b50W

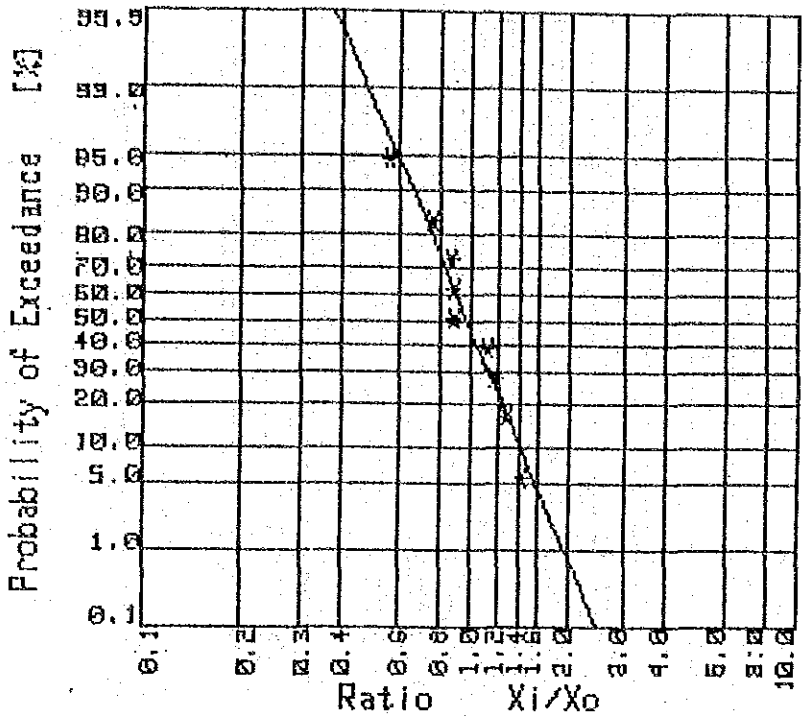


Fig. C-4-3 (1) Probability of 24hours Maximum Rainfall at LEJANIAS

b50W

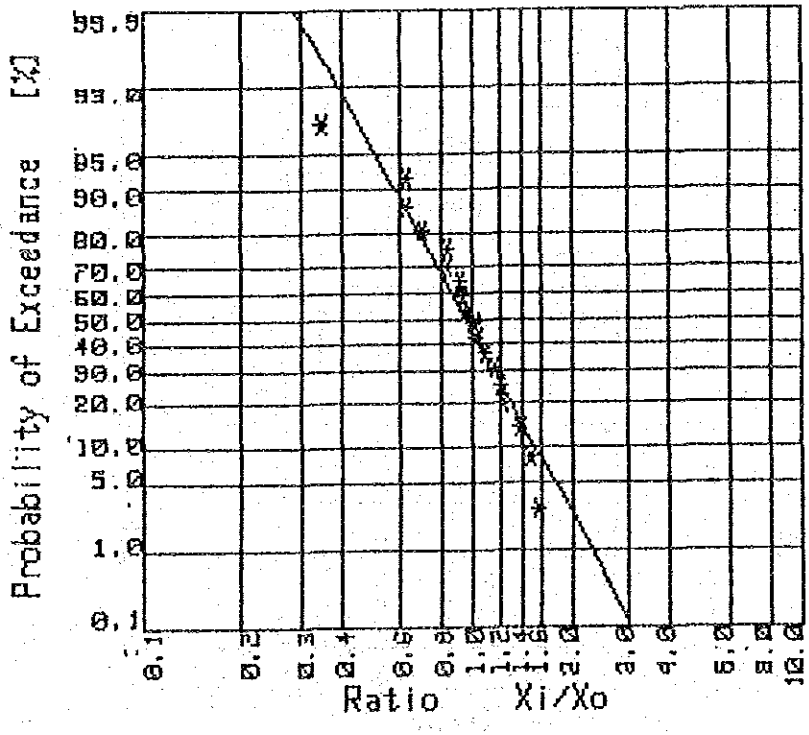


Fig. C-4-3 (2) Probability of 24hours Maximum Rainfall at PUERTO LIMON

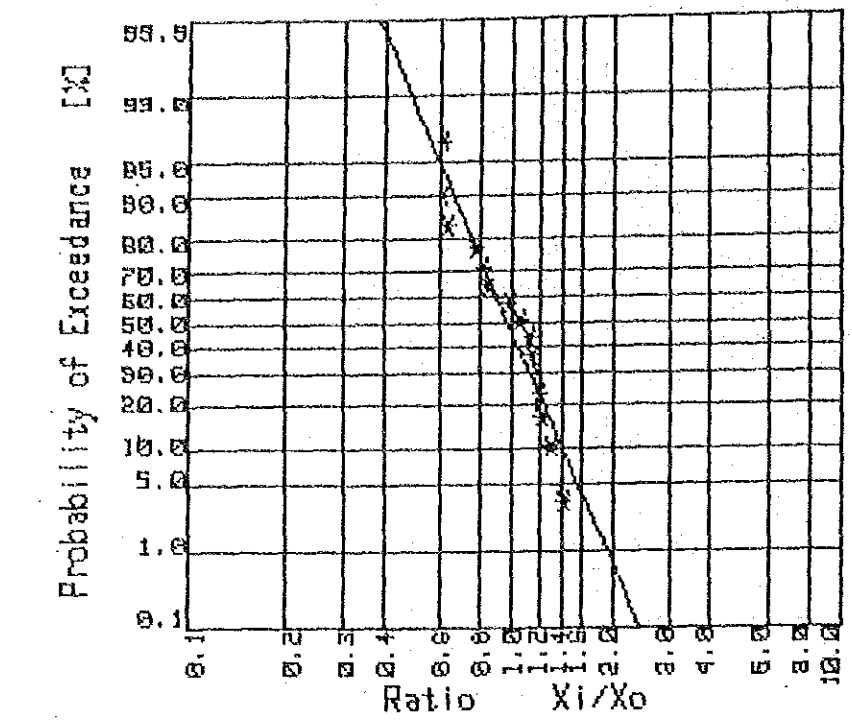


Fig. C-4-3 (3) Probability of 24hours Maximum Rainfall at MESA DE YANANES

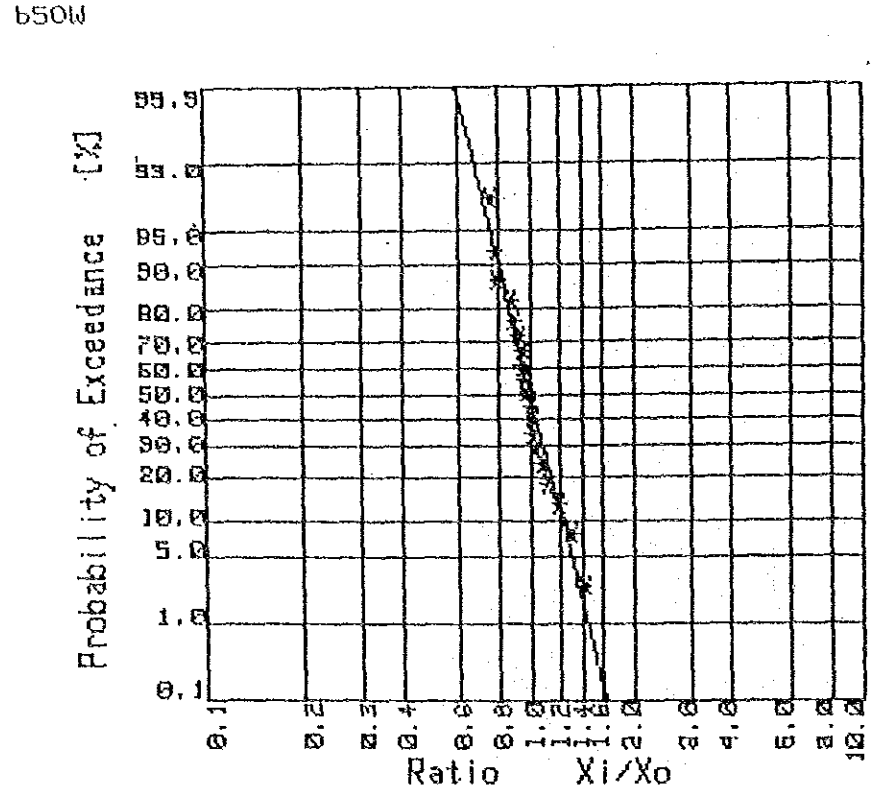


Fig. C-4-3 (4) Probability of 24hours Maximum Rainfall at SAN LUIS DE CUBARRAL

b50W

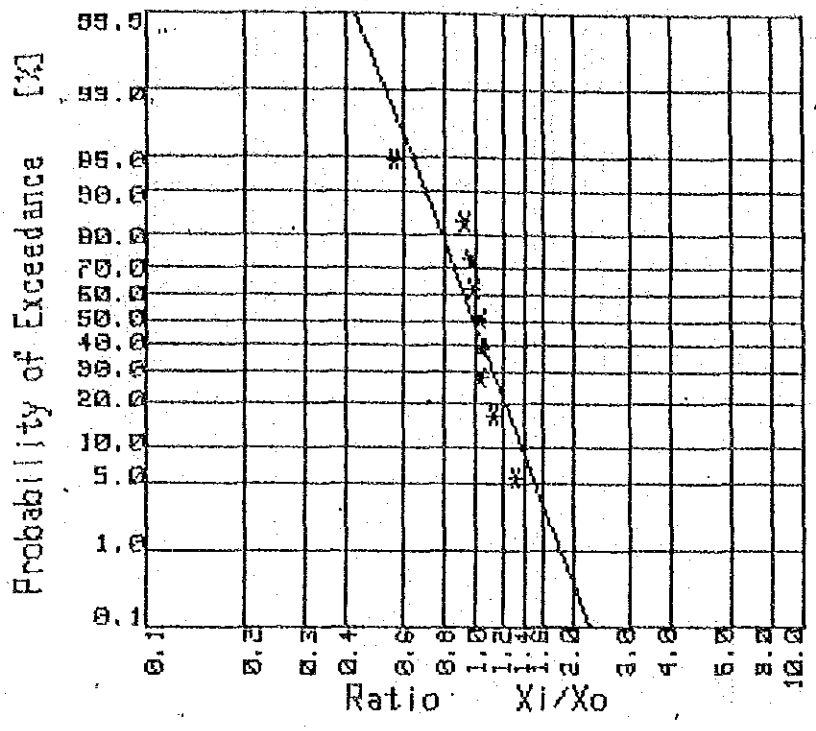


Fig. C-4-3 (5) Probability of 24hours Maximum Rainfall at CALIMI

b50W

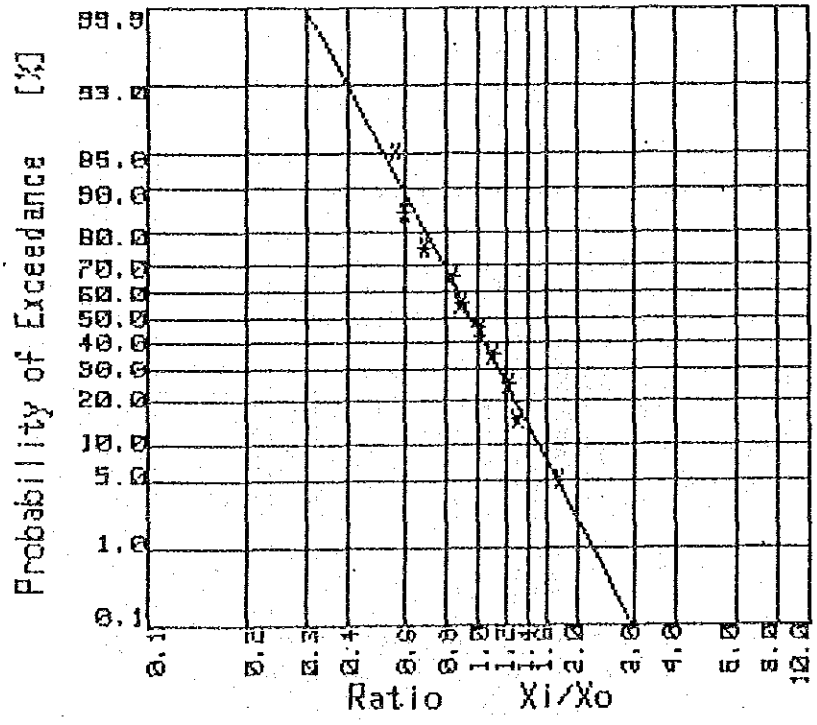


Fig. C-4-3 (6) Probability of 24hours Maximum Rainfall at PINALITO

b50W

