervescent. 0-17 cm:

few with reddish yellow medium faint mottles; Loam; moderate medium when moist, hard when dry; few micro interstital pores; very few, very subangular blocky, slightly sticky and alightly plastic when wet; firm Gradual smooth boundary; pale brown (10YR 6/3 moist) fine roots; pH  $H_2O = 4.5$  no effervescent. 17-36 cm: Bts

when dry; few with micro, interstitial pores; none roots; pH H<sub>2</sub>O = 4.5 no subangular blocky; sticky and plastic when wet; firm when moist, hard few with reddish yellow fine faint mottles; Loam; moderate fine Gradual smooth boundary; grayish brown (10YR 5/2 moist) effervescent. 36-75 cm: Btg1

when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 5.0$  no subangular blocky; sticky and plastic when wet; firm when moist, hard few with reddish yellow fine faint mottles; Clay Loam; weak fine Gradual smooth boundary; yellowish brown (10YR 5/3 moist) 75-125 cm: Btg2

Un-Inundated area ( non flood affected area )

Lat: 18° 35' 53"N; Long: 103° 42' 18"E. .60m. above sea level. BU. 01. Soil Profile No. Elevation ocation

Haplic ALISOLS (ALh) Existing soil profile No. Soil Classification FAO/UNESCO)

Flat or almost flat valley bottom with 0-2% slope. Alluvial deposits/Sandstone and Siltstone. Moderate well drained. Geology/parent materials Physiography Drainage

N-P-K fertilizer applied. Paddy rice. None. Vegetation and/or Land Use Saline-sodic soil Soil fertility

Soil sample No. BU. 01 (0-19cm); BU. 01 (19-43cm); BU. 01 (43-84cm) 1.0 - 1.3 T/ha. Average crop yield Soil erosion

Profile Description:

Clay Loam; structureless; non sticky and non plastic when wet; loose Diffuse smooth boundary; dark brown (10YR 3/3 moist) 0-19 cm: Ap

when moist, soft when dry; few micro interstitial pores; very few, very

line roots; pH  $H_2O = 4.5$  no effervescent.

Diffuse smooth boundary; dark brown (10YR 4/3 moist)

19-43 cm:

AB

Sandy Loam; weak fine subangular blocky, non sticky and non slightly plastic when wet; very friable when moist, slightly soft when dry; few micro interstitial pores; very few, very fine roots; pH  $H_2O = 4.5$  no

effervescent.

Gradual smooth boundary; yellow (10YR 5/3 moist) 43 -84 cm: Bţ

slightly plastic when wet; very friable when moist, soft when dry; few with micro, interstitial pores; none roots; pH  $_{2}$ O = 4.8 no effervescent. Sandy Loam; weak very fine subangular blocky; slightly sticky and

fine sand; non sticky and non plastic when wet, loose when moist and soft when dry; few with micro, interstitial pores; none roots; pH  $\rm H_2O=4.0$  no Clear smooth boundary; very pale brown (10YR 7/3 moist) 84-125 cm: Bs

### **BOLIKHAMXAY Province**

Un-Inundated area (none flood affected area)

BU. 02. Lat: 18° 25' 40"N; Long: 103° 46' 10"E. 160m. above sea level. Existing soil profile No. Soil Profile No. Elevation ocation

Ferric ACRISOLS (ACF) Soil Classification

Alluvial deposits/Siltstone and Claystone. Flat or almost flat plain with 0-2% slope. Geology/parent materials (FAO/UNESCO) Physiography

Well drained. Paddy rice. Vegetation and/or Land Use Drainage

N-P-K fertilizer applied. None. Saline-sodic soil Soil fertility

Soil sample No. BU. 02 (0-13cm); BU. 02 (13-48cm); BU. 02 (48-55cm) Soil erosion

3.0 - 3.5 ton/ha.

Average crop yield

### Profile Description:

Clear smooth boundary; very pale brown (10YR 7/4 moist) 0-13 cm: Αb

Loam; structureless; slightly sticky and slightly plastic when wet; friable when mopist, hard when dry; few micro interstitial pores; very few, very

fine roots; pH  $H_2O = 4.6$  no effervescent.

very hard when dry; few micro interstitial pores; very few, very fine roots; subangular blocky, sticky and plastic when wet; very firm when moist, few with yellow fine, faint mottles; Clay Loam; moderate medium Clear smooth boundary; dark grayish brown (10YR 4/2 moist)  $^{\circ}$  PH H,O = 4.5 no effervescent. 13-48 cm: Btc1

Abrupt smooth boundary; yellowish brown (10YR 5/4 moist) 48 -55 cm:

Heavy Clay; moderate fine subangular blocky; sticky and plastic when wet; very firm when moist, very hard when dry; few with micro, Bts2

interstitial pores; none roots; pH  $H_2O = 4.5$  no effervescent.

Gravelly and >55 cm:

Un-Inundated area ( non flood affected area )

Alluvial deposits/Siltstone and Claystone. BU. 03. Lat: 18° 19' 00"N; Long: 103° 51' 52"E. Flat or almost flat plain with 0-2% slope. Some what excessively drained. Dystric CAMBISOLS ( ÇMd ) 140-150 m. above sea level. Paddy rice. P.076 Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Soil Classification FAO/UNESCO) Soil Profile No. Physiography Elevation Drainage ocation

Soil erosion : None. Soil sample No. BU. 03 (0-15cm); BU. 03 (15-38cm); BU. 03 (38-76cm)

Average crop yield

Saline-sodic soil

Soil fertility

N-P-K fertilizer applied. 3.0 – 3.5 ton/ha.

None.

#### Profile Description:

O-15 cm: Clear smooth boundary; light gray (10YR 7/2 moist)

Ap Loam; structureless; slightly sticky and slightly plastic when wet; friable when moist. hard when dry; few micro interstitial pores; very few, very fine roots; pH H<sub>2</sub>O = 4.7 no effervescent.

15-38 cm: Gradual smooth boundary; grayish brown (10YR 5/2 moist)

Bws1 Clay Loam; moderate medium subangular blocky, sticky and plastic when wet; firm when moist, very hard when dry; few micro interstitial pores;

very few, very fine roots; pH H<sub>2</sub>O = 4.8 no effervescent.

38 -76 cm: Gradual smooth boundary; brownish yellow (10YR 6/6 moist)

Bws2 few with brownish yellow fine faint mottles; Clay Loam; moderate fine subangular blocky; sticky and plastic when wet; firm when moist, very hard when dry; few with micro, interstitial pores; none roots; pH H<sub>2</sub>O =

1.5 no effervescent.

76-120 cm: Gradual smooth boundary; brown (7.5YR 5/4 moist)

Heavy Clay moderate fine subangular blocky; very sticky and very plastic when wet; very firm when moist, very hard when dry; few with micro, interstitial pores; none roots; pH H<sub>2</sub>O = 4.5 no effervescent.

### KHAMMOUANE Province

Inundated area (flood affected area)

Alluvial deposits/Sandstone and Siltstone. Hat or almost flat plain with 0-2% slope. Lat: 17° 33' 20"N; Long: 104° 41' 10"E. Soil sample No. KI. 01 (0-18cm); KI. 01 (18-40cm); KI. 01 (40-68cm) Somewhat excessively drained. Ferric LUVISOLS (LVf) N-P-K fertilizer applied. 60m. above sea level. 1.3 - 1.5 ton/ha. Paddy rice. P. 062 None. Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification FAO/UNESCO) Saline-sodic soil Soil Profile No Physiography Soil fertility Soil erosion Elevation ocation Drainage

#### Profile Description:

when moist, soft when dry; very few very fine interstitial pores; very few very fine subangular blocky; non sticky and non plastic when wet; very common with brownish yellow fine faint diffuse mottles. Sandy Loam: few with browish yellow fine faint diffuse mottles, Sandy Loam; weak Loamy sand; structureless; non sticky and non plastic when wet; loose Gradual smooth boundary; light brownish gray (10YR 6/2 moist) friable when moist, soft when dry; non roots; pH  $H_2O = 4.5$  no Gradual smooth boundary; brownish yellow (10YR 6/8 moist) Clear smooth boundary; light gray (10YR 7/2 moist) very fine roots; pH  $H_2O = 4.5$  no effervescent. effervescent. 10-68 cm: 8-40 cm: 0-18 cm: Bts1 Bts2

Bts2 common with brownish yellow fine faint diffuse mottles, Sandy Loam; weak very fine subangular blocky; non sticky and non plastic when wet; very friable when moist, slightly hard when dry; none roots; pH H<sub>2</sub>O = 4.5-4.8 no effervescent.

58-125 cm: Gradual, smooth boundary; light yellowish brown (10YR 6/4 moist)

Bts3 many with red medium distinct mottles, Loam; weak fine subangular blocky; slightly sticky and slightly plastic when wet; friable when moist, slightly hard when dry; none roots; pH H<sub>2</sub>O = 4.5 no effervescent.

E-4

### KHAMMOUANE Province

Inundated area (flood affected area)

Soil Profile No. : KI. 02.