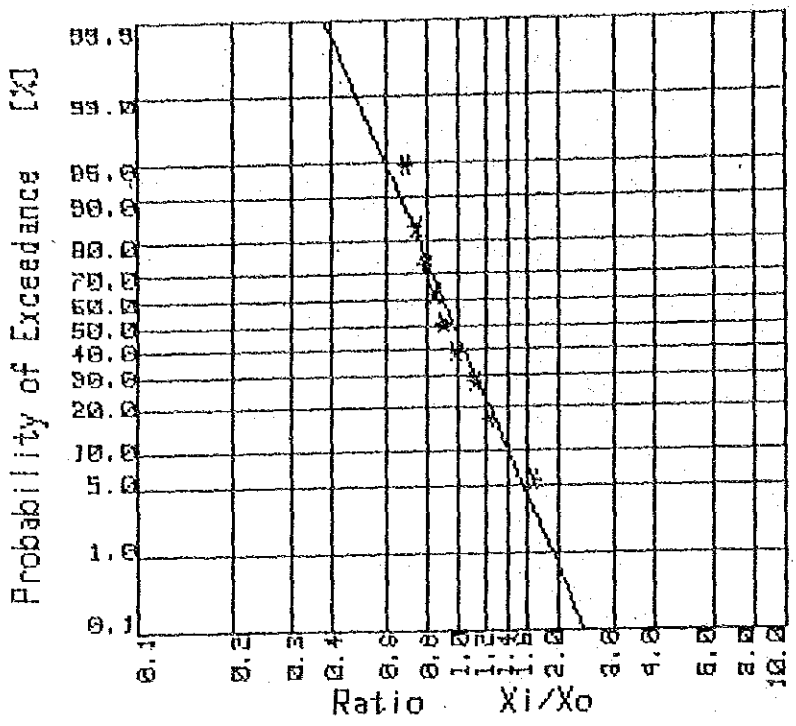


Fig. C-4-3 (7) Probability of 24hours Maximum Rainfall at PUERTO LLERAS

b50W

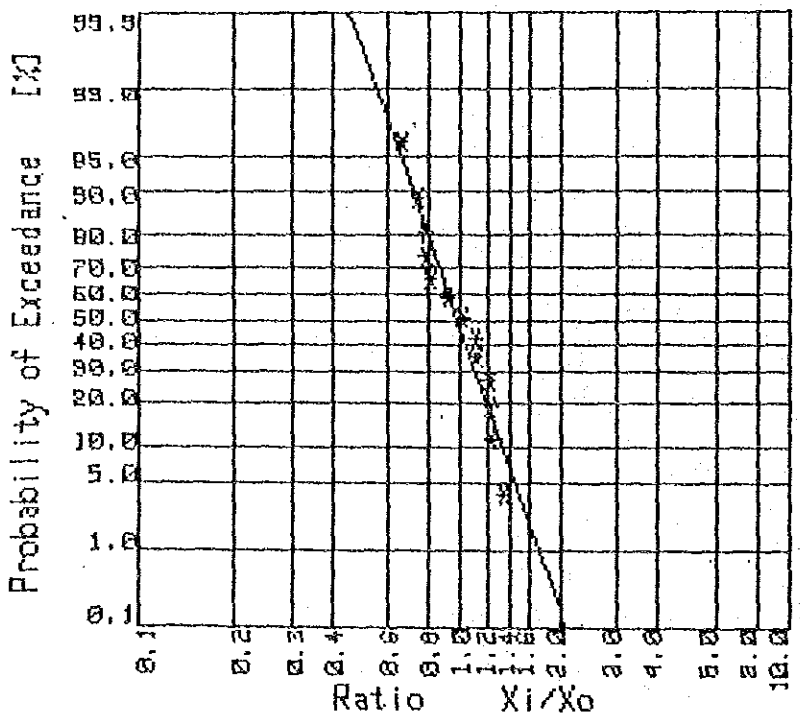


Fig. C-4-3 (8) Probability of 24hours Maximum Rainfall at LOS NARANJOS

b50W

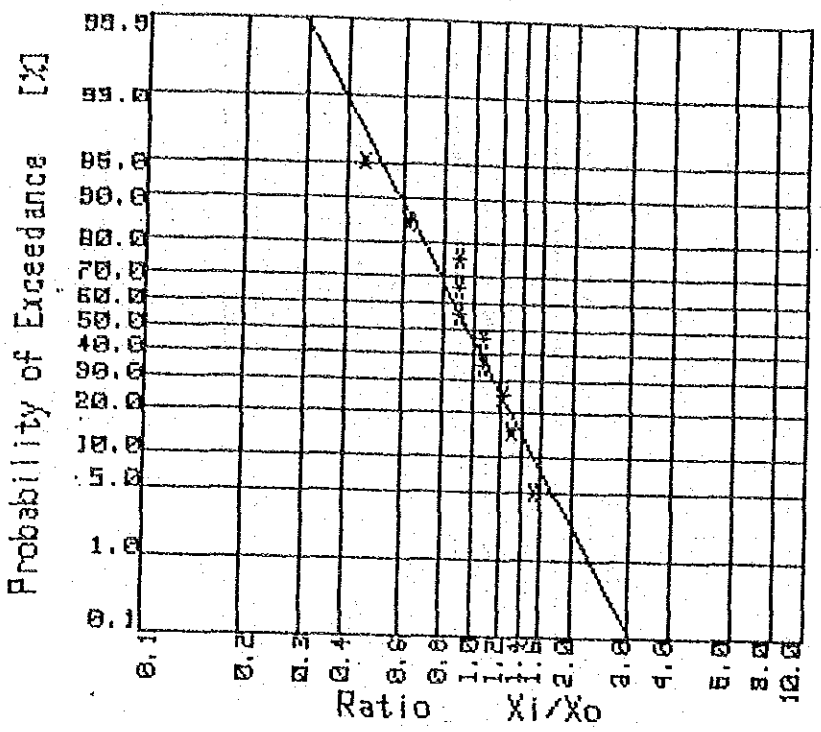


Fig. C-4-3 (9) Probability of 24hours Maximum Rainfall at LA HOLANDA

b50W

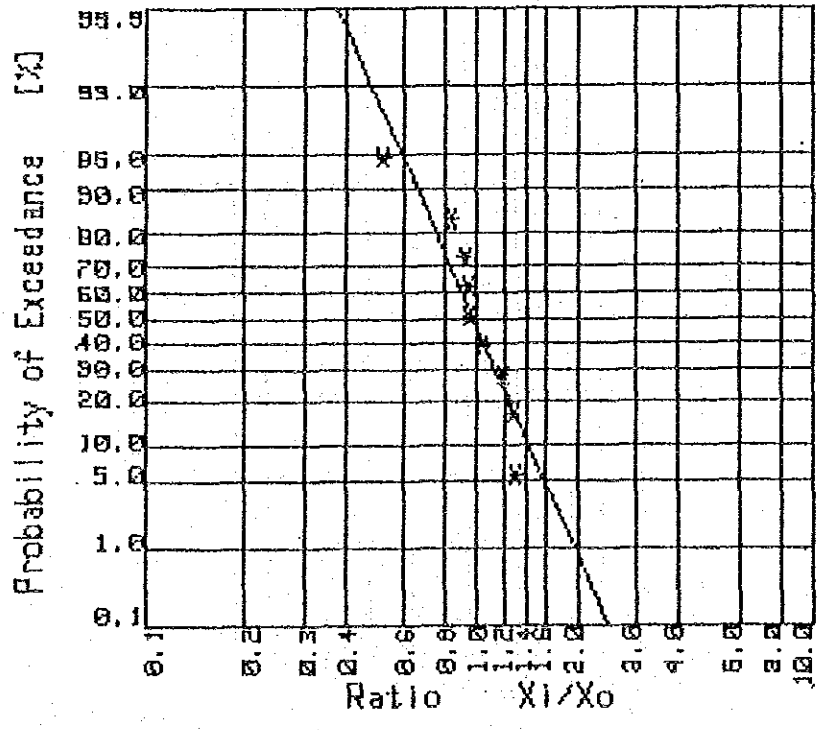


Fig. C-4-3 (10) Probability of 24hours Maximum Rainfall at PUERTO RICO

b50W

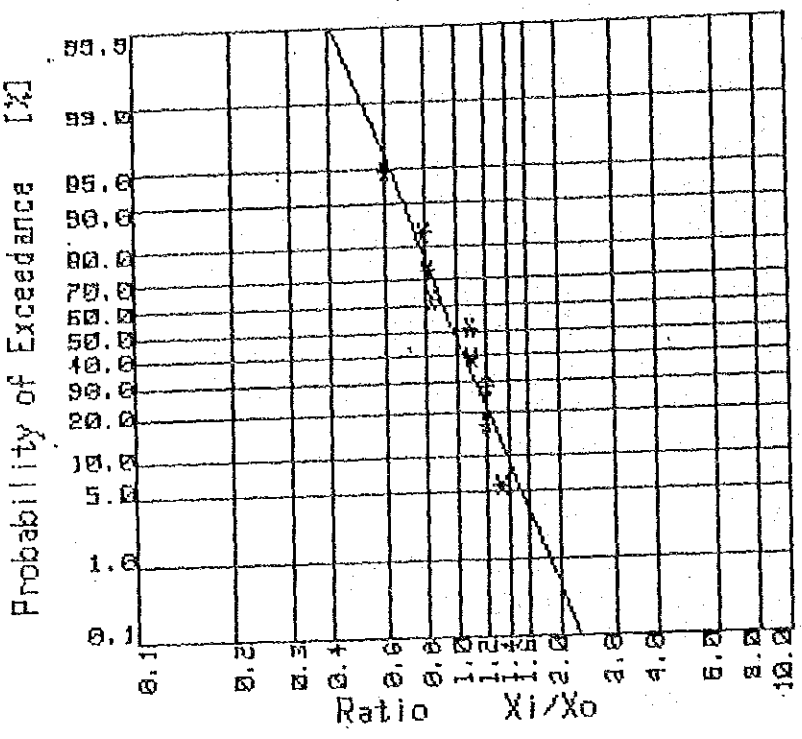


Fig. C-4-3 (11) Probability of 24hours Maximum Rainfall at CAMPO ALEGRE

b50W

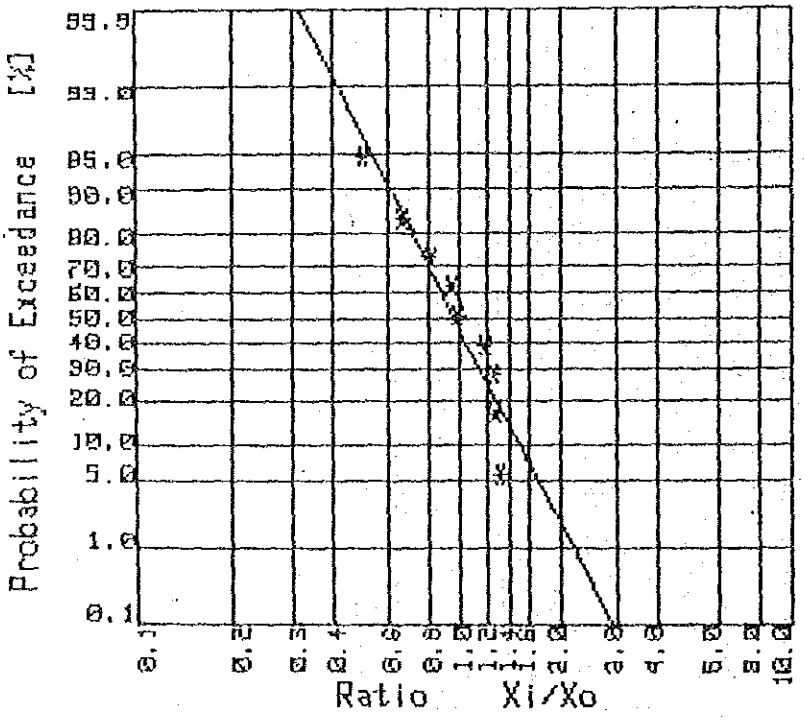


Fig. C-4-3 (12) Probability of 24hours Maximum Rainfall at LAS MICOS

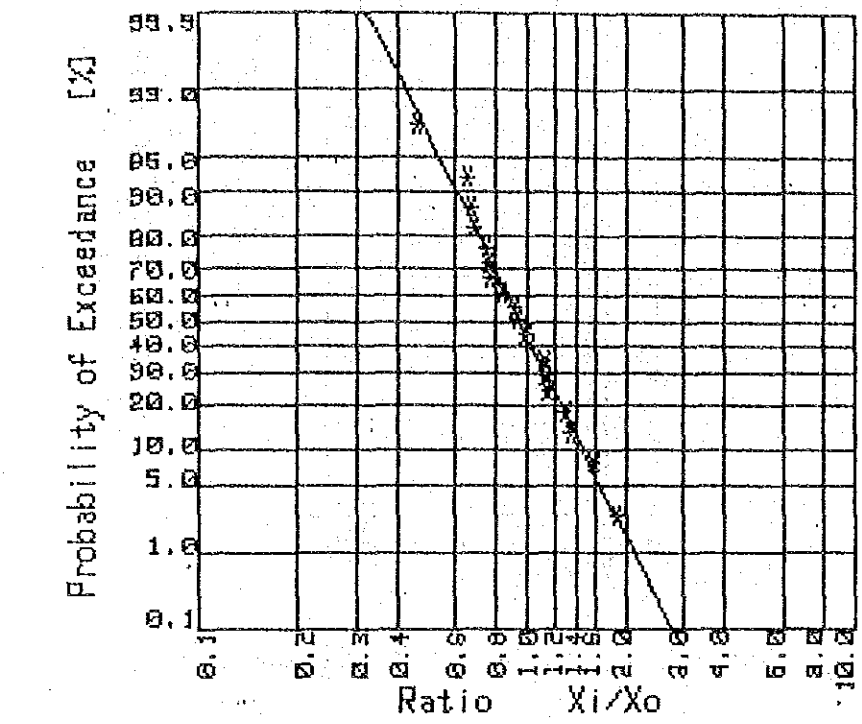