Location : Lat: 17° 25′ 45″N; Long: 104° 51′ 15″E.

Elevation : 158m. above sea level.

Existing soil profile No. : P. 009

Soil Classification : Ferric ACRISOLS (ACE)

FAO/UNESCO)

Geology/parent materials : Alluvial deposits/Sandstone and Claystone.
Physiography : Flat or almost flat valley bottom with 0-2%

Physiography : Flat or almost flat valley bottom with 0-2% slope.

Drainage : Moderately drained.

Vegetation and/or Land Use : Paddy rice.

Saline-sodic soil : None.

Soil fertility : N-P-K fertilizer applied.

2.5 – 3.0 ton/ha.

Soil erosion : None. Soil sample No. KI. 02 (0-15cm); KI. 02 (15-37cm); KI. 02 (37-70cm)

#### Profile Description:

O-15 cm: Clear smooth boundary; light gray (10YR 7/2 moist)

Ap Loamy sand; structureless; slightly sticky and slightly plastic when wet; friable when moist, slightly hard when dry; few micro interstitial pores;

very few very fine roots; pH H<sub>2</sub>O = 4.5 no effervescent.

Clear smooth boundary; pale brown (10YR 6/3 moist)

Bis1 common with yellowish red fine faint mottles, Loam; weak fine subangular blocky; slightly sticky and plastic when wet; firm when moist, slightly hard when dry; few micro interstitial pores none roots; pH H<sub>2</sub>O = 4.5 no effervescent.

37-70 cm: Gradual smooth boundary; light brownish gray (10YR 6/2 moist)

Bis2 common with red fine faint mottles, Clay Loam; weak very fine
subangular blocky; slightly sticky and plastic when wet; firm when moist,
hard when dry, few with micro, interstitial pores, none roots; pH H<sub>2</sub>O =
4.3 no effervescent.

70-125 cm: Gradual, smooth boundary; pale brown (10YR 6/3 moist)

Bts3 many with red medium prominent mottles, Clay Loam; weak fine subangular blocky; slightly sticky and plastic when wet; firm when moist, hard when dry; with micro, interstitial pores; none roots; pH H<sub>2</sub>O = 4.0 no effervescent.

### KHAMMOUANE Province

Inundated area ( flood affected area )

Alluvial deposits/Sandstone and Siltstone. Hat or almost flat plain with 0-2% slope. Lat: 17° 16' 31"N; Long: 104° 57' 50"E. Soil sample No. KI. 03 (0-17cm); KI. 03 (17-34cm); KI. 03 (34-63cm) Gleyic SOLONETZ (SNg). N-P-K fertilizer applied. 147m. above sea level. MOderately drained. 2.0-2.5ton/ha. addy rice. None. Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification FAO/UNESCO) Saline-sodic soil Soil Profile No. Physiography Soil fertility Soil erosion Elevation Drainage ocation

### Profile Description:

0-17 cm: Gradual smooth boundary; grayish brown (10YR 5/2 moist)

Ap Fine Sand; structureless; non sticky and non plastic when wet; very friable when moist, soft when dry; few micro interstitial pores; very few very fine roots; pH H<sub>2</sub>O = 5.0 no effervescent.

17-34 cm: Gradual smooth boundary; light brownish gray (10YR 6/2 moist)
AB Loamy Sand; weak very fine subangular blocky; non sticky and non plastic when wet; very friable when moist, soft when dry; few micro interstitial pores; very few, very fine roots; pH H<sub>2</sub>O = 5.5; no effervescent.

34-63 cm: Gradual smooth boundary; broun (10YR 5/3 moist)

Btn few with reddish yellow medium faint mottles, Sandy Loam; weak very fine subangular blocky; non sticky and non plastic when wet; very friable when moist, soft when dry; few with micro, interstitial pores, none roots; pH H<sub>2</sub>O = 6.0; no effervescent.

53-125 cm: Gradual, smooth boundary; yellowish brown (10YR 5/4 moist)

Bing common with red medium faint mottles, Clay Loam; weak fine subangular blocky; non sticky and non plastic when wet; very friable when moist, soft hard when dry; non roots; pH H<sub>2</sub>O = 6.5 no effervescent.

E-5

### KHAMMOUANE Province

nundated area (flood affected area)

Lat: 17° 06' 10"N; Long: 104° 52' 05"E. Ferric ACRISOLS (ACE) 147m. above sea level. KI. 04. Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

Alluvial deposits/Sandstone and Siltstone. Plat or almost flat plain with 0-2% slope. Geology/parent materials FAO/UNESCO) Physiography

N-P-K fertilizer applied. Well drained. Paddy rice. None. Vegetation and/or Land Use Saline-sodic soil Soil fertility Drainage

2.5-3.0ton/ha. Average crop yield Soil erosion

Soil sample No. KI. 04 (0-12cm); KI. 04 (12-36cm); KI. 04 (36-60cm)

#### Profile Description:

friable when moist, soft when dry; very few micro interstitial pores; ver Sandy Loam; structureless; non sticky and non plastic when wet; very Diffuse smooth boundary; very pale brown (10YR 7/3 moist) 0-12 cm: Αb

few very fine roots; pH  $H_2O = 4.7$  no effervescent. 12-36 cm:

when wet; very friable when moist, soft when dry; non roots; pH H<sub>2</sub>O = Loam; medium subangular blocky; slightly sticky and slightly plastic Diffuse smooth boundary; pale brown (10YR 6/3 moist); 4.5 no effervescent. Bts

medium angular blocky; sticky and plastic when wet; firm when moist, many with yellowish red medium distinct mottles; Clay Loam; strong very hard when dry; none roots; pH  $H_2O = 4.5$  no effervescent. Gradual smooth boundary; brownish yellow (10YR 6/6 moist), 37-60 cm: Btc

wet; firm when moist, very hard when dry; none roots; pH  $H_2O = 4.3$  no Heavy Clay; strong coarse subangular blocky; sticky and plastic when Clear, smooth boundary; yellowish red (5YR 5/6 moist), 50-125 cm: Bts

KHAMMOUANE Province

Jn-Inundated area ( flood affected area ); but in fact was inundated area after hydropower electricity Nam Theum II Construction in 1997

.at: 17° 52' 13"N; Long: 104° 29' 50"E. Haplic ACRISOLS (ACh.). 160m. above sea level. None Existing soil profile No. Soil Classification Soil Profile No. ocation Elevation

Alluvial deposits/Siltstone and Claystone. Flat or almost flat plain with 0-2% slope. Geology/parent materials FAO/UNESCO)

Well drained. **Physiography** Drainage

N-P-K fertilizer applied. Paddy rice. None. Vegetation and/or Land Use Saline-sodic soil Soil fertility

Soil sample No. KU. 01 (0-15cm); KU. 01 (15-31cm); KU. 01 (31-60cm) 3.0-3.5 ton/ha. Average crop yield Soil erosion

Profile Description:

Gradual smooth boundary; pale brown (10YR 6/3 moist) 0-15 cm: Αb

Loam; structureless; slightly sticky and slightly plastic when wet; friable when moist, slightly hard when dry; very few very fine interstitial pores, very few very fine roots; pH  $H_2O = 5.5$  no effervescent.

Gradual smooth boundary; yellowish brown (10YR 5/4 moist) 15-31 cm: AB

Loam; weak very fine subangular blocky; slightly sticky and plastic when wet; firm when moist, slightly when dry; very few, very fine roots; pH  $H_2O = 5.5$  no effervescent.

Gradual smooth boundary; dark yellowish brown (210YR 4/4 moist) 31-60 cm: Bt1

Clay Loam; moderate fine subangular blocky; sticky and plastic when wet; firm when moist, hard when dry; none roots; pH  $H_2O = 5.8$  no

effervescent.

Gradual, smooth boundary; dark yellowish brown (10YR 4/4 moist) 60-125 cm: Bt2

Clay Loam; moderate fine subangular blocky; sticky and plastic when wet;

firm when moist, hard when dry; non roots; pH  $H_2O = 6.0$  no effervescent.

### KHAMMOUANE Province

Un-Inundated area ( non flood affected area )

.at: 17° 21' 30"N; Long: 104° 52' 30"E. 147m. above sea level. Soil Profile No. Elevation ocation

Ferric ALISOLS (ALf.) Existing soil profile No. Soil Classification

Flat or almost flat terrace with 0-2% slope. Alluvial deposits/Sandstone and Siltstone. Geology/parent materials (FAO/UNESCO) Physiography

Somewhat excessively drained. Paddy rice. Vegetation and/or Land Use Drainage

N-P-K fertilizer applied. 2.0 - 2.5 ton/ha. None. None. Average crop yield Saline-sodic soil Soil fertility Soil erosion

Soil sample No. KU. 02 (0-13cm); KU. 02 (13-32cm); KU. 02 (32-59cm)

#### Profile Description:

when moist, soft when dry; very few very fine interstitial pores; very few very Loamy sand; structureless; non sticky and non plastic when wet; very friable Gradual smooth boundary; light gray (10YR 7/2 moist) fine roots; pH  $H_2O = 4.5$  no effervescent. 0-13 cm: Ψb

subangular blocky; non sticky and non plastic when wet; very friable when moist, few with brownish yellow fine faint mottles, Sandy Loam; weak very fine Gradual smooth boundary; very pale brown (10YR 7/3 moist) soft when dry; non roots; pH  $H_2O = 4.5$  no effervescent. 13-32 cm: Bts1

blocky; non sticky and non plastic when wet; friable when moist, slightly hard few with yellowish red fine faint mottles, Loam; weak very fine subangular Gradual smooth boundary; light yellowish brown (10YR 6/4 moist) when dry; none roots; pH  $H_2O = 4.0-4.3$  no effervescent. 32-59 cm: Bts2

few with yellowish brown fine faint mottles, Loam; weak fine subangular blocky; non sticky and nonplastic when wet; friable when moist, slightly hard when dry; Gradual, smooth boundary; grayish brown (10YR 5/2 moist) none roots; pH  $H_2O = 4.0$  no effervescent. 59-84 cm: Bts3

10%; moderate medium subangular blocky, slightly sticky and slightly plastic common with yellowish brown medium faint mottles, Clay Loam; gravelly 5when wet, firm when moist, hard when dry, none roots; pH  $H_2O = 4.0$  no Clear smooth boundary, light brownish gray (10YR 6/2 moist) effervescent 84-125 cm: Btc

# KHAMMOUANE Province

Un-Inundated area ( non flood affected area )

Lat: 17° 07' 30"N; Long: 104° 48' 10"E. Dystric CAMBISOLS (CMd) 140m. above sea level P. 045 Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

FAO/UNESCO)

Alluvial deposits/Siltstone and Claystone. Flat or almost flat plain with 0-2% slope. Geology/parent materials Physiography

Well drained. Paddy rice. None. Vegetation and/or Land Use Drainage

N-P-K fertilizer applied. 3.0 - 3.5 ton/ha. Average crop yield Saline-sodic soil Soil fertility

Soil sample No. KU. 03 (0-10cm); KU. 03 (10-34cm); KU. 03 (34-70cm) None. Soil erosion

### Profile Description:

when moist, soft when dry; few micro interstitial pores; very few very fine Loam; structureless; slightly sticky and slightly plastic when wet; friable Clear smooth boundary; very pale brown (10YR 7/3 moist) roots; pH  $H_2O = 4.2-4.5$  no effervescent. 0-10 cm: Αb

few with reddish yellow fine faint mottles, Clay Loam; moderate fine subangular blocky; slightly sticky and slightly plastic when wet; firm when moist, hard when dry; non roots; pH  $H_2O = 4.5$  no effervescent. Gradual smooth boundary; brown (10YR 4/3 moist) 10-34 cm: Bws1

few with red fine faint mottles, Clay Loam; moderate medium subangular blocky; sticky and plastic when wet; firm when moist, slightly hard when Gradual smooth boundary; dark grayish brown (10YR 4/2 moist) dry; none roots; pH  $H_2O = 4.5$  no effervescent. 34-70 cm: Bws2

medium subangular blocky; sticky and plastic when wet; firm when moist, slightly hard when dry; none roots; pH  $H_2O = 4.5-5.0$  no effervescent. few with brownish yellow fine faint mottles, Heavy Clay; moderate Gradual, smooth boundary; dark grayish brown (10YR 4/2 moist) 70-125 cm:

nundated area (flood affected area)

Lat: 16° 58' 30"N; Long: 104° 51' 15"E. Dystric CAMBISOLS ( CMd ) [40m. above sea level. P.510 Existing soil profile No. Soil Classification Soil Profile No. Elevation Location

(FAO/UNESCO)

Alluvial deposits/Sandstone and Siltstone. Hat or almost flat plain with 0-2% slope. Moderate well drained. Paddy rice. Vegetation and/or Land Use Geology/parent materials Physiography Drainage

N-P-K fertilizer applied. 2.5 - 3.0 ton/ha. None. Average crop yield Saline-sodic soil Soil fertility

Soil sample No. SI. 01 (0-11cm); SI. 01 (11-39cm); SI. 01 (39-70cm) None. Soil erosion

#### Profile Description:

friable when moist, slightly hard when dry; few micro interstitial pores; Sandy Loam; structureless; non sticky and non plastic when wet; very Clear smooth boundary; very pale brown (10YR 7/3 moist) 0-11 cm: Αp

Gradual smooth boundary; very pale brown (10YR 7/4 moist) very few, very fine roots; pH  $H_2O = 4.8$  no effervescent. 11-39 cm:

few with reddish yellow medium distinct mottles; Loam; moderate

Bws1

medium subangula blocky, slightly sticky and slightly plastic when wet; irm when moist, hard when dry; few microinterstitial pores; very few, very fine roots; pH  $H_2O = 4.5$  no effervescent.

common yellowish red medium distinct mottles; Loam; moderate medium when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 5.0$  no subangular blocky; sticky and plastic when wet; firm when moist, hard Diffuse smooth boundary; light yellowishbrown (10YR 6/4 moist) effervescent. 39 -70 cm: Bws2

many with yellowish red medium faint mottles; Clay Loam; weak fine Diffuse smooth boundary; brownish yellow (10YR 6/6 moist) 70 -125 cm: Bws3

when dry; few with micro, interstitial pores; none roots; pH H,O = 4.5 no subangular blocky; sticky and plastic when wet; firm when moist, hard effervescent.

oots; pH H,O = 5.0 no effervescent.

# SAVANNAKHET Province

Inundated area (flood affected area)

Alluvial deposits/Siltstone and Claystone. Flat or almost flat plain with 0-2% slope. Lat: 16° 15' 35"N; Long: 105° 18' 31"E. Soil sample No. SI. 02 (0-14cm); SI. 02 (14-26cm); SI. 02 (26-50cm) Hapric ALISOLS (ALh) N-P-K fertilizer applied. 130 m. above sea level. 3.0 - 3.5 ton/ha. Well drained. Paddy rice. SI. 02. None. None. /egetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification FAO/UNESCO) Saline-sodic soil Soil Profile No. Physiography Soil fertility Soil erosion Elevation Drainage ocation

#### Profile Description:

Loam; structureless; slightly sticky and slightly plastic when wet; friable plastic when wet; firm when moist, hard when dry; few micro interstitial irm when moist, hard when dry; few with micro, interstitial pores; none Loam; moderate medium subangular blocky, slightly sticky and slightly when moist, hard when dry; few micro interstitial pores; very few, very Clay Loam; weak fine subangular blocky; sticky and plastic when wet; Clay Loam; weak fine subangular blocky; sticky and plastic when wet; Loam; weak fine subangular blocky; sticky and plastic when wet; firm when moist, slightly hard when dry; few with micro, interstitial pores; firm when moist, slightly hard when dry; few with micro, interstitial Diffuse smooth boundary; dark yellowish brown (10YR 3/4 moist) pores; very few, very fine roots; pH  $H_2O = 5.5$  no effervescent. Gradual smooth boundary; yellowish brown (10YR 5/4 moist) Diffuse smooth boundary; yellowish brown (10YR 5/4 moist) Clear smooth boundary; yellowish brown (10YR 4/4 moist) Clear smooth boundary; pale brown (10YR 6/3 moist) pores; none roots; pH  $H_2O = 5.0$  no effervescent. none roots; pH  $H_2O = 5.5$  no effervescent. fine roots; pH H,O = 5.5 no effervescent. 26 -50 cm: Bt2 33-125 cm: 14-26 cm: 50-83 cm: 0-14 cm: Αb Bt1 Bt3 Bt3

nundated area (flood affected area)

Lat: 16° 34' 30"N; Long: 105° 51' 50"E. Gleyic SOLONETS (SNg) 144m. above sea level. None Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

Alluvial deposits/Sandstone and Siltstone. Flat or almost flat plain with 0-2% slope. Geology/parent materials (FAO/UNESCO) Physiography

N-P-K fertilizer applied. 2.0 - 2.5 ton/ha. Well drained. Paddy rice. None. Vegetation and/or Land Use Average crop yield Saline-sodic soil Soil fertility Soil erosion Drainage

Soil sample No. SU. 01 (0-16cm); SU. 01 (16-37cm); SU. 01 (37-75m)

#### Profile Description:

fine sand; structureless; non sticky and non plastic when wet; loose when Clear smooth boundary; brown (10YR 5/3 moist) 0-16 cm: Ap E-9

moist, loose when dry; few micro interstitial pores; very few, very fine roots; pH  $H_2O = 4.5$  no effervescent.