Fig. C-4-3 (13) Probability of 24hours Maximum Rainfall at VISTAHERMOSA

b50W

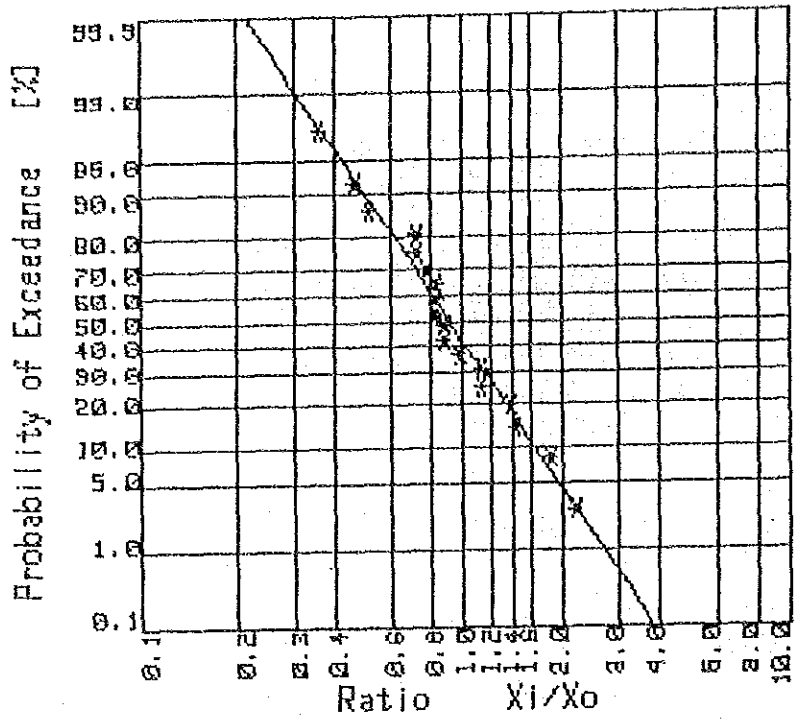


Fig. C-4-4 (1) Probability of Continuous Drought Days

b50W

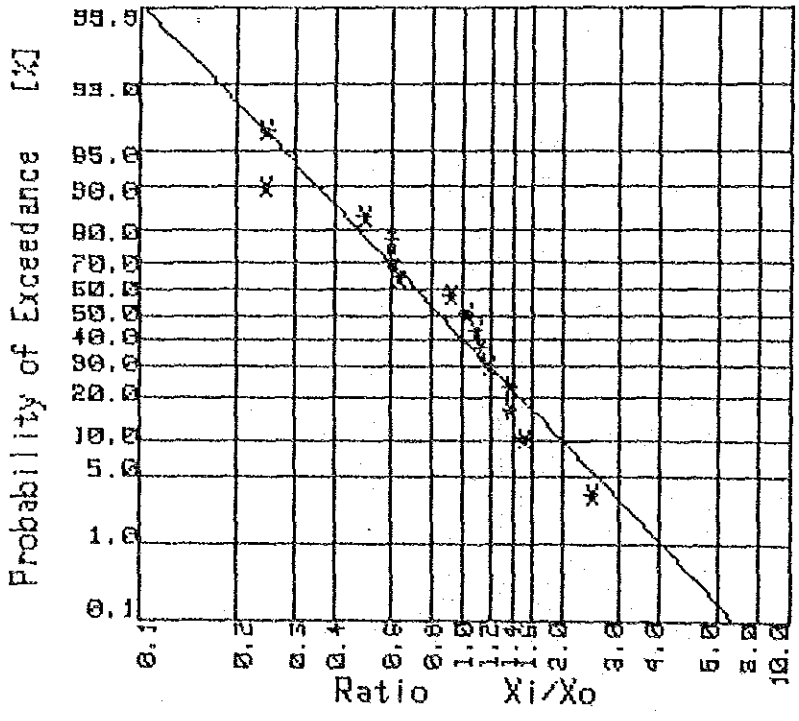


Fig. C-4-4 (2) Probability of Continuous Drought Days

b50W

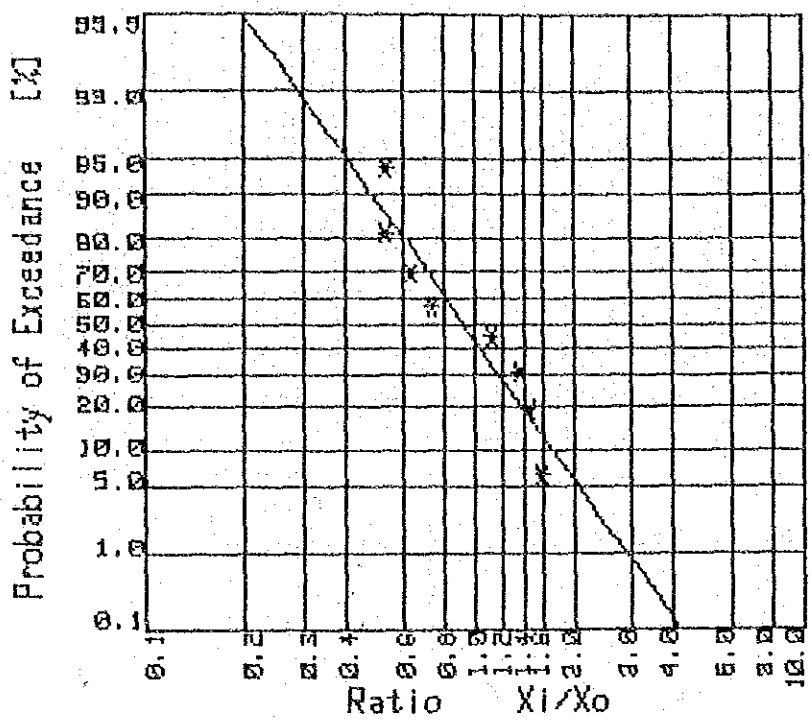


Fig. C-4-4 (3) Probability of Continuous Drought Days

b50W

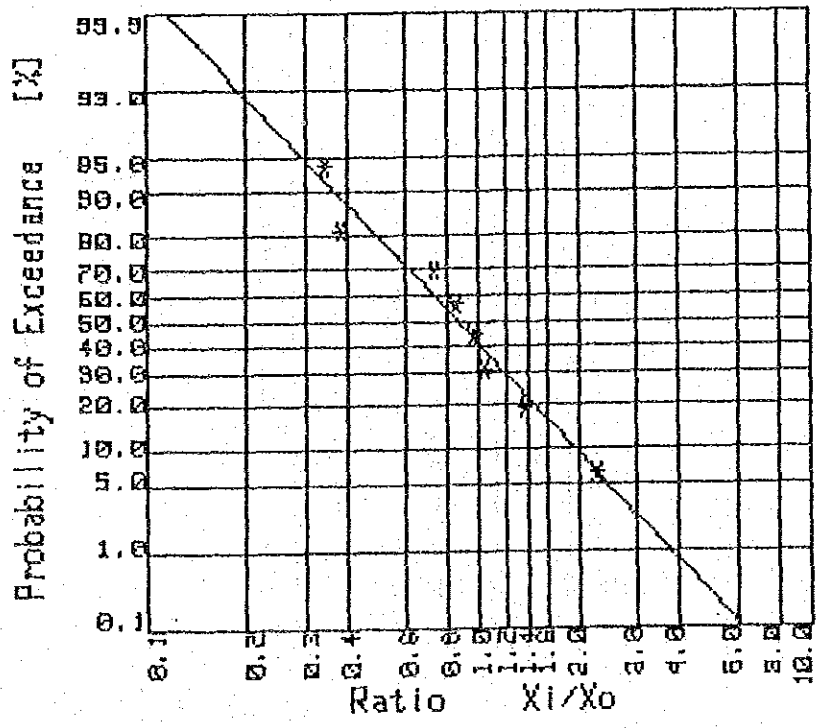


Fig. C-4-4 (4) Probability of Continuous Drought Days

b50W

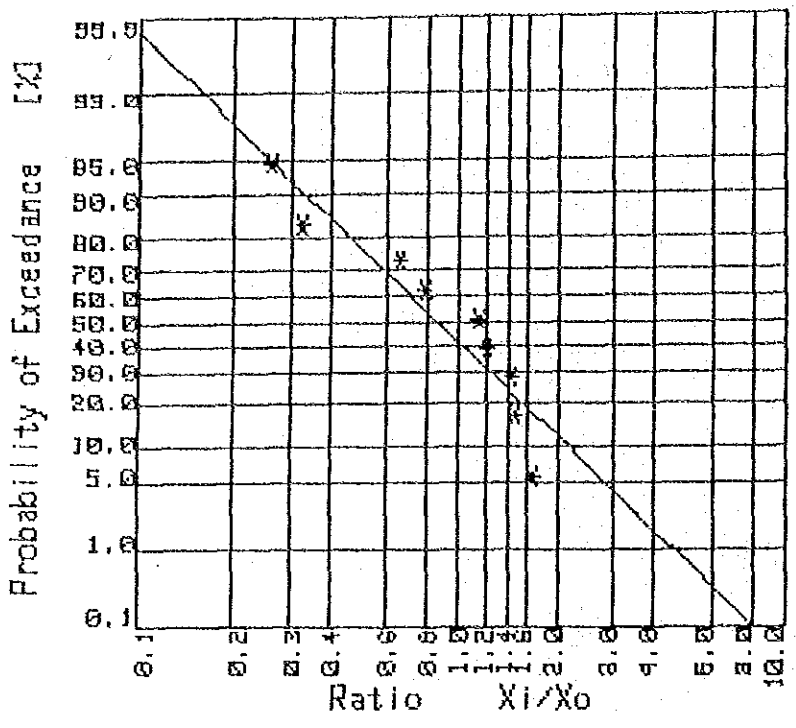


Fig. C-4-4 (5) Probability of Continuous Drought Days

b50W

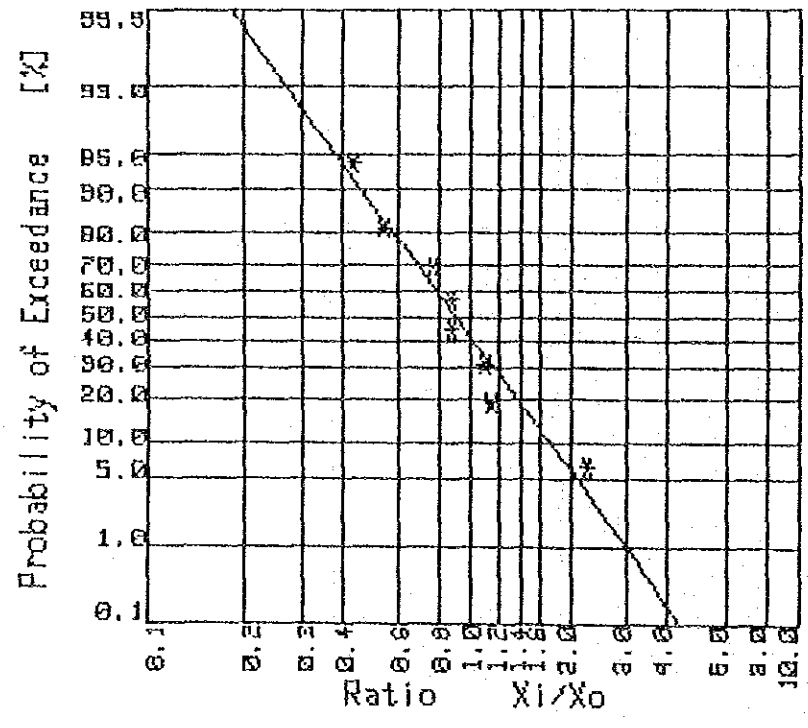


Fig. C-4-4 (6) Probability of Continuous Drought Days

b50W