fine sand; structureless non sticky and non plastic when wet; loose when moist, and when dry; few micro interstitial pores; very few, very fine Clear smooth boundary; yellow (10YR 7/8 moist) roots; pH  $H_2O = 5.0$  no effervescent. 16-37 cm: AB

fine sand; structureless non sticky and non plastic when wet; loose when moist, and when dry; few with micro, interstitial pores; none roots; pH Clear smooth boundary; very pale brown (10YR 7/3 moist)  $H_2O = 6.0$  no effervescent. 37-75 cm: B

when moist, and when dry; very friable when wet; soft when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 6.5-7.0$  no effervescent. Loamy Sand; structureless non sticky and non plastic when wet; loose Clear smooth boundary; brown (10YR 5/3 moist) 77-100 cm: Bn1

when moist, and when dry; very friable when wet; soft when dry; few with Loamy Sand; structureless non sticky and non plastic when wet; loose micro, interstitial pores; none roots; pH  $H_2O = 7.0-7.5$  no effervescent. Clear smooth boundary; gray (10YR 5/1 moist) 100-125 cm: Bn2

# SAVANNAKHET Province

Un-Inundated area ( non flood affected area )

Alluvial deposits/Sandstone and Siltstone. Flat or almost flat plain with 0-2% slope. Lat: 16° 22' 48"N; Long: 105° 00' 30"E. Dystric CAMBISOLS (CMd) 150-160m. above sea level. N-P-K fertilizer applied. 1.5 - 1.7 ton/ha. Well drained. Paddy rice. P. 1616 None. Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification FAO/UNESCO) Saline-sodic soil Soil Profile No. Physiography Soil fertility Soil erosion Elevation ocation Drainage

### Profile Description:

Soil sample No. SU. 02 (0-16cm); SU. 02 (16-47); SU. 02 (47-87cm)

friable when moist, soft when dry; few micro interstitial pores; very few, Loamy Sand; structureless; non sticky and non plastic when wet; very Clear smooth boundary; pale brown (10YR 6/3 moist) very fine roots; pH  $H_2O = 4.5$  no effervescent. 0-16 cm: Αb

interstitial pores; very few, very fine roots; pH  $H_2O = 4.8$  no effervescent. plastic when wet; very friable when moist, and soft when dry; few micro Loamy Sand; weak very fine subangular blocky, non sticky and non Clear smooth boundary; brown (10YR 5/3 moist) [6-47 cm: Bw

weak very fine subangular blocky, non sticky and non plastic when wet; common with yellowish red medium priominent mottles; Sandy Loam; very friable when moist, and soft when dry; few with micro, interstitial Gradual smooth boundary; yellowish brown (10YR 5/4 moist) pores; none roots; pH  $H_2O = 5.0$  no effervescent. 47-87 cm: Bws1

very fine subangular blocky; slightly sticky and slightly plastic when wet; many with yellowish red medium priominent mottles; Sandy Loan; weak friable when moist, slightly hard when dry; few with micro, interstitial Gradual smooth boundary; yellowish brown (10YR 5/6 moist) pores; none roots; pH  $H_2O = 4.5$  no effervescent 37-125 cm: Bws3

Un-Inundated area ( non flood affected area )

Lat: 16° 12' 18"N; Long: 105° 02' 20"E. [20-130m. above sea level. SU. 03. Soil Profile No. **Elevation** Location

Ferric LUVISOLS (LVf.) Existing soil profile No. Soil Classification

Alluvial deposits/Sandstone and Siltstone. Flat or almost flat plain with 0-2% slope. Geology/parent materials (FAO/UNESCO) Physiography

Well drained. Paddy rice. None. Vegetation and/or Land Use Saline-sodic soil Drainage

N-P-K fertilizer applied. .8 - 2.0 ton/ha. Average crop yield Soil erosion Soil fertility

Soil sample No. SU. 03 (0-13cm); SU. 03 (13-40cm); SU. 03 (40-69m)

#### Profile Description:

friable when moist, soft when dry; few micro interstitial pores; very few, Sandy Loam; structureless; non sticky and non plastic when wet; very Clear smooth boundary; very pale brown (10YR 7/3 moist) 0-13 cm: Αb E-10

veryfine roots; pH  $H_2O = 5.0$  no effervescent.

Sandy Loam; moderate fine subangular blocky, slightly sticky and slightly plastic when wet; very friable when moist, and hard when dry; few micro interstitial pores; very few, very fine roots; pH  $H_2O = 5.0$  no effervescent. Gradual smooth boundary; very pale brown (10YR 7/4 moist) 13-40 cm:

Bs

plastic when wet; firm when moist, and slightly hard when dry; few with Loam; strong medium subangular blocky, slightly sticky and slightly micro, interstitial pores; none roots; pH  $H_2O = 4.8$  no effervescent. Gradual smooth boundary; yellow (10YR 7/6 moist) t0-69 cm: Bts1

Clay Loam; strong fine subangular blocky; slightly sticky and slightly plastic when wet; firm when moist, hard when dry; few with micro. Gradual smooth boundary; browish yellow (10YR 6/6 moist) 69-125 cm: Bts2

interstitial pores; none roots; pH  $H_2O = 4.5$  no effervescent.

# SAVANNAKHET Province

Un-Inundated area ( non flood affected area )

Lat: 16° 06' 50"N; Long: 105° 07' 25"E. 20-130m. above sea level. P. 335 Existing soil profile No. Soil Classification soil Profile No. Elevation ocation

Haplic SOLONETZ (SNh) FAO/UNESCO)

Alluvial deposits/Sandstone and Siltstone. Plat or almost flat plain with 0-2% slope. Geology/parent materials Physiography

Well drained. Vegetation and/or Land Use Drainage

N-P-K fertilizer applied. Paddy rice. Yes. Saline-sodic soil Soil fertility

3.0 - 3.5 ton/ha. None. Average crop yield Soil erosion

Soil sample No. SU. 04 (0-20cm); SU. 04 (20-45); SU. 04 (45-70cm)

### Profile Description:

friable when moist, soft when dry; few micro interstitial pores; very few, Loamy Sand; structureness; non sticky and non plastic when wet; very Clear smooth boundary; very pale brown (10YR 7/3 moist) very fine roots; pH  $H_2O = 5.5$  no effervescent. 0-20 cm:

iew micro interstitial pores; very few, very fine roots; pH  $H_2O = 6.0$  no plastic when wet; very friable when moist, and slightly hard when dry; Clear smooth boundary; light brownish gray (10YR 6/2 moist) Sandy Loam; weak very fine subangular blocky, non sticky and non effervescent. 20-45 cm: Bts

Loam; weak fine subangular blocky, slightly sticky and slightly plastic Clear smooth boundar; pale brown (10YR 6/3 moist) 15-70 cm: Btn1

when wet; firm when moist, and hard when dry; few with micro, interstitial pores; none roots; pH  $H_2O = 6.5$  no effervescent.

Loam; weak medium subangular blocky; slightly sticky and slightly plastic when wet; firm when moist, hard when dry; few with micro, Clear smooth boundary; grayish brown (10YR 5/2 moist) 70-125 cm: Btn2

interstitial pores; none roots; pH  $H_2O = 7.0$  no effervescent.

### Summary of Soil Profile in the F/S Areas Table 2

### SAVANNAKHET Province

Inundated area ( none flood affected area )

Lat: 16° 20' 35"N; Long: 105° 03' 10"E. Gleyic ALISOLS (ALg.). 120m. above sea level. P. 509 Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

Alluvial deposits/Sandstone and Claystone. Geology/parent materials FAO/UNESCO)

Flat or almost tlat plain with 0-2% slope. Poor drained. Physiography

N-P-K fertilizer applied. 2.5-3.0T/ha. Paddy rice. None. Vegetation and/or Land Use Average crop yield Saline-sodic soil Soil fertility Drainage

Soil sample No. PT. 01 (0-12cm); PT. 01 (12-47cm); PT. 01 (47-85cm) None. Soil erosion

### Profile Description:

Loamy Sand; structureless; friable when moist; very fine tubular pores; abundant fine roots; pH  $H_2O = 5.0$  no effervescent. Abrupt wave boundary; brown (10YR 5/3 dry) 0-12 cm: Ap

Loam; moderate coarse angular blocky; slightly sticky and slightly plastic Abrupt smooth boundary; grayish brown (10YR 5/2 moist) Clay when wet; firm when moist; common very fine interstitial pores; 12-47 cm: Bts1

very few, very fine roots; pH  $H_2O = 5.8$  no effervescent.

47-85 cm:

Bts2

friable and soft when moist; common very fine tubular pores; none roots; Clay Loam; weak granular; slightly sticky and slightly plastic when wet; Gently smooth boundary; light brownish gray (10YR 6/2 moist) few

pH  $H_2O = 5.1$  no effervescent.

Clay loam; weak fine granular; slightly sticky and slightly plastic when wet; friable when moist, common very fine tubular pores; none roots; Gently smooth boundary; light brownish gray (10YR 6/2 moist) pH  $H_2O = 5.0$  no effervescent. 85-120 cm: Bts3

SAVANNAKHET Province

nundated area (none flood affected area)

Soil Profile No.

Lat: 16° 20' 45"N; Long: 105° 03' 30"E. Haplic ALISOLS (ALh). 140m. above sea level. P. 509 Existing soil profile No. Soil Classification Elevation ocation

Alluvial deposits/Siltstone and Claystone. Geology/parent materials FAO/UNESCO)

Flat or almost flat plain with 0-2% slope. Moderate drained. Paddy rice. Vegetation and/or Land Use Physiography Drainage

N-P-K fertilizer applied. None. Saline-sodic soil Soil fertility

Soil sample No. PT. 02 (0-10cm); PT. 02 (10-46cm); PT. 02 (46-83cm) Soil erosion

2.5-3.0T/ha.

Average crop yield

### Profile Description:

Abrupt wave boundary; gray (10YR 5/1 moist) 0-10 cm:

Sandy Loam; structureless; none sticky and none plastic when wet; friable when moist; soft when dry; many very fine tubular

pores; frequent fine roots; pH  $H_2O = 5.0$  no effervescent.

plastic when wet; slightly hard when moist; many very fine tubular pores; Loam; moderate medium angular blocky; slightly sticky and slightly Clear wave boundary; very dark grayish brown (10YR 3/2 moist) very few, very fine roots; pH  $H_2O = 5.8$  no effervescent. 10-46 cm: Bts1

Gently smooth boundary; dark gray (10YR 4/1 moist) 16-83 cm:

Heavy Clay; weak fine granular; sticky and plastic when wet; very friable when moist; few very fine interstitial pores; none roots; pH  $H_2O = 5.1$  no effervescent. Bts2

Gently smooth boundary; grayish brown (10YR 5/2 moist) 83-120 cm:

Heavy Clay; weak fine granular; sticky and plastic when wet; very friable when moist, few very fine tubular pores; none roots;

pH  $H_2O = 5.0$  no effervescent.

nundated area (none flood affected area)

Soil Classification : Haplic AKENOSOLS ( AKn ).

(FAO/UNESCO)

Geology/parent materials : Alluvial deposits/Sandstone.

Physiography : Almost flat plain with 0-8% slope.

Drainage : Well drained.

Vegetation and/or Land Use : Fruit tree.

Saline-sodic soil : None.

Soil fertility : None.

Average crop yield : 500Kg/ha.

Soil erosion : None. Soil sample No. PT. 03 (0-14cm); PT. 03 (47-85cm)

#### Profile Description:

0-14 cm: Gently smooth boundary; light gray (10YR 7/2 dry)

A Loamy Sand; structureless; friable when moist; soft when dry; very fine tubular pores; abundant fine roots; pH H<sub>2</sub>O = 5.6 no effervescent.

14-47 cm: Abrupt boundary; grayish brown (10YR 6/3 moist) Sand; structureless; Ac1 none sticky and none plastic when wet; friable when moist; few fine interstitial pores; frequent, medium roots; pH  $_{2}$ O = 5.0

no effervescent.

47-85 cm: Diffuse smooth boundary; light brownish gray (10YR 6/4 moist)
 Ac2 Sand; structureless; none sticky and none plastic when wet; friable when moist; fine tubular pores; frequent medium roots; pH H<sub>2</sub>O = 4.9

no effervescent.

85-120 cm: Difruse smooth boundary; brownish yellow (10YR 6/6 moist)
Ac3 Sand; structureless; none sticky and none plastic when wet; friable when moist, fine tubular pores; frequent medium roots; pH H<sub>2</sub>O = 4.5 no

effervescent.

### KHAMMOUNE Province

inundated area ( none flood affected area )

Soil Profile No.

Alluvial deposits/Sandstone and Claystone. Flat or almost flat plain with 0-2% slope. Lat: 17° 36' 10"N; Long: 104° 37' 30"E. Soil sample No. VK. 01 (0-10cm); VK. 01 (10-39cm); VK. 01 (39-77cm) Gleyic ACRISOLS (ACg) N-P-K fertilizer applied. [40m. above sea level. 1.5 - 2.0 T/ha. Well drained. Paddy rice. P. 736 None. Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification FAO/UNESCO) Saline-sodic soil Physiography Soil fertility Soil erosion **Elevation** ocation Drainage

#### Profile Description:

0-10 cm: Clear wave boundary; grayish brown (10YR 5/2 moist)

Ap Sandy Loam; structureless; none sticky and none plastic when wet; very friable when moist; few micro interstitial pores; common medium roots; pH H<sub>2</sub>O = 4.5 no effervescent.

10-39 cm: Gently smooth boundary; grayish brown (10YR 5/2 moist) Sandy

0-39 cm: Gently smooth boundary; grayish brown (10YR 5/2 moist) Sandy Bts1 Loam; weak very fine granular; none sticky and none plastic when wet; friable when moist; few micro interstitial pores; few, fine roots; pH H<sub>2</sub>O = 4.7 no effervescent.

39-77 cm: Gently smooth boundary; light brownish gray (10YR 6/2 moist)

Bts2 Clay Loam; weak very fine granular; slightly sticky and slightly plastic
when wet; very friable when moist; common fine tubular pores; common
medium roots; pH H<sub>2</sub>O = 4.8 no effervescent.

77-120 cm: Gently smooth boundary; light gray (10YR 7/2 moist)

B183 Clay loam; weak fine granular; slightly sticky and slightly plastic when wet; friable when moist, common fine tubular pores; common medium roots; pH H<sub>2</sub>O = 4.8 no effervescent.

### KHAMMOUNE Province

inundated area (flood affected area)

Lat: 17° 36' 28"N; Long: 104° 37' 10"E. Ferric ACRISOLS (ACf.) 140m. above sea level. VK. 02. Existing soil profile No. Soil Classification Soil Profile No. Elevation ocation

Alluvial deposits/Sandstone and Claystone. Geology/parent materials (FAO/UNESCO)

Flat or almost flat plain with 0-2% slope. N-P-K fertilizer applied. Well drained. Paddy rice. None. Vegetation and/or Land Use Saline-sodic soil Physiography Soil fertility Drainage

Soil sample No. VK. 02 (0-14cm); VK. 02 (14-44cm); VK. 02 (44-78cm) 1.0 - 1.5 T/ha. Average crop yield Soil erosion

#### Profile Description:

firm and hard when dry; few micro interstitial pores; frequent fine roots; Sandy Loam; structureless; medium platy and none plastic when wet; Gently smooth boundary; light gray (10YR 7/2 dry) 0-14 cm: Αp E-13

pH  $H_2O = 4.5$  no effervescent.

plastic when wet; firm and very hard when moist; few fine tubular pores; Loam; strong very coarse angular blocky; slightly sticky and slightly Gently smooth boundary; brownish yellow (10YR 6/6 moist) Clay Very few, very fine roots; pH  $H_2O = 4.7$  no effervescent. [4-44 cm: Bts

Light Clay; weak fine granular; slightly sticky and plastic when wet; friable when moist; few fine tubular pores; very few fine roots; Diffuse smooth boundary; pale brown (10YR 6/3 moist) pH  $H_2O = 4.8$  no effervescent. 44 -78 cm: Btsc1

wet; friable when moist, fine tubular pores; very few fine roots; pH H<sub>2</sub>O = Light Clay; weak fine granular; slightly sticky and slightly plastic when Clear smooth boundary; light brownish gray (10YR 6/2 moist) 4.8 no effervescent. 78-120 cm: B1sc2

# **BOLIKHAMXAY Province**

Inundated area (none flood affected area)

Lat: 18° 11' 40"N; Long: 104° 11' 42"E. Haplic ALISOLS (ALh) 120m. above sea level. Tr. 1018E TH. 01. Existing soil profile No. Soil Classification (FAO/UNESCO) Soil Profile No. Elevation ocation

Alluvial deposits/Sandstone and Claystone. Flat or almost flat plain with 0-2% slope. Geology/parent materials Physiography

Moderate drained. Paddy rice. Vegetation and/or Land Use Drainage

N-P-K fertilizer applied. None. Saline-sodic soil Soil fertility

Soil sample No. TH. 01 (0-11cm); TH. 01 (11-36cm); TH. 01 (36-77cm) 2.5 - 3.0 T/ha. Average crop yield Soil erosion

### Profile Description:

hard when dry; common fine interstitial pores; common, very fine roots; Loam; structureless; none sticky and none plastic when wet; firm and Clear wave boundary; light gray (10 YR 7/2 dry) 0-11 cm: Αp

pH H<sub>2</sub>O = 4.3 no effervescent.

strong coarse angular blocky; slightly sticky and slightly plastic when wet; firm and hard when moist; few fine tubular pores; very few, very Gently smooth boundary; brown (10YR 4/3 moist) Clay Loam; 11-36 cm: Bts1

line roots; pH  $H_2O = 4.6$  no effervescent.

Clay Loam; moderate medium coarse subangular blocky; sticky and Gently smooth boundary; grayish brown (10YR 5/2 moist) 36 -77 cm: Bts2

plastic when wet; friable and hard when moist; few fine iterstitial pores; very few, very fine roots; pH  $H_2O = 4.7$  no effervescent.