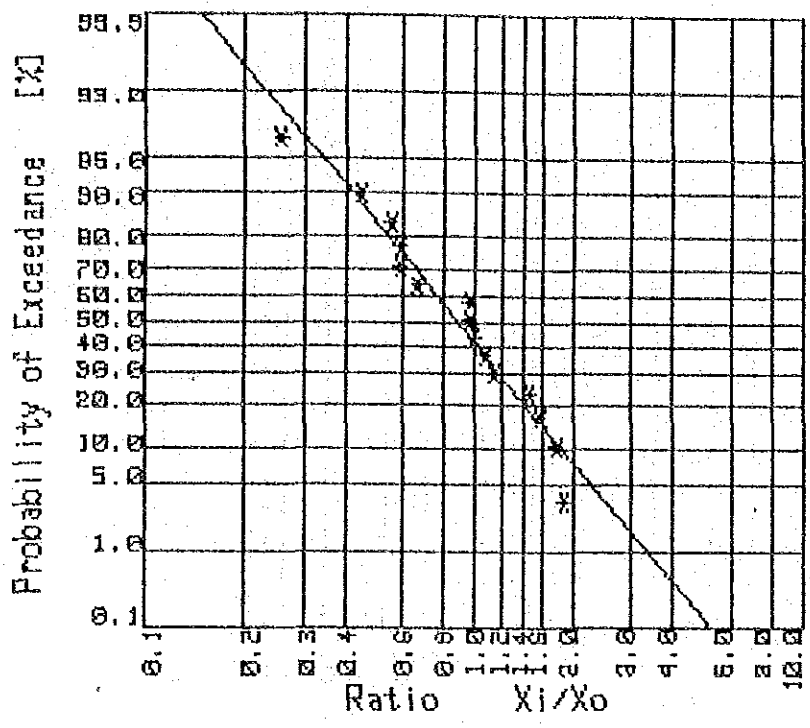


Fig. C-4-4 (7) Probability of Continuous Drought Days

b50W

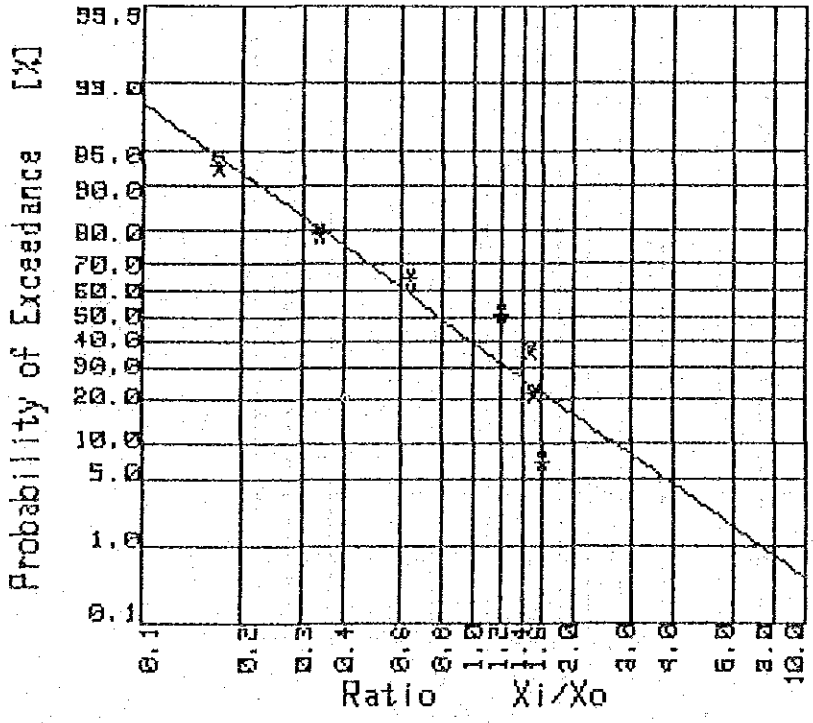


Fig. C-4-4 (8) Probability of Continuous Drought Days

b50W

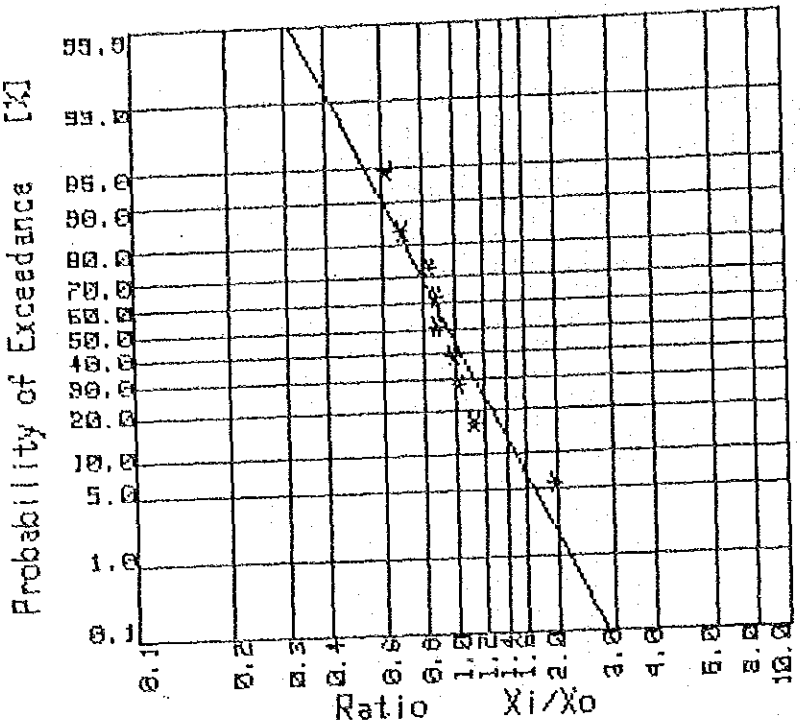


Fig. C-4-4 (9) Probability of Continuous Drought Days

b50W

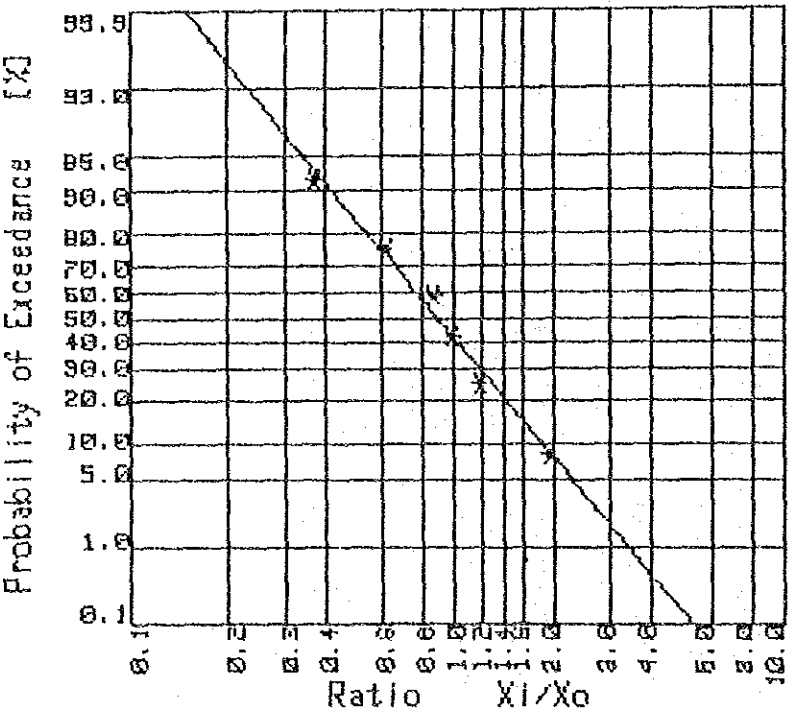


Fig. C-4-4 (10) Probability of Continuous Drought Days

b50W

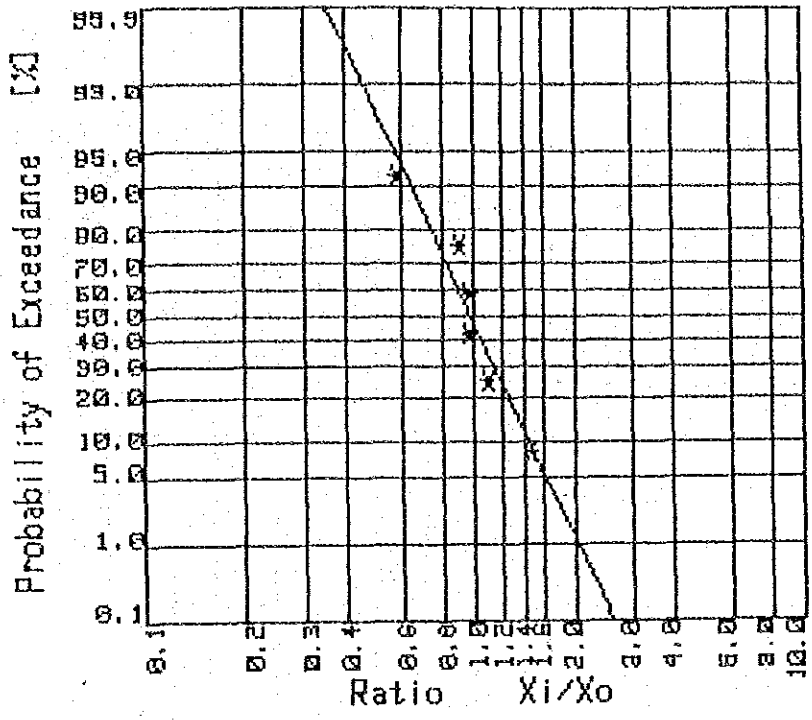


Fig. C-4-4 (11) Probability of Continuous Drought Days

b50W

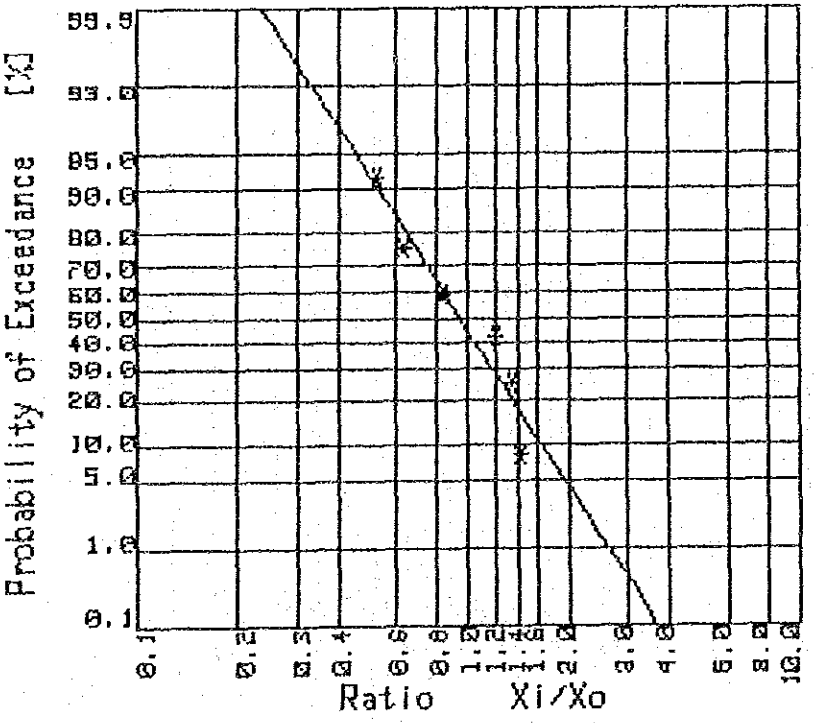


Fig. C-4-4 (12) Probability of Continuous Drought Days

b50W

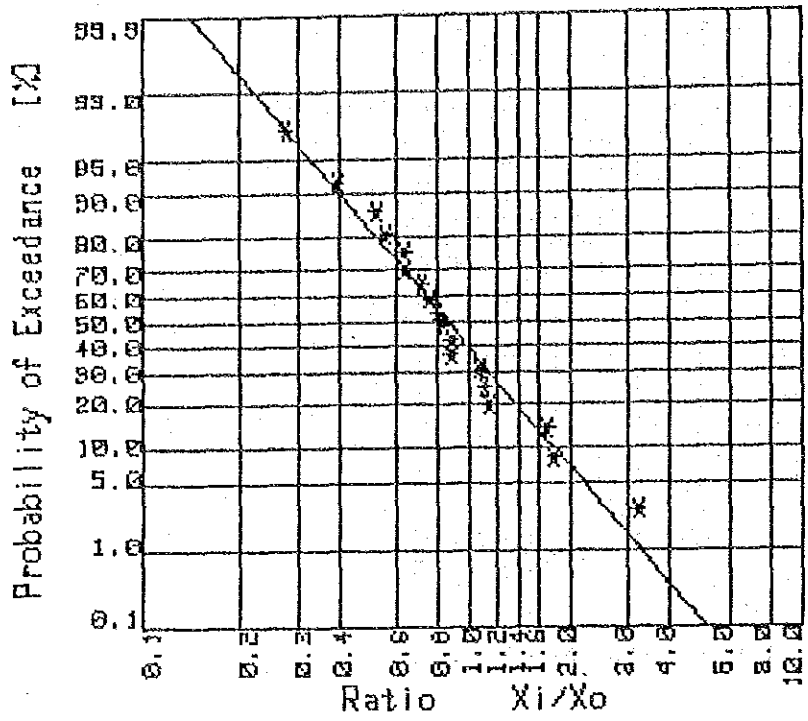


Fig. C-4-4 (13) Probability of Continuous Drought Days

b50W