Light Clay; weak fine granular; sticky and plastic when wet; friable when moist, few with micro interstitial pores; very few very fine roots; Gently smooth boundary; light brownish gray (10YR 6/2 moist) 77-120 cm: Bts3

pH  $H_2O = 4.6$  no effervescent.

nundated area (flood affected area)

Lat: 18° 11' 05"N; Long: 104° 11' 40"E. Haplic ALISOLS (ALh) 120m. above sea level. Γr. 1018E Existing soil profile No. Soil Classification Soil Profile No. Elevation Location

Alluvial deposits/Sandstone and Claystone. Geology/parent materials (FAO/UNESCO) Physiography

Flat or almost flat plain with 0-2% slope. N-P-K fertilizer applied. mperfect drained. Paddy rice. None. Vegetation and/or Land Use Saline-sodic soil Soil fertility Drainage

Soil sample No. TH. 02 (0-10cm); TH. 02 (10-38cm); TH. 02 (38-76cm) 2.5 - 3.0 T/ha. None. Average crop yield Soil erosion

#### Profile Description:

light Clay; structureless; sticky and plastic when wet; very firm and hard when dry; common fine interstitial pores; common, fine roots; Clear wave boundary; very pale brown (10YR 7/3 dry) 0-10 cm: Αb

pH  $H_2O = 4.3$  no effervescent.

when moist; few very fine tubular pores; few, fine roots; pH H<sub>2</sub>O = 4.6 no moderate medium subangular blocky; sticky and plastic when wet; friable Gently smooth boundary; brown (10YR 5/3 moist) Light Clay; 10-38 cm: Bts1

effervescent.

Light Clay; weak fine subangular blocky; sticky and plastic when wet; friable when moist; common fine tubular pores; very few fine roots; Gently smooth boundary; yellowish brown (10YR 5/4 moist) 38 -76 cm: Bts2

 $^{\circ}$  OH H<sub>2</sub>O = 4.7 no effervescent.

Light Clay; weak fine subangular blocky; sticky and plastic when wet; friable when moist, few common fine tubular pores; none roots; Gently smooth boundary; yellowish brown (10YR 5/6 moist) 76-120 cm: Bts3

 $^{\circ}$  H  $^{\circ}$  O = 4.6 no effervescent.

# **BOLIKHAMXAY Province**

nundated area (none flood affected area)

Alluvial deposits/Sandstone and Claystone. Tat or almost flat plain with 0-2% slope. Lat: 18° 14' 25"N; Long: 104° 12' 35"E. Soil sample No. NH. 01 (0-12cm); NH. 01 (12-41cm); NH. 01 (41-80cm) Eutric CAMBISOLS (CMe) N-P-K fertilizer applied. 120m. above sea level. 3.0 - 3.5 T/ha. Well drained. Paddy rice. NH. 01. None. Vegetation and/or Land Use Geology/parent materials Existing soil profile No. Average crop yield Soil Classification FAO/UNESCO) Saline-sodic soil Soil Profile No. Physiography Soil fertility Soil erosion Elevation ocation Drainage

#### Profile Description:

Loam; structureless; none sticky and none plastic when wet; hard when dry; few micro interstitial pores; common, fine roots; pH  $H_2O = 4.7$  no wet; firm when moist; common fine tubular pores; few, very fine roots; moderate medium subangular blocky; slightly sticky and plastic when Gently smooth boundary; reddish brown (5YR 4/3 moist) Clay; Clear wave boundary; reddish brown (5YR 5/3 dry) effervescent. 12-41 cm: 0-12 cm: Bws1 Αp

pH  $H_2O = 4.9$  no effervescent.

when moist; common fine tubular pores; none roots;  $pH H_2O = 4.9 \text{ no effervescent.}$ 

Clay Loam; weak fine granular; sticky and plastic when wet; freable

Gently smooth boundary; dark brown (7.5YR 4/3 moist)

41 -80 cm:

Bws2

Clay Loam; weak fine granular; sticky and plastic when wet; friable Gently smooth boundary; reddish brown (5YR 4/3 moist) when moist, common fine tubular pores; none roots; 80-120 cm: Bws3

pH  $H_2O = 5.1$  no effervescent.

Inundated area ( none flood affected area )

Lat: 18° 13' 55"N; Long: 104° 12' 10"E. Gleyic CAMBISOLS (CMg) 20m. above sea level. P. 062 Existing soil profile No. Soil Classification Soil Profile No. Elevation Location

Alluvial deposits/Sandstone and Claystone. Geology/parent materials (FAO/UNESCO)

Flat or almost flat plain with 0-2% slope. Physiography

Moderate drained.

N-P-K fertilizer applied. 2.5 - 3.0 T/ha. Paddy rice. None. Vegetation and/or Land Use Average crop yield

Saline-sodic soil

Drainage

Soil fertility

Soil sample No. NK. 01 (0-13cm); NK. 01 (13-41cm); NK. 01 (41-78cm) Soil erosion

#### Profile Description:

Clear wave boundary; pale brown (10YR 6/3 dry) 0-13 cm:

when dry; few micro interstitial pores; common, fine roots; pH  $H_2O = 4.6$ Loam; structureless; none sticky and none plastic when wet; very hard Αp

no effervescent.

Gently smooth boundary; dark brown (10YR 5/2 moist) Clay Loam; 13-41 cm: Bws1

moderate medium subangular blocky; slightly sticky and slightly plastic when wet; firm when moist; few fine tubular pores; few, fine roots; pH

 $H_2O = 4.6$  no effervescent.

Gently smooth boundary; yellowish brown (10YR 5/6 moist) 41 -78 cm:

Clay Loam; weak fine granular; sticky and plastic when wet; friable when moist; common fine tubular pores; very few, very fine roots; Bws2

pH  $H_2O = 4.8$  no effervescent.

Gently smooth boundary; light yellowish brown (10YR 6/4 moist) 78-120 cm:

Light Clay; weak fine granular; sticky and plastic when wet; friable when Bws3

moist, common fine tubular pores; none roots;

pH H,O = 4.9 no effervescent.

Table 3 Soil Distribution in the Study area

	Province	Bolikhamsai					Khammuoane					Savanakhet				
/	Districts	Districts Thaphabath	Bolikham	Paksan	Pakkading	Bolikhamsai	Hinboun	Thakhek	Johnan	Sobonofoi	Sahanafai Vhammana	Veibouni	771			
Soil Units	$/ \ $				0				NOO BUILDING	Scoangia	Manninoualid	Valoonii	Nianthadour	Songknaon	Xaiphouthong	Savannakhet
(1) Ferralic	c ARENOSOLS						1,009.0				1.009.0	7.818.1		0.655.9		143761
(2) Haplic	ŀ	1,513.0	1,513.0	1,513.0	1,009.0	5,548.0	5,044.0	İ			5,044.0	14.879.6		0.757		14,3/3.1
(3) Dystrio	FLUVISOLS												504.4		10064	2 530 0
(4) Eutric	FLUVISOLS												tion	3.036.0	5,020,4	3,530.0
(5) Dystric	c GLEYSOLS												2 000 3	3,020.0	7.400	3,530.4
(6) Eutric	GLEYSOLS												6,600,0			6,809.3
(7) Umbrio	GLEYSOLS				757.0	757.0										
(8) Distric	REGOSOLS															
(9) Dystri	LEPTOSOLS			1,513.2	8,827.0	10,340,2	6.053.0	4.791.7			7 7 7 7 01		1 2006			
(10) Eutric	LEPTOSOLS									2522	757.7		3,020,4	0.252		3,278.4
(11) Dystric	REGOSOLS	3,279.0	3,279.0	3,026.0	5,801.0	15,385.0		3 026 4		2:10:1	2.026.4					
(12) Eutric	REGOSOLS							To to			4.020,6					
(13) Gleyic	CAMBISOLS	1,009.0	1,009.0	5,043.9	757.0	7,818.9	5040	4 787 3	3.076.4		1017	900		0000		
(14) Humic	CAMBISOLS				2,018.0	2,018.0		2.004	1,040,0		1.110,1	1,000.8		71,698.0	4,035.1	26,741.9
(15) Calcaric	c CAMBISOLS															
(16) Ferralic	CAMBISOLS						4,287.0	5,296.1	756.6		10.339.7					
(17) Dystric		5,296.0	252.2	3,026.4	3,531.0	12,105.6	3,279.0	3,530.7	1,765.4		8,575.1	6.809.3	12.357.6	21,689.0	40351	44 801 0
(18) Eutric	CAMBISOLS			1,008.8		1,008.8		12,852.0	1,008.8	2.017.6	15.878.4	1.513.2	6 656	13 1140		14 970 4
(19) Gleyic	ACRISOLS			2,522.0		2,522.0								0.711.01		14,0/9.4
(20) Humic	ACRISOLS				504.0	504.0	13,114.0				13.114.0					•
(21) Ferric	ACRISOLS			3,278.5	6,557.0	9,835.5	41,108.0	14,375.2	5,296.1	14,375.2	75,154.5	29,506.9	12.105.4	757 0	504.4	7 873 7
(22) Haplic	ACRISOLS		9,079.1	3,026.4	5,801.0	17,906.5										12,012.1
(23) Gleyic	ALISOLS	4,035.0	4,035.0	6,557.1	504.0	15,131.1						504.4				5044
(24) Humic	ALISOLS		į				252.0				252.0					
(25) Ferric	ALISOLS	17,149.0	19,166.9	19,166.9	21,941.0	77,423.8	20,428.0	14,879.6	8,826.9	23,202.0	67,336.5	17,401.5	7,565.9	67.084.0	9.835.6	101 887.0
(26) Haplic	ALISOLS	5,044.0	8,070.3	10,087.8	47,161.0	70,363.1	26,985.0	5,043.9	6,809.3	6,304.9	45,143.1	8,070.3	4.539.5	6.305.0		18 914 8
(27) Gleyic	LIXISOLS						2,522.0			504.4	3,026.4					DV-17/07
(28) Ferric	LIXISOLS			252.2		252.2	1,765.0				1,765.0					
(29) Haplic	LIXISOLS						1,261.0			8,322.5	9,583.5					
(30) Gleyic	SOLONCHAKS															
(31) Haplic	SOLONCHAKS															
(32) Gleyic	SOLONETZ												252.2	1 000		1 1761 7
(33) Haplic	SOLONETZ													1,000		7,107,1
(34) Stagnic	SOLONETZ													1,009.0		0.600,1
(35) Gleyic	LUVISOLS			252.2		252.2	252.0	1.513.2			1 765 2					
(36) Calcic	LUVISOLS															
(37) Ferric	LUVISOLS			1,765.4		1,765.4	757.0	1,765.4	1,513.2	6,052.7	10.088.3	6.304.9	2522	36 568 0	17 867 0	1 200 33
(38) Haplic	LUVISOLS	2,018.0	504.4	252.2	2,018.0	4,792.6	3,531.0	5,296.1	3,026.4	3,530.7	15,384.2			O'cochoo	0.2004.0	1./06,55
		39,343.0	46,908.9	62,292.0	107,186.0	255,729.9	132,151.0	76,657.6	32,029.1	64,562.2	305,399.9	93.817.0	47.665.1	179 320 0	34 803 0	355 605 1
					1									71720171	ついたいのった	1.000,000

Table 4 Paddy Production and Yield (1990-1999) (1)

				F	Rain season				
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Bolikhamsai									_
Production	ND	ND	ND	ND	24,281	10,669	29,596	19,133	54,09
Yield	ND	ND	ND	ND	1.80	1.57	2.27	1.74	2.9
1 Thaphabath									
Production	ND	ND	ND	ND	2,959	4,464	5,123	2,669	11,77
Yield	ND	ND	ND	ND	1.80	1.55	2.28	2.14	3.4
2 Bolikham									
Production	ND	ND	ND	ND	3,818	2,502	2,977	1,681	5,26
Yield	ND	ND	ND	ND	1.80	2.61	2.28	1.00	2.6
3 Paksan									
Production	ND	ND	ND	ND	10,588	3,581	13,248	7,244	22,88
Yield	ND	ND	ND	ND	1.80	1.24	2.26	1.52	3.0
4 Pakkadin									
Production	ND	ND	ND	ND	6,916	122	8,248	7,539	14,17
Yield	ND	ND	ND	ND	1.80	1.36	2.28	2.30	2.8
Khammouane								·	
Production	65,151	28,470	63,689	48,318	44,102	46,526	21,917	52,167	63,79
Yield	2.70	1.99	2.56	2.16	2.82	2.82	1.64	2.41	2.6
5 Hinboun									-
Production	15,640	6,026	14,281	9,024	6,692	7,118	5,706	7,328	6,15
Yield	2.55	1.97	2.40	2.05	2.13	1.83	1.16	1.46	1.5
6 Thakhek									
Production	19,977	10,347	14,301	12,281	13,810	10,189	9,925	15,925	19,08
Yield	2.75	2.00	2.36	2.12	2.49	2.67	2.23	2.76	2.83
7 Nongbok									
Production	29,534	10,190	24,912	20,526	16,343	22,967	4,680	23,256	31,53
Yield	2.76	2.05	2.73	2.34	3.40	3.45	1.79	3.11	3.30
3 Sebangfai									
Production	0	1,908	10,195	6,486	7,257	6,252	1,606	5,658	7,02
Yield	#DIV/0!	1.72	2.70	1.90	3.38	2.98	1.14	1.69	2.00
Savanakhet					<del></del>				
Production	79,938	66,514	91,168	47,087	100,368	97,448	60,207	125,853	117,59
Yield	2.97	3.06	3.08	2.82	3.38	3.08	2.71	3.39	3.3
Xaibouri Xaibouri	***								
Production	18,913	7,357	23,970	12,453	11,319	12,843	4,700	21,037	23,06
Yield	2.70	2.50	2.96	4.80	2.90	3.00	3.10	3.20	3.30
0 Khanthabouri									0.0
Production	31,805	28,002	29,342	16,624	32,128	34,525	28,265	18,157	16,38
Yield	3.14	3.10	3.02	2.51	3.20	3.20	2.99	3.35	3.00
1 Songkhaon							2.22	5.55	5.00
Production	29,220	31,155	37,856	18,010	56,921	50,080	27,242	67,242	60,93
Yield	3.00	3.20	3.20	2.40	3.61	3.03	2.42	3.50	3.50
2 Xaibouathong					2.01	5.05	T.£r	5.50	5.50
Production	-	_	-	_	_	_	_	19,417	17,21
Yield	- '	-	-	-	-	<u>.</u>	-	3.30	3.02
Study area						-			
Production	145,089	94,984	154,857	95,405	168,751	154,643	111,720	197,153	225 10
	,	- 19207	1,001	,,,,,,,,	100,701	1.77,043	111,/20	17/,133	235,48

Source: PAFSO

Table 4 Paddy Planted Area, Flood Affected area and Harvested area (1990-1999) (2)

	1990	1991	1992	1993	Wet season 1994	1995	1996	1997	1998
Bolikhamsai	,		,					1777	1,,,0
Planted	ND	ND	ND	ND	13,489	15,712	14,811	15,973	18,0
F Affected	ND	ND	ND	ND	0	8,906	1,770	5,001	10,0
Harvested	ND	ND	ND	ND	13,489			-	*0.0
1 Thaphabath			112	IND.	13,467	6,806	13,041	10,972	18,0
Planted	ND	ND	NID	ND					
F Affected	ND ND		ND	ND	1,644	4,121	2,776	3,048	3,4
		ND	ND	ND	0	1,250	529	1,801	
Harvested	ND	ND	ND	ND	1,644	2,871	2,247	1,247	3,4
2 Bolikham									
Planted	ND	ND	ND	ND	2,121	1,651	1,600	1,911	2,0
F Affected	ND	ND	ND	ND	0	692	294	230	
Harvested	ND	ND	ND	ND	2,121	959	1,306	1,681	2,0
3 Paksan									-,-
Planted	. ND	ND	ND	ND	5,882	6,340	6,341	6,640	7,5
F Affected	ND	ND	ND	ND	0	3,454	470	1,874	7,3
Harvested	ND	ND	ND	ND	5,882	2,886			
4 Pakkadin	1.22			ND	3,662	2,000	5,871	4,766	7,5
Planted	ND	NID	ND						
		ND	ND	ND	3,842	3,600	4,094	4,374	5,0
F Affected	ND	ND	ND	ND	О	3,510	477	1,096	
Harvested	ND	ND	ND	ND	3,842	90	3,617	3,278	5,0
121									
Khammouane									
Planted	25,250	24,785	24,912	24,636	24,519	28,734	26,391	26,950	23,9
F Affected	1,148	10,470	0	1,032	10,270	12,264	13,547	5,335	
Harvested	24,102	14,315	24,912	22,381	15,645	17,258	13,394	21,615	23,9
5 Hinboun							,	21,015	20,5
Planted	6,145	5,932	5,951	5,566	6,623	7,769	6,951	6,808	4.10
F Affected	10	2,870	0	887	3,481	3,870			4,10
Harvested	6,135	3,062	5,951				2,032	1,789	
Thakhek	0,133	3,002	3,931	4,402	3,142	3,899	4,919	5,019	4,10
	7.202								
Planted	7,383	5,755	6,060	6,168	6,359	6,290	6,316	6,752	6,74
F Affected	118	582	0	70	813	2,474	1,865	982	
Harvested	7,265	5,173	6,060	5,793	5,546	3,816	4,451	5,770	6,74
7 Nongbok									
Planted	11,723	9,333	9,125	9,234	9,137	10,777	9,555	9,775	9,55
F Affected	1,020	4,362	0	0	4,331	4,120	6,940	2,297	
Harvested	10,703	4,971	9,125	8,772	4,807	6,657	2,615	7,478	9,55
Sebangfai				•	ŕ		_,	,,	,,,,,
Planted	_	3,766	3,776	3,668	2,400	3,898	3,569	3,615	2.51
F Affected	_	2,657	0	75	1,645	1,800			3,51
Harvested	_	1,109	3,776				2,710	267	
Tim vested		1,103	3,770	3,414	2,150	2,886	1,409	3,348	3,51
Savanakhet									
Planted	ND	ND	ND	ND	ND	36,571	33,122	40,701	37,53
F Affected	ND	ND	ND	ND	ND	4,973	10,894	3,611	1,92
Harvested	26,872	21,711	29,644	16,724	29,718	31,598	22,228	37,090	35,55
Xaibouri									
Planted	ND	ND	ND	ND	ND	8,487	7,575	7,662	7,21
F Affected	ND	ND	ND	ND	ND	4,206	6,059	1,088	22
Harvested	7,003	2,942	8,098	2,597	3,903				
0 Khanthabouri	7,000	2,7 12	0,070	2,391	3,903	4,281	1,516	6,574	6,98
Planted	ND	NID	375						
	ND	ND	ND	ND	ND	11,236	10,384	5,730	5,51
F Affected	ND	ND .	ND	ND	ND	447	929	310	
Harvested	10,129	9,033	9,716	6,623	10,040	10,789	9,455	5,420	5,46
1 Songkhaon									
Planted	ND	ND	ND	ND	ND	16,848	15,163	21,069	19,05
F Affected	ND	NĐ	ND	ND	ND	320	3,906	1,857	1,64
Harvested	9,740	9,736	11,830	7,504	15,775	16,528	11,257	19,212	17,41
2 Xaibouathong			•		,	,	,/	,	11,41
Planted	_	-	_	_	_	_	_	6 240	c
F Affected	_	_	_	_	_	_	_	6,240	5,75
Harvested	_	_		-	_	-	-	356	5'
11ai vested	-	_		_	-	-	-	5,884	5,70
tradiu awas									
tudy area									
Planted	25,250	24,785	24,912	24,636	38,008	81,017	74,324	83,624	79,520
		10.450	0	4.000	40.050	26.442			
F Affected	1,148	10,470	0	1,032	10,270	26,143	26,211	13,947	1,924