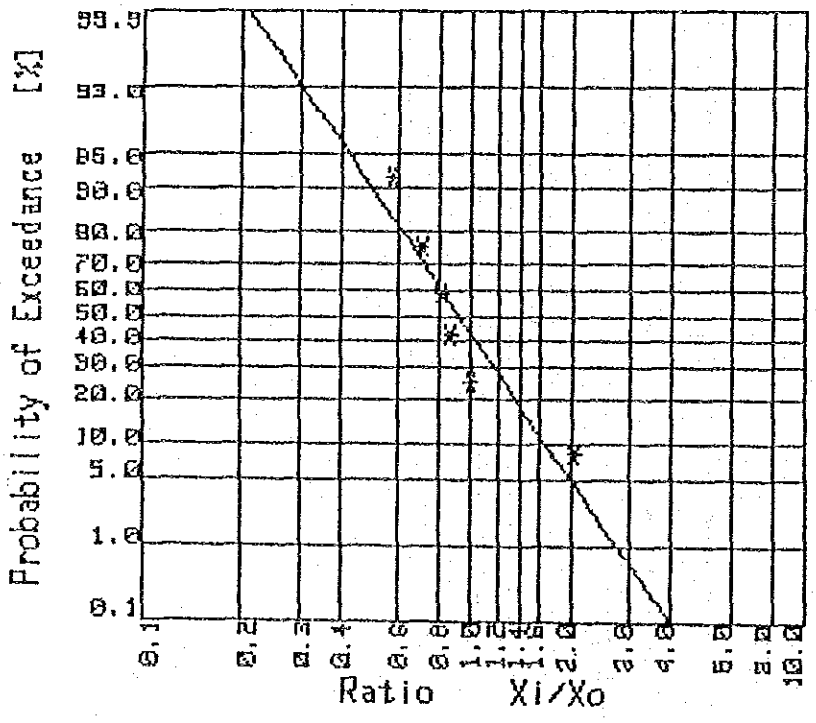


Fig. C-4-4 (14) Probability of Continuous Drought Days

b50W

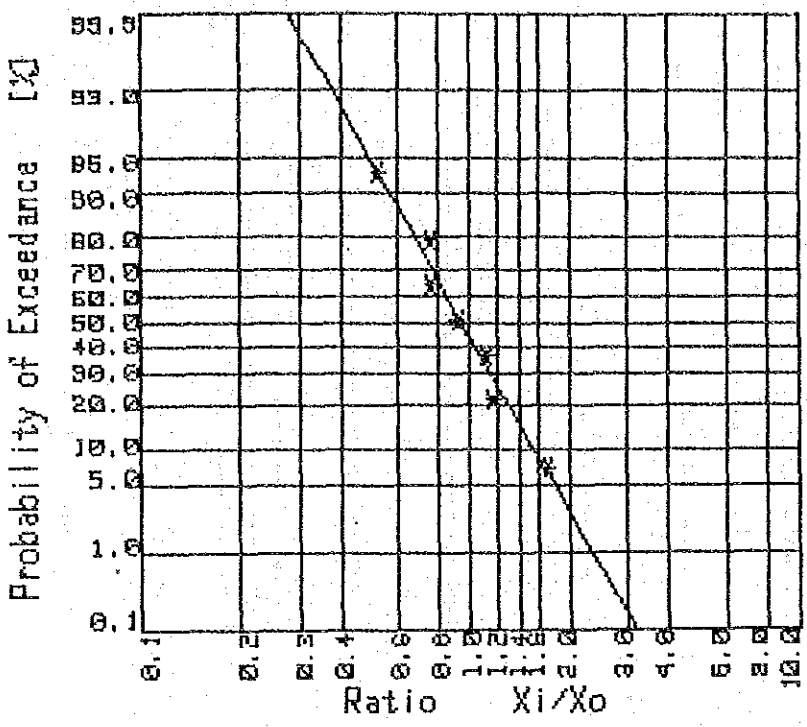


Fig. C-4-4 (15) Probability of Continuous Drought Days

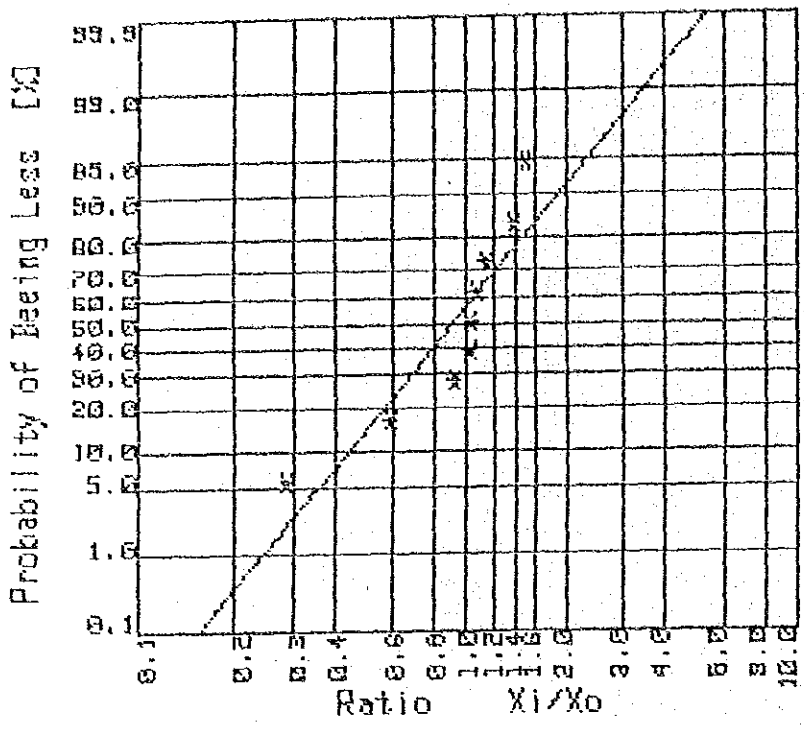


Fig. C-4-5 (1) Probability of Minimum Discharge at PUERTO RICO

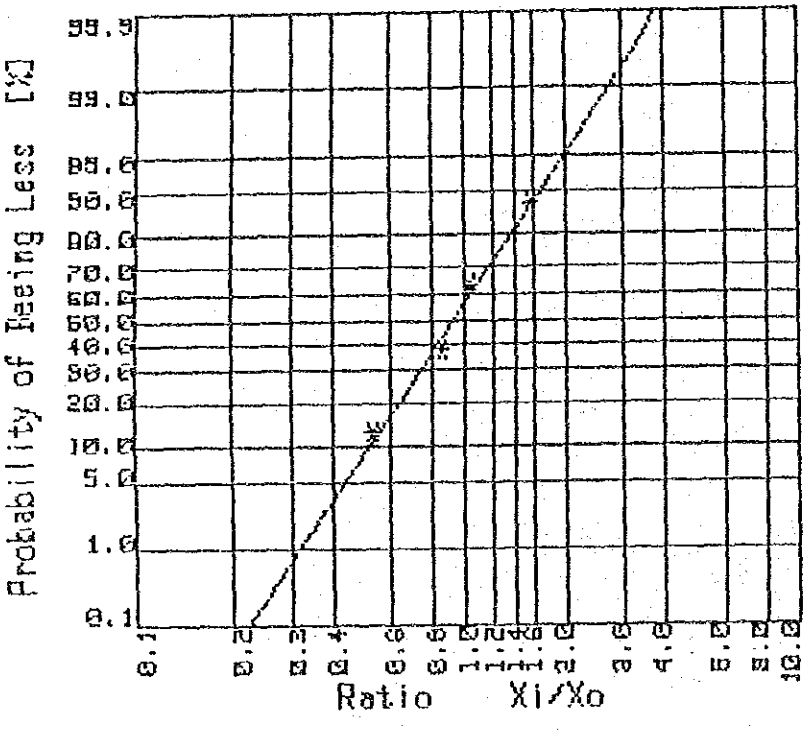


Fig. C-4-5 (2) Probability of Minimum Discharge at LEJANIAS

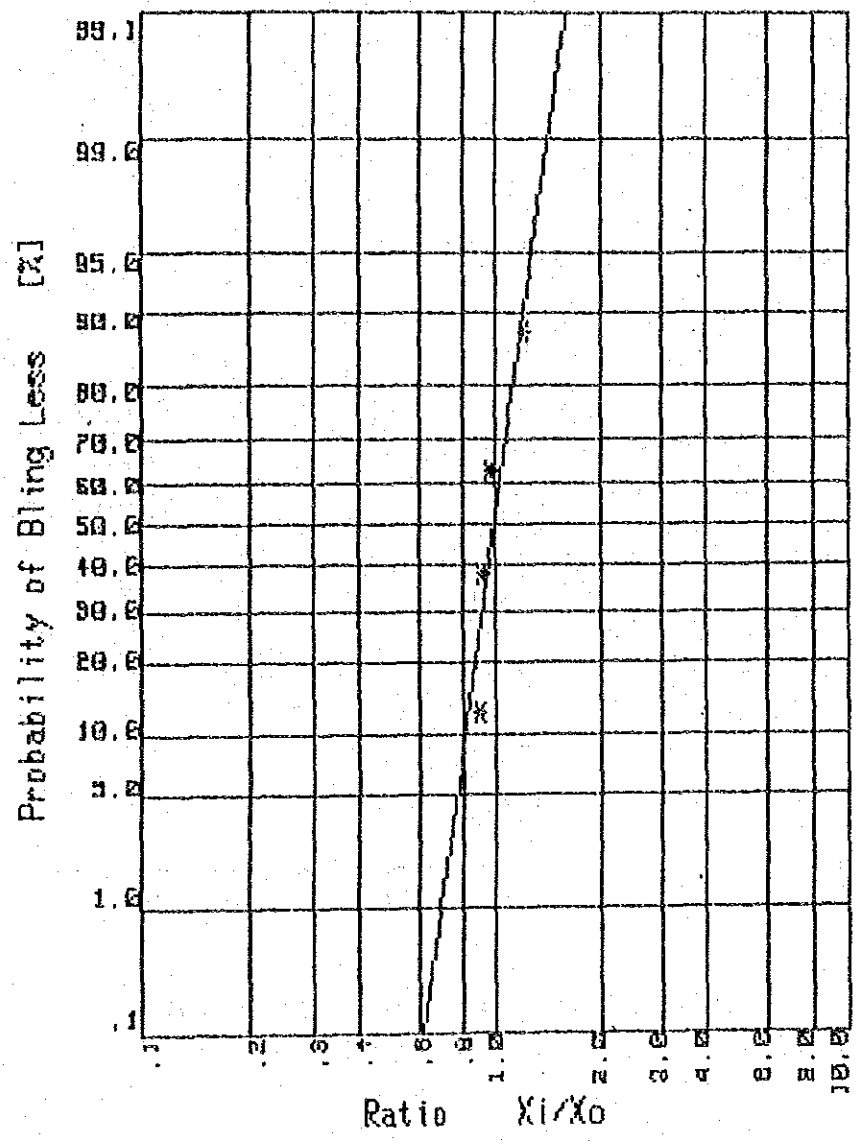


FIG.C-4-6 Probability of Mean River Discharge
(Station ANGOSTURA)

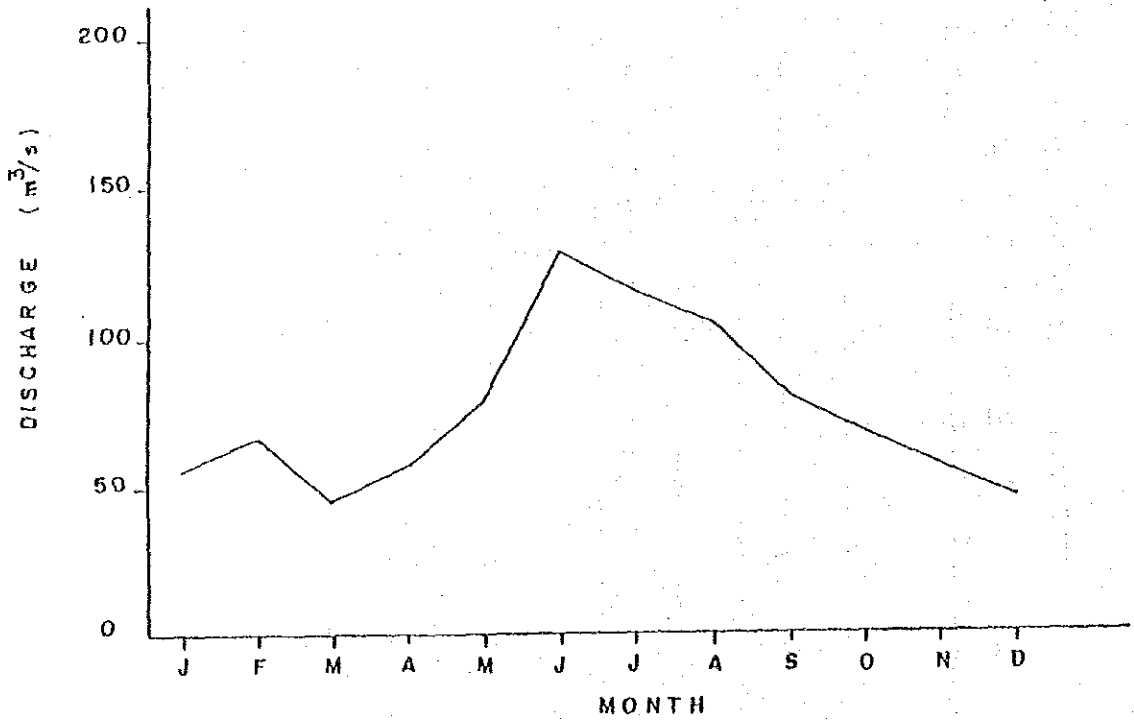


Fig. C-4-7 RIVER DISCHARCHE AT THE ANGOSTURA BRIDGE ON THE GUAPE RIVER

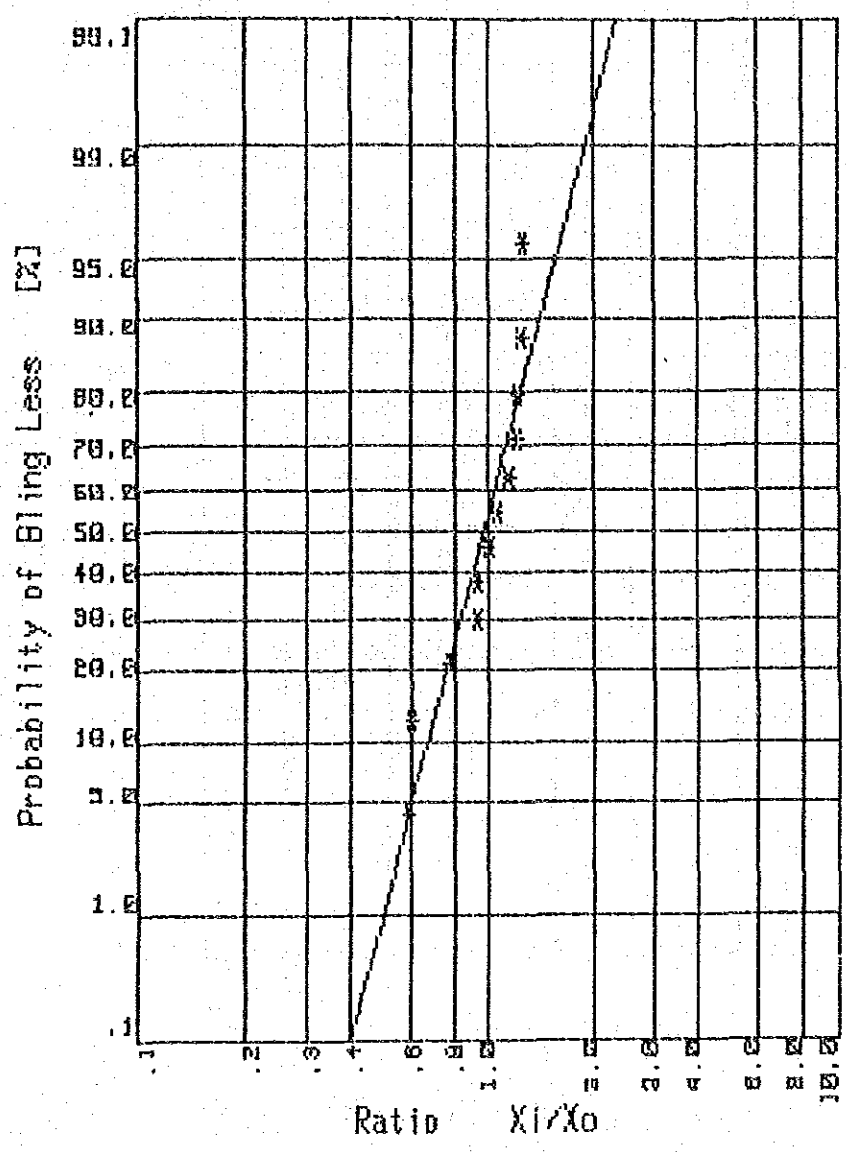


FIG.C-4-8 (1) Probability of Mean River Discharge
(Station GUANAYAS)

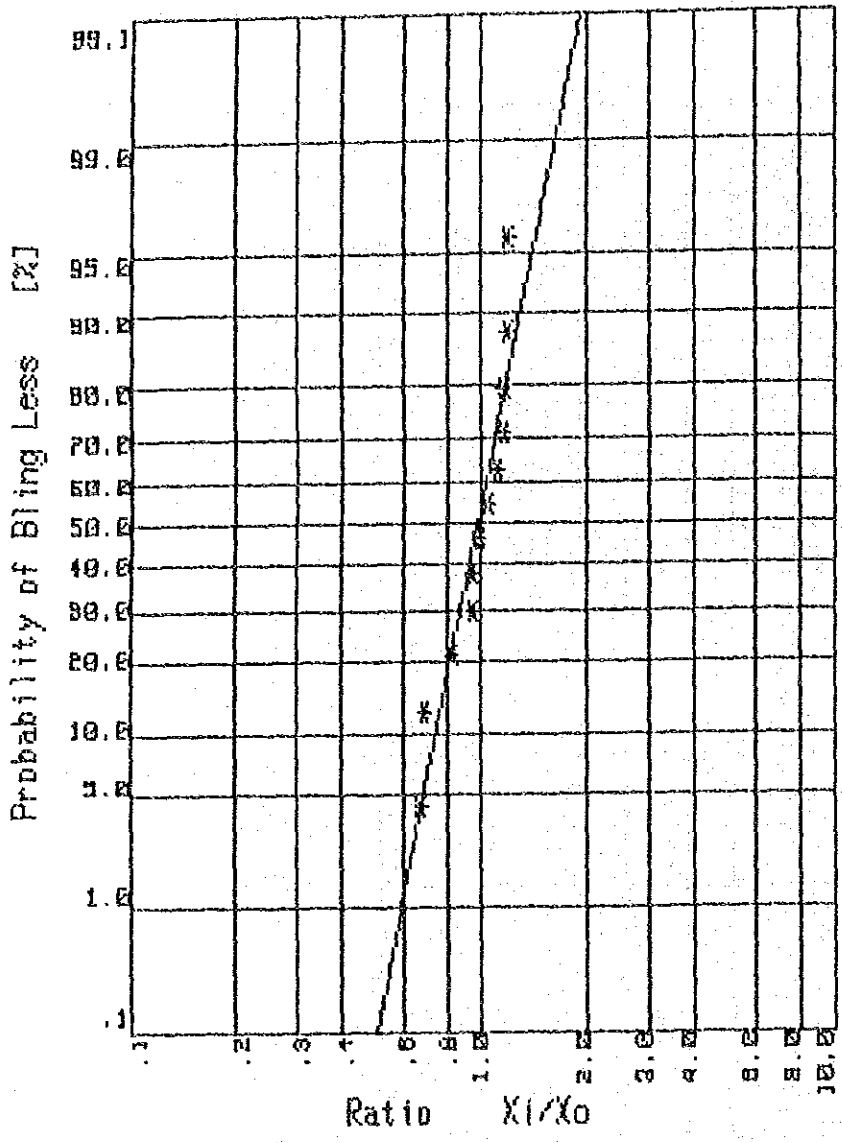


FIG.C-4-8 (2) Probability of Mean River Discharge
(Station URICHARE)

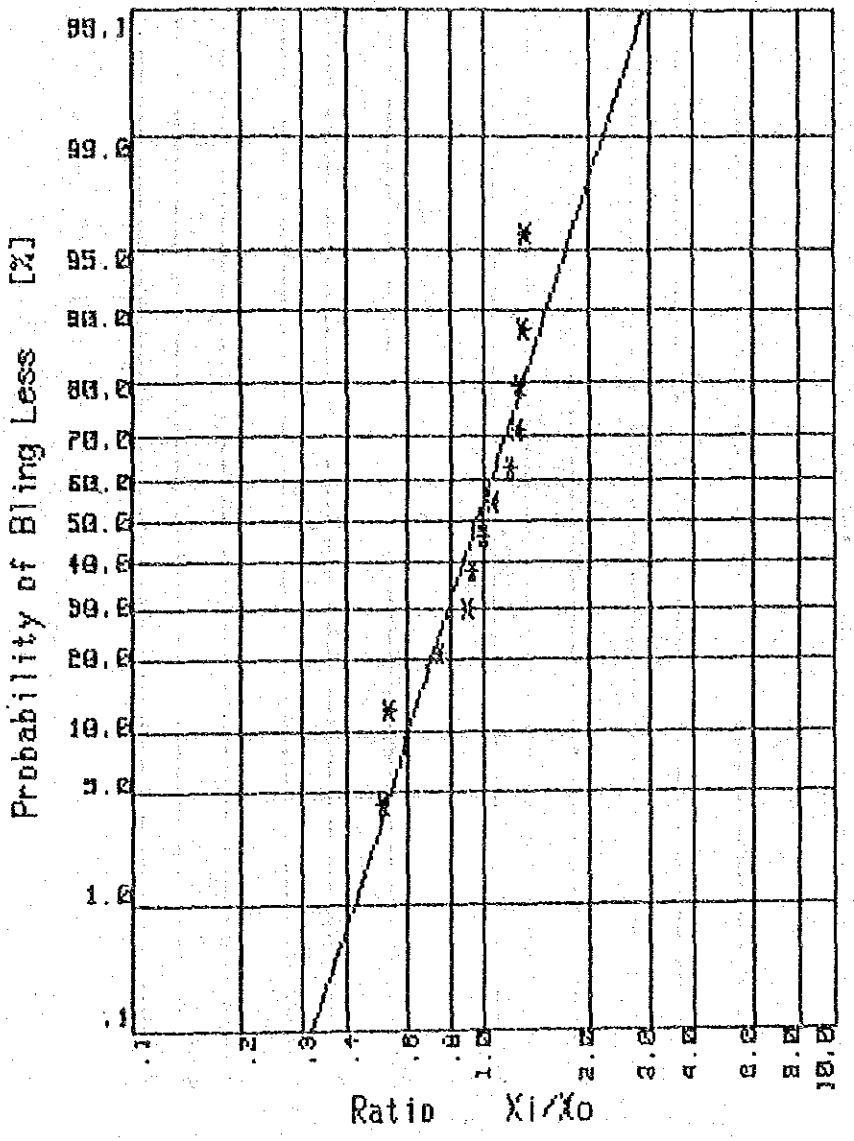


FIG.C-4-8 (3) Probability of Mean River Discharge
(Station MUCUYA)

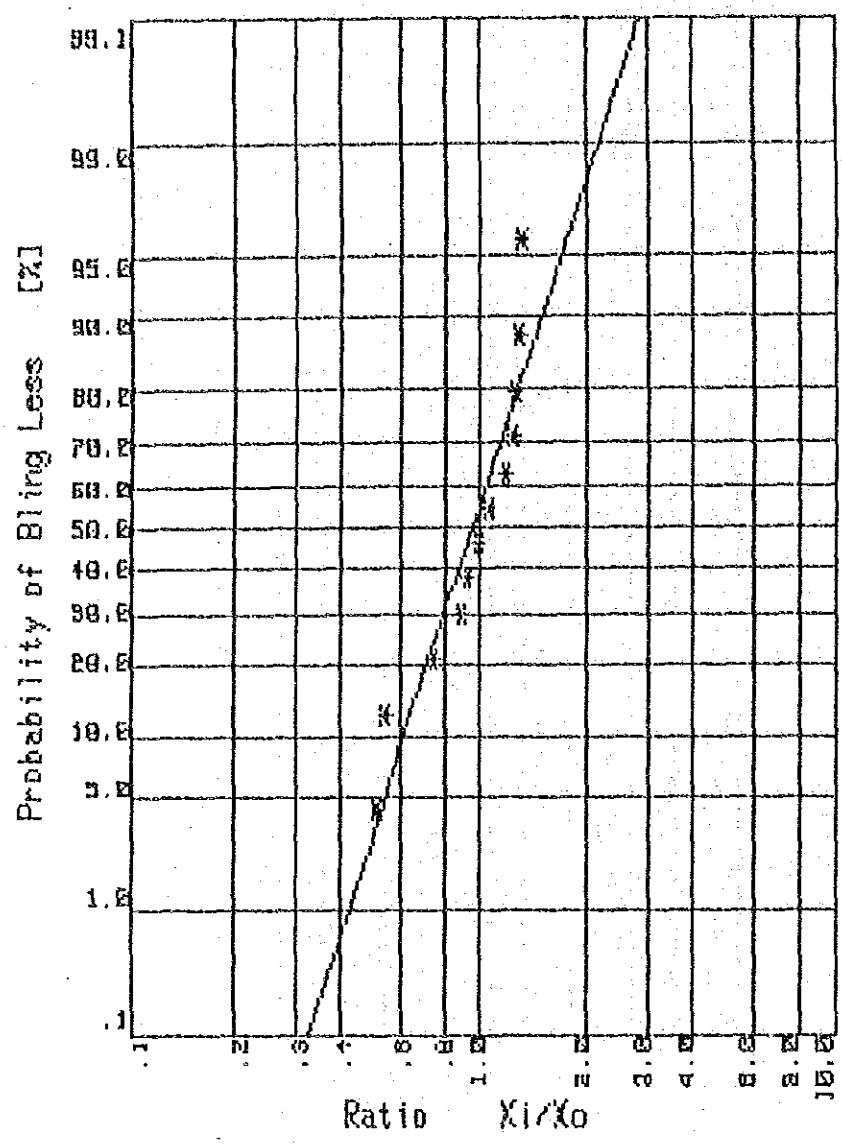
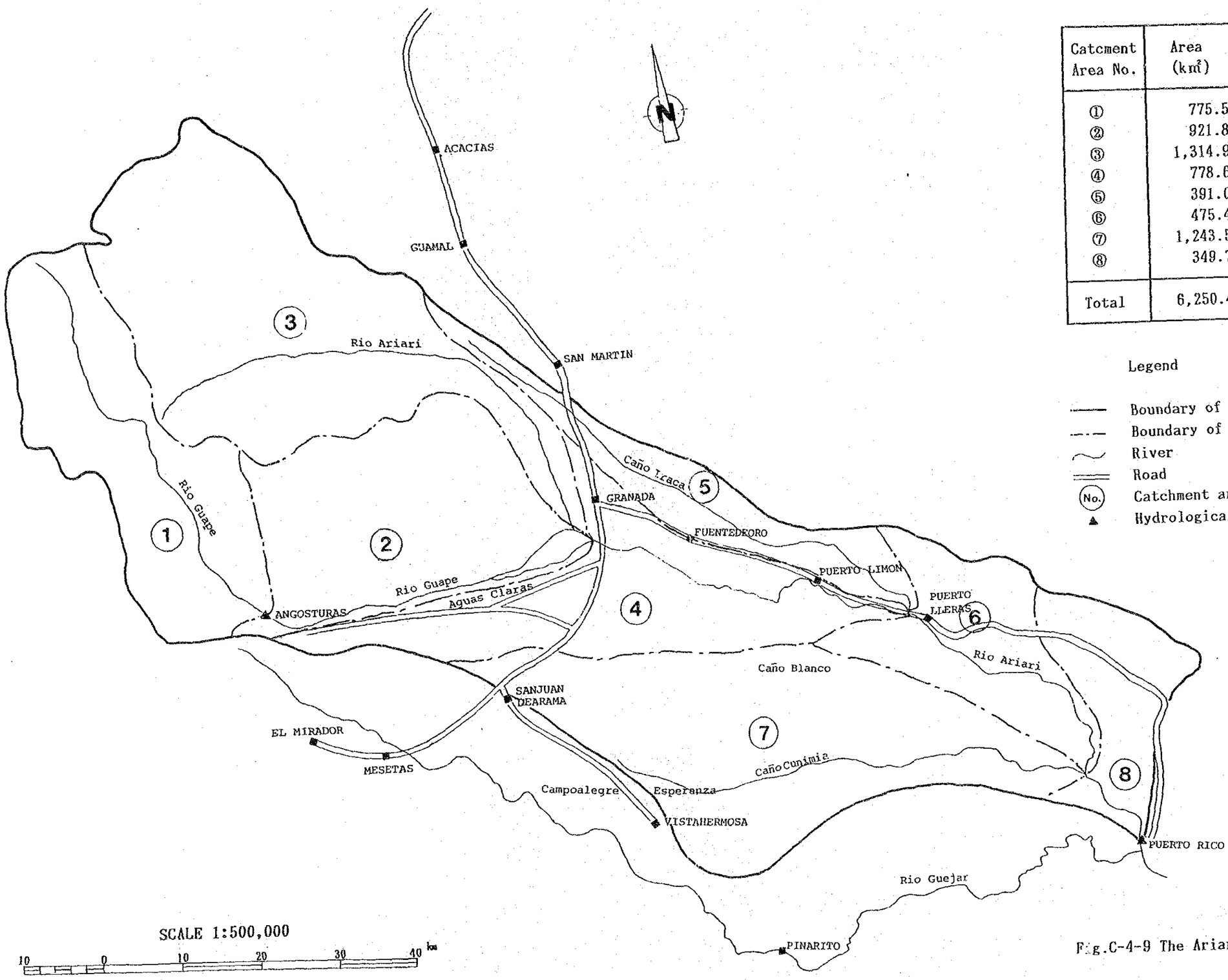


FIG.C-4-8 (4) Probability of Mean River Discharge
(Station SARDINATA)



Catcment Area No.	Area (km^2)	Ratio (%)
①	775.5	12.41
②	921.8	14.75
③	1,314.9	21.03
④	778.6	12.46
⑤	391.0	6.26
⑥	475.4	7.61
⑦	1,243.5	19.89
⑧	349.7	5.59
Total	6,250.4	100.00

Legend

- Boundary of Basin
- Boundary of Catchment Area
- River
- Road
- (No.) Catchment area No.
- ▲ Hydrological Station