Source: PAFSO

Table 4 Paddy Production and Yield (1990-1999) (3)

				j	Dry season				
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Bolikhamsai									
Production	ND	ND	ND	ND	13	25	63	879	19,330
Yield	ND	ND	ND	ND	3.40	2.30	3.02	4.10	4.19
1 Thaphabath									
Production	ND	ND	ND	ND	0	0	0	442	4,731
Yield	ND	ND	ND	ND	0.00	0.00	0.00	3.89	4.34
2 Bolikham									
Production	ND	ND	ND	ND	0	0	0	14	526
Yield	ND	ND	ND	ND	0.00	0.00	0.00	3.50	4.70
3 Paksan									
Production	ND	ND	ND	ND	13	19	51	410	13,248
Yield	ND	ND	ND	ND	3.40	2.43	3.00	4.41	4.30
4 Pakkadin									
Production	ND	ND	ND	ND	0	6	12	12	825
Yield	ND	ND	ND	ND	0.00	1.95	3.10	3.20	2.50
Khammouane				· · · · · · · · · · · · · · · · · · ·		· · · · ·			
Production	2,671	1,099	5,284	3,438	1,391	3,132	4,476	13,872	27,40
Yield	3.85	3.50	4.05	4.31	4.12	4.55	4.85	4.28	4.97
5 Hinboun									
Production	12	0	20	0	0	0	13	1,601	4,20
Yield	3.50	0.00	4.06		0.00	0.00	4.33	2.70	4.00
6 Thakhek									
Production	1,818	609	1,246	1,156	976	1,256	1,678	3,468	7,83
Yield	3.60	3.50	4.06	4.68	4.70	4.50	4.81	4.62	5.80
7 Nongbok									
Production	841	490	2,639	1,470	176	836	1,270	6,619	11,29
Yield	4.55	3.50	4.06	4.20	3.50	4.67	4.81	5.08	5.35
8 Sebangfai									
Production	-	-	1,379	812	240	1,040	1,515	2,184	4,080
Yield	-	-	4.01	4.06	3.00	4.50	4.95	3.67	4.08
Savanakhet									
Production	1,386	685	1,465	3,309	4,456	5,269	9,560	25,475	47,910
Yield	0.00	1.72	0.77	3.15	3.73	3.62	4.08	4.17	4.51
9 Xaibouri									
Production	735	210	342	2,229	2,789	3,340	5,999	16,305	29,713
Yield	0.00	1.02	0.40	3.17	3.59	3.67	3.97	4.01	4.70
10 Khanthabouri									
Production	301	376	657	576	438	570	1,176	1,660	2,797
Yield	0.00	2.63	3.20	3.20	3.50	3.73	3.92	5.53	4.25
11 Songkhaon									
Production	350	99	466	504	1,229	1,359	2,385	7,370	13,257
Yield	0.00	1.98	0.56	3.00	4.21	3.45	4.50	4.30	4.30
12 Xaibouathong									
Production	ND	ND	ND	ND	ND	ND	ND	140	2,149
Yield	ND	ND	ND	ND	ND	ND	ND	4.38	3.90
Study Area									
Production	4,057	1,784	6,749	6,747	5,860	8,426	14,099	40,226	94,651
Yield	3.49	2.50	2.11	3.65	3.82	3.91	4.29	4.20	4.56

Source: PAFSO

1998 Dry season: Projection

Table 4 Paddy Planted Area, Flood affected area and Harvested area (1990-1999) (4)

	1990	1991	1992	1993	Dry season	1005	1004	1007	1000
Bolikhamsai	1990	1991	1992	1993	1994	1995	1996	1997	1998
Planted	ND	ND	ND	ND	4				
F Affected	ND	ND	ND ND	ND ND	0	11 0	21 0	222	4,7
Harvested	ND	ND	ND	ND	4	11	21	0 215	1
1 Thaphabath			110	112			21	213	4,6
Planted	ND	ND	ND	ND	0	0	0	122	1,1
F Affected	ND	ND	ND	ND	. 0	0	0	0	1,1
Harvested	ND	ND	ND	ND	0	0	0	114	1,0
2 Bolikham					_	•	•		1,0
Planted	ND	ND	ND	ND	0	0	0	4	1
F Affected	ND	ND	ND	ND	0	0	0	0	•
Harvested	ND	ND	ND	ND	0	0	0	4	1
3 Paksan									_
Planted	ND	ND	ND	ND	4	8	17	93	3,0
F Affected	ND	ND	ND	ND	0	0	0	0	
Harvested	NĐ	ND	ND	ND	4	8	17	93	3,0
4 Pakkadin									,
Planted	ND	ND	ND	ND	0	3	4	4	4
F Affected	ND	ND	ND	ND	0	0	0	0	
Harvested	ND	ND	ND	ND	0	3	4	4	3
						***			
Khammouane									
Planted	693	314	1,306	797	338	689	922	3,247	5,5
F Affected	0	0	0	0	0	0	0	0	
Harvested	693	314	1,306	797	338	689	922	3,241	5,5
5 Hinboun									
Planted	4	0	5	0	0	0	3	593	1,0
F Affected	0	0	0	0	0	0	0	0	
Harvested	4	0	5	0	0	0	3	593	1,0
Thakhek									
Planted	505	174	307	247	208	279	349	756	1,3
F Affected	0	0	0	0	0	0	0	0	
Harvested	505	174	307	247	208	279	349	750	1,3
7 Nongbok									
Planted	185	140	650	350	50	179	264	1,303	2,1
F Affected	0	0	0	0	0	0	0	0	
Harvested	185	140	650	350	50	179	264	1,303	2,1
3 Sebangfai									
Planted	-	-	344	200	80	231	306	595	1,0
F Affected	-	-	0	0	0	0	0	0	
Harvested	-	•	344	200	80	231	306	595	1,0
Savanakhet									
Planted	0	0	0	0	1 100	1.406	2261		
F Affected	0	0	0		1,199	1,486	2,361	6,239	10,6
Harvested	468			0	5	29	20	28	
Xaibouri	408	399	1,897	1,051	1,194	1,457	2,341	6,112	10,6
Planted	0	0	0		702	010	4.744		
F Affected	0 0	0 0	0	0	782	910	1,511	4,066	6,33
Harvested			0	0	5	0	0	0	
	196	206	862	703	<b>77</b> 7	910	1,511	4,066	6,32
0 Khanthabouri Planted	0	0	0		105	400	400		
		0	0	0	125	182	300	399	6
F Affected Harvested	0	0	0	0	0	29	20	0	
	132	143	205	180	125	153	300	300	6:
1 Songkhaon Planted	0	0			202	40.4		4 == -	
F Affected	0	0	0	0	292	394	550	1,734	3,0
			930	. 0	0	0	0	20	
Harvested	140	50	830	168	292	394	530	1,714	3,08
2 Xaibouathong									
Planted		•	-	-	-	-	-	40	58
F Affected	-	-	-	-	-	-	•	8	3
Harvested	-	-	-	-	•	-	-	32	55
Study Area									
Planted	693	314	1,306	797	1,541	2 106	2 204	0.700	20.00
F Affected	0	0	1,306	0	1,541 5	2,186 29	3,304	9,708	20,91
Harvested	1,161	713					20	28	18
4 1 III 7 COLUI	1,101	113	3,203	1,848	1,536	2,157	3,284	9,568	20,73