Fig.C-4-9 The Ariari River Basin

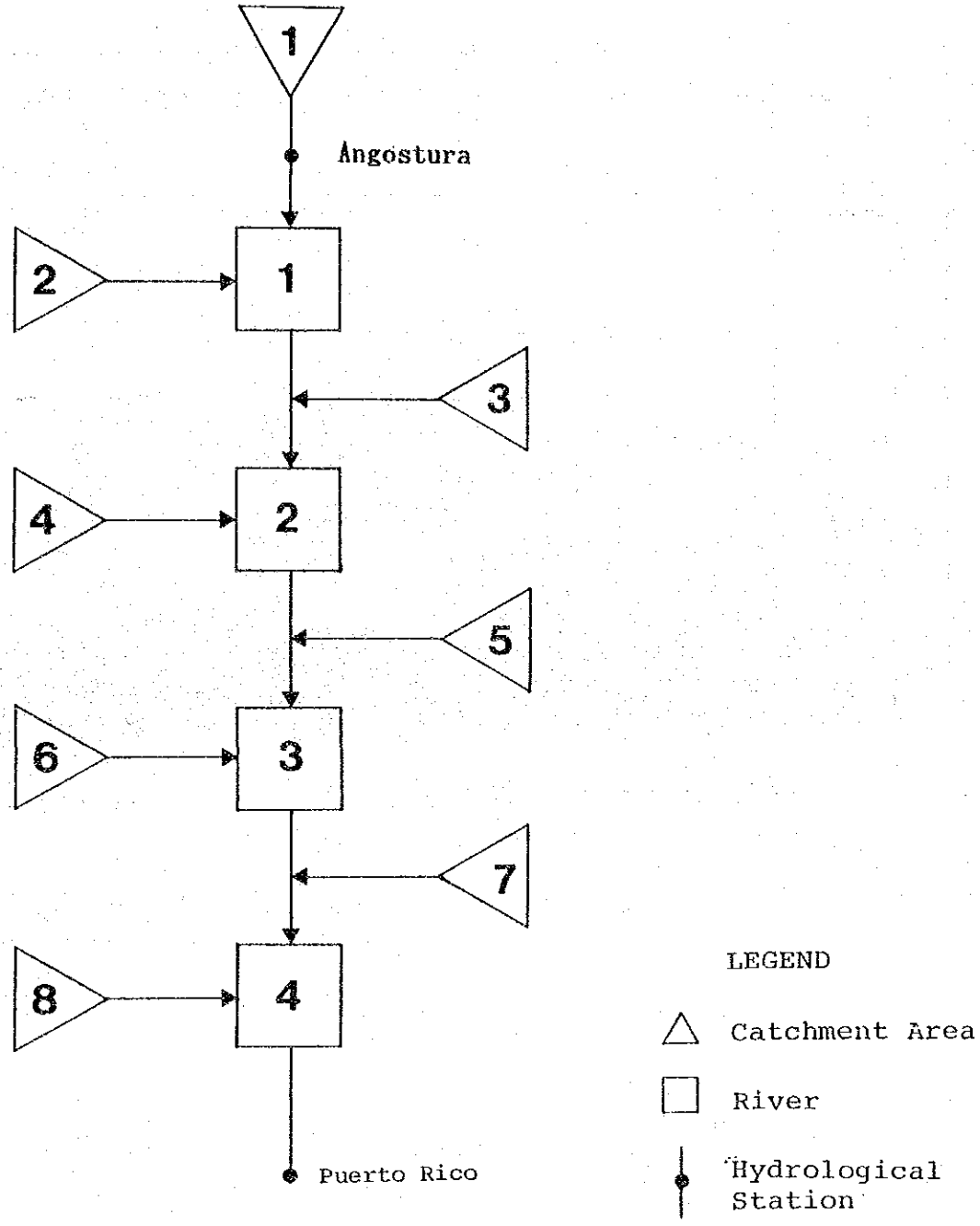


Fig.C-4-10 MODEL OF THE STORAGE FUNCTION METHOD

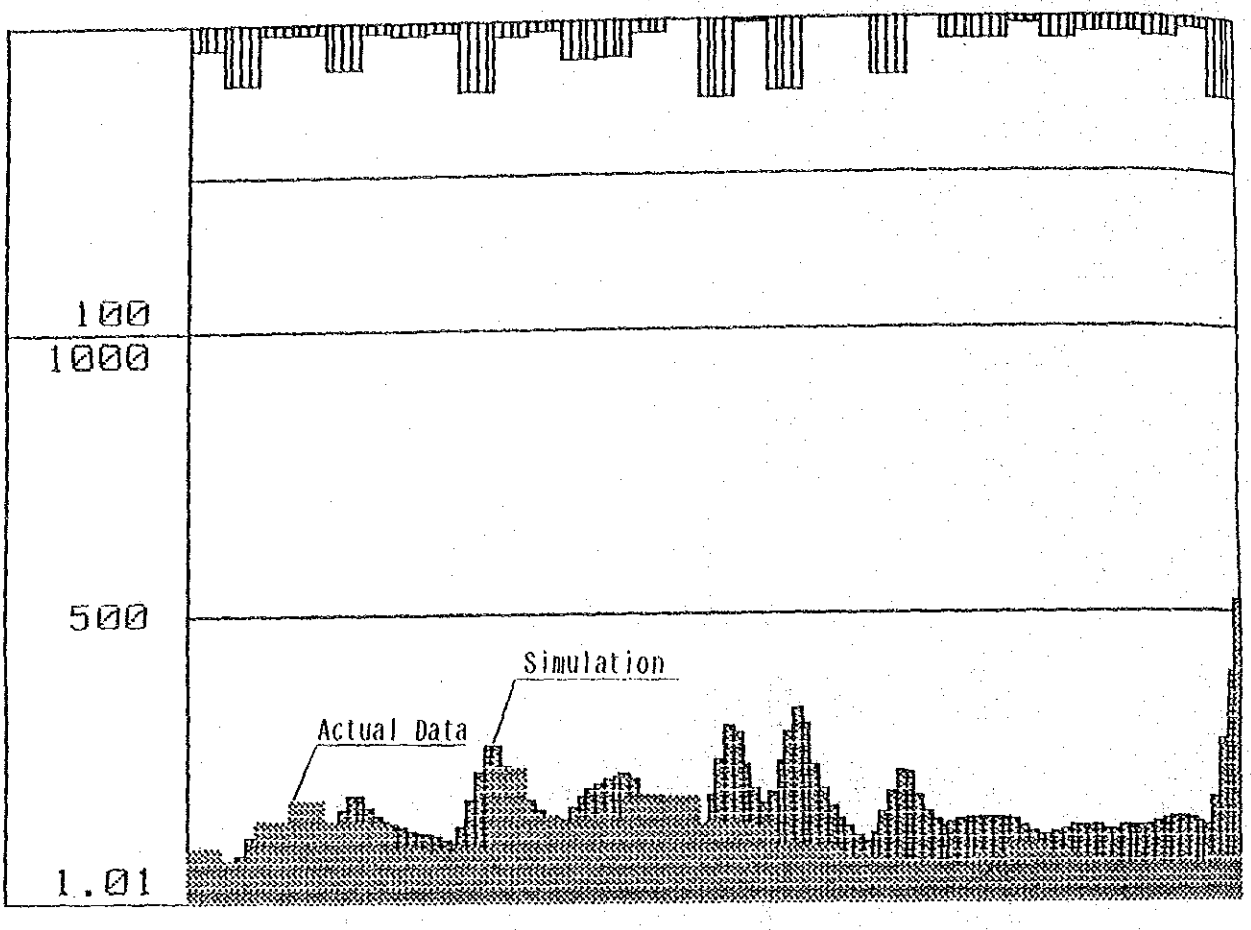


Fig.C-4-11 (1). Comparison of River Discharge Acutual Data and Simulation (at Angostura,June in 1987)

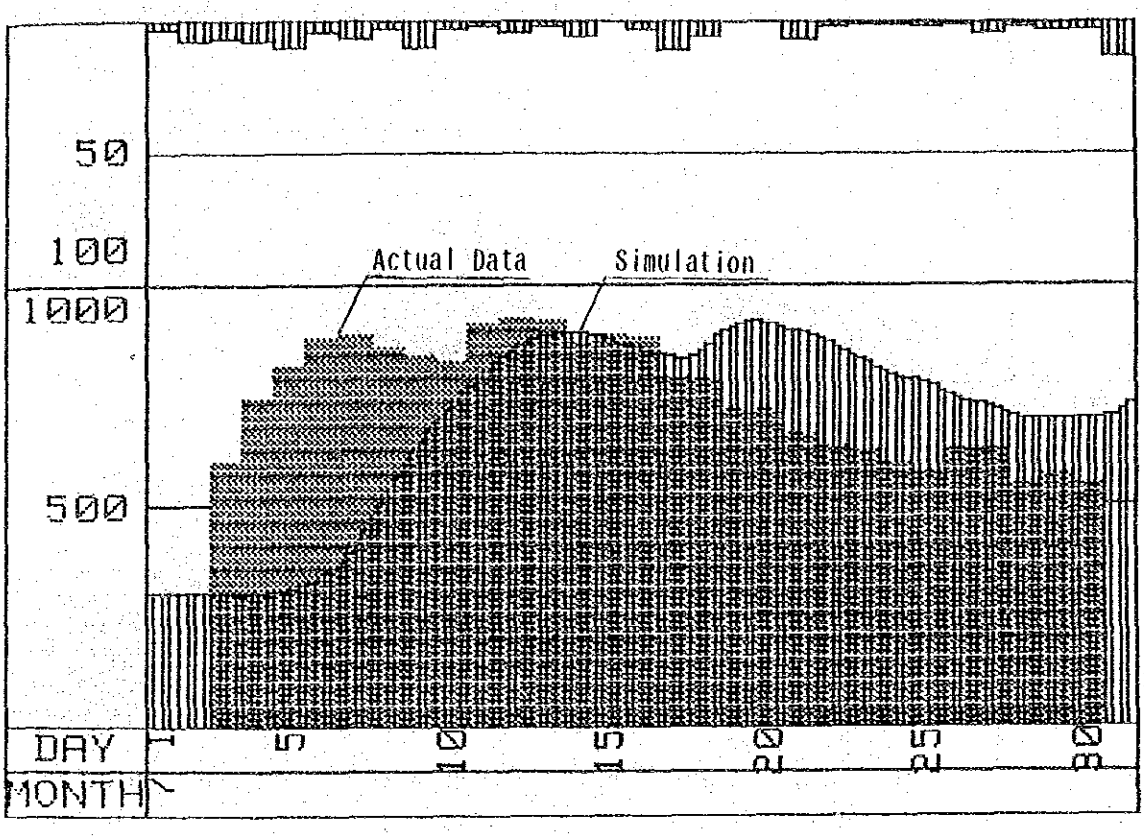


Fig.C-4-11 (2). Comparison of River Discharge Acutual Data and Simulation (at Puerto Rico, June in 1987)

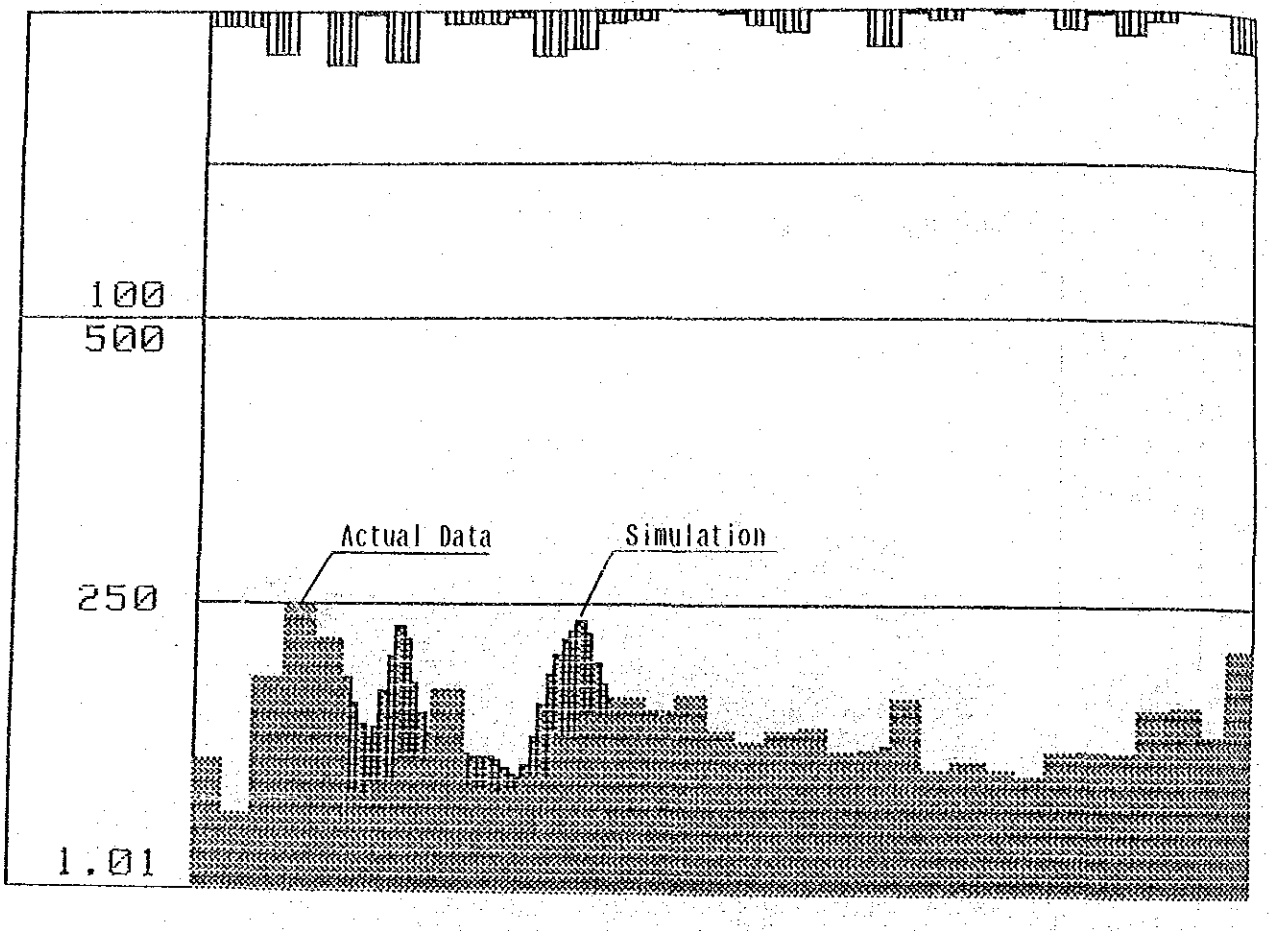


Fig.C-4-11 (3). Comparison of River Discharge Acutual Data and Simulation
(at Angostura,May and June in 1985)

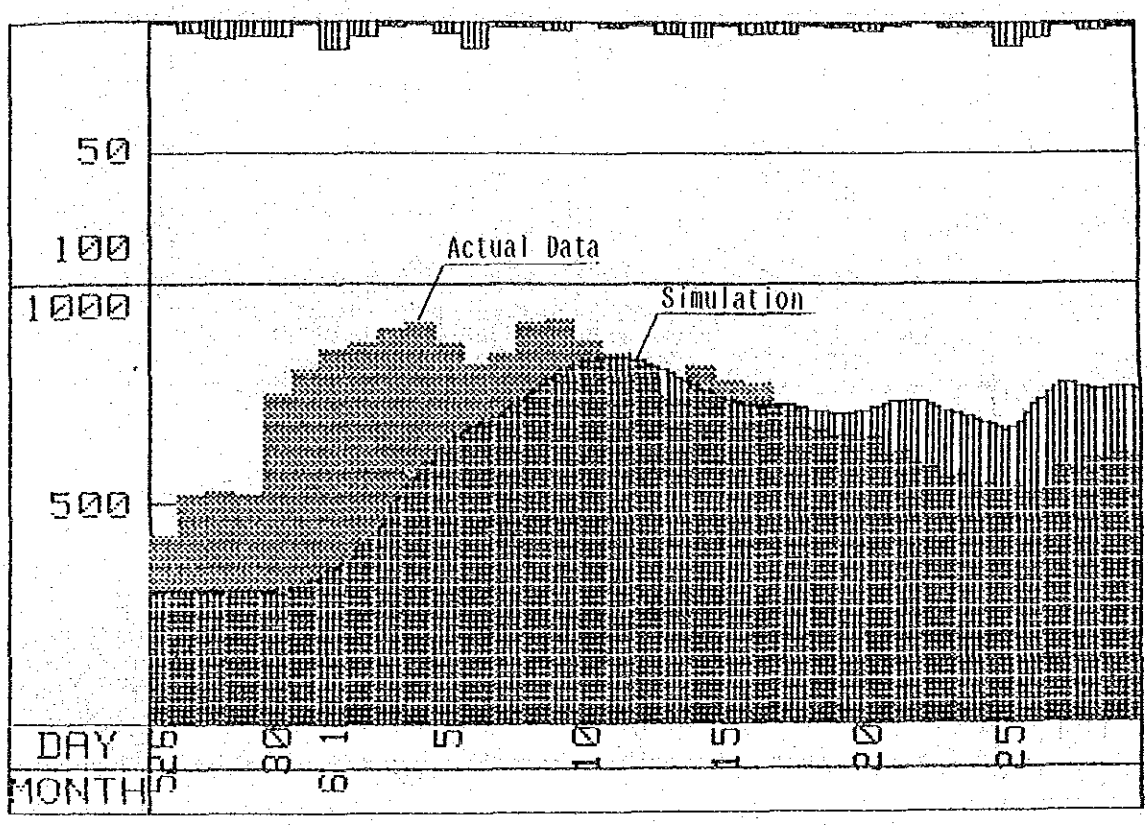


Fig.C-4-11 (4). Comparison of River Discharge Acutual Data and Simulation
(at Puerto Rico,May and June in 1985)

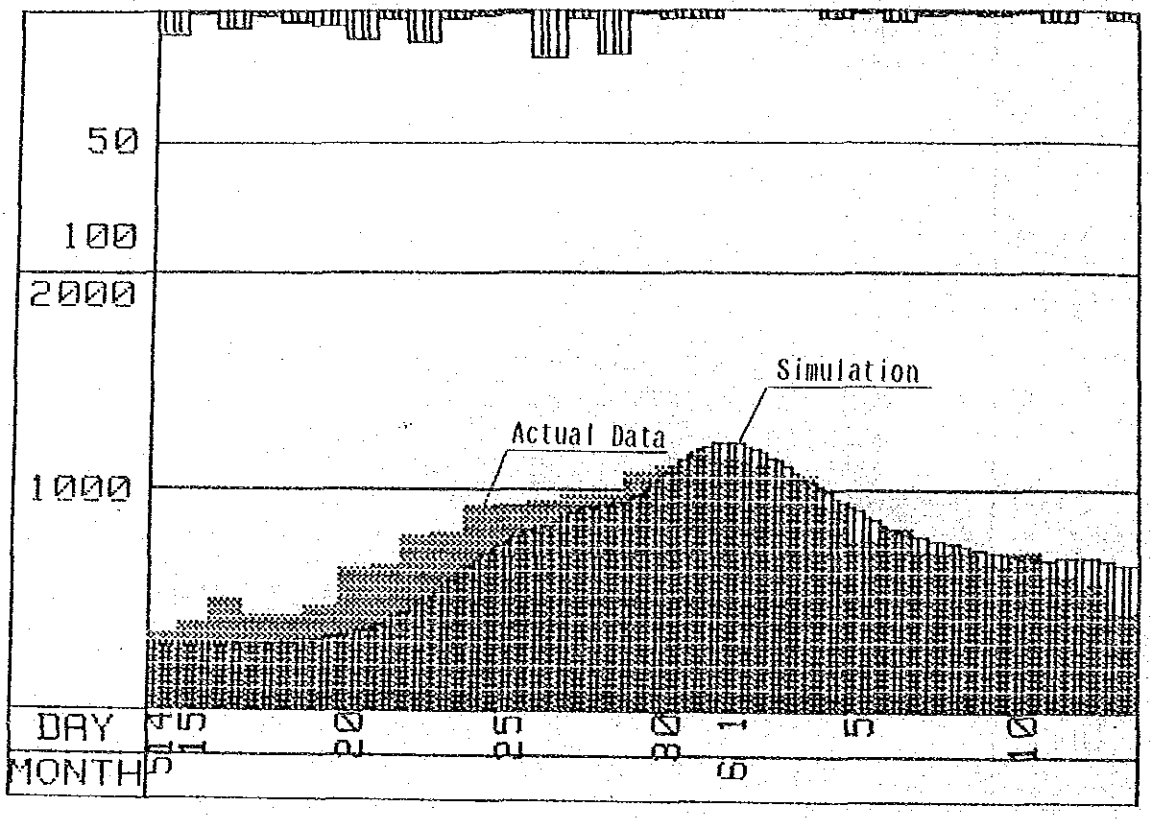


Fig.C-4-11 (5). Comparison of River Discharge Acutual Data and Simulation (at Puerto Rico, May and June in 1982)

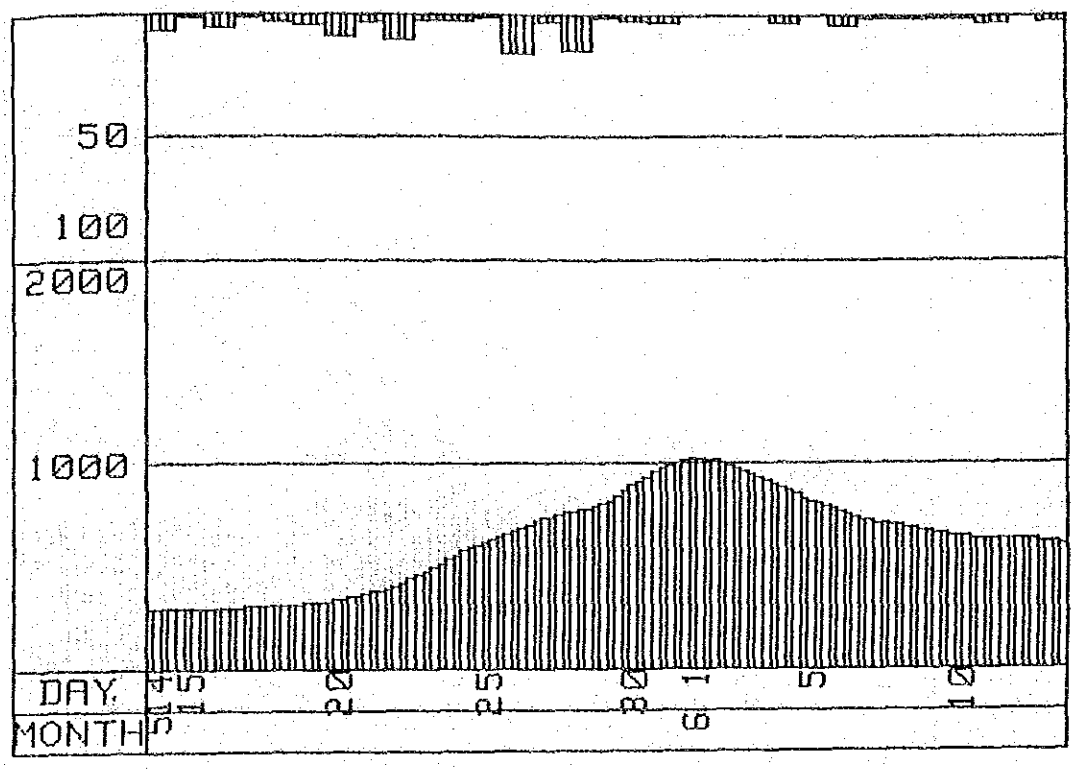


Fig. C-4-12 (1) Result of Flood Analysis
(for 2 year Return Period)

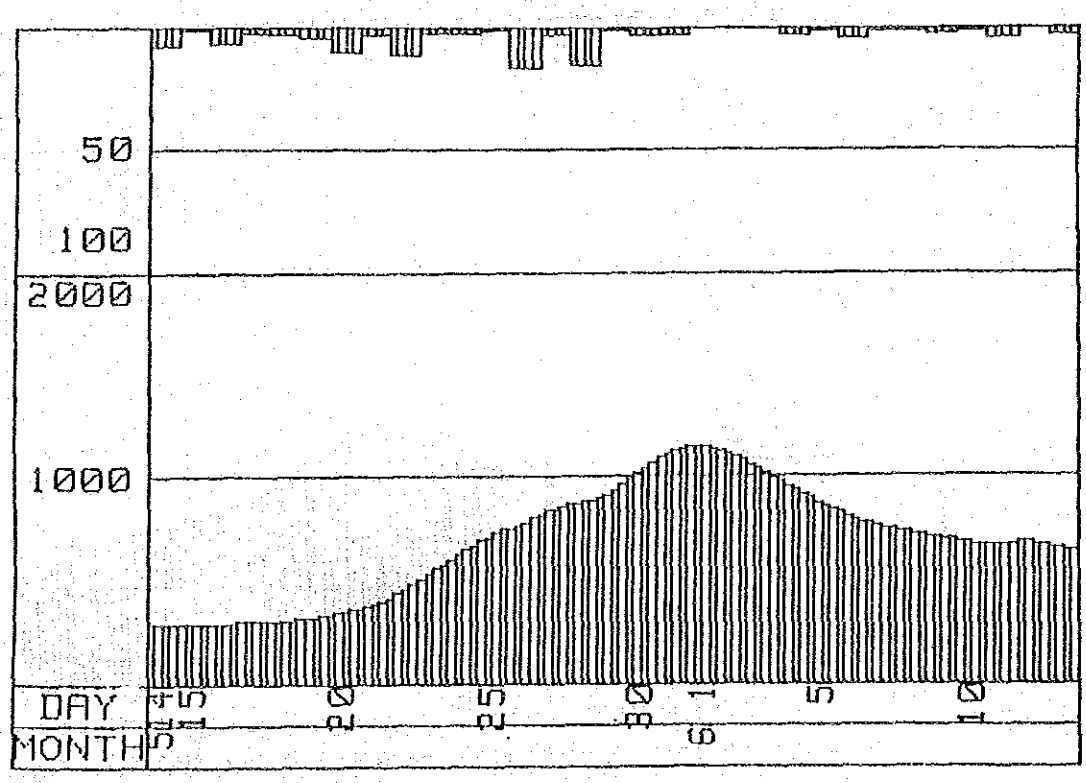


Fig. C-4-12 (2) Result of Flood Analysis
(for 5 year Return Period)

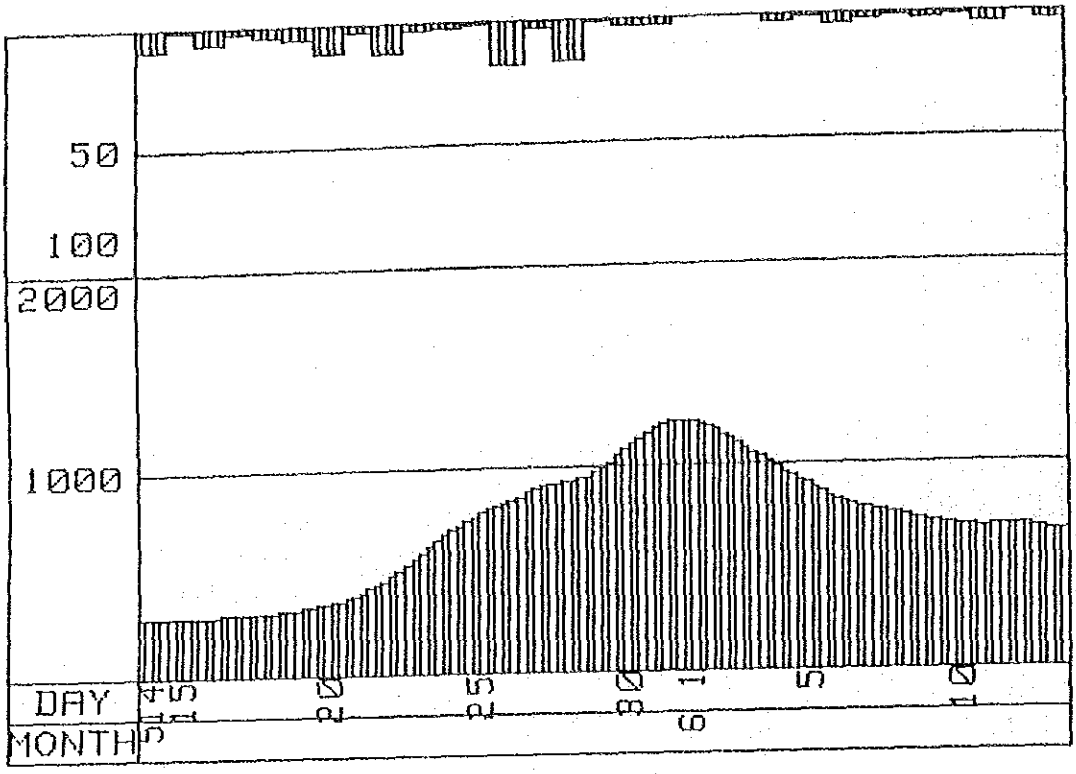


Fig. C-4-12 (3) Result of Flood Analysis
(for 10 year Return Period)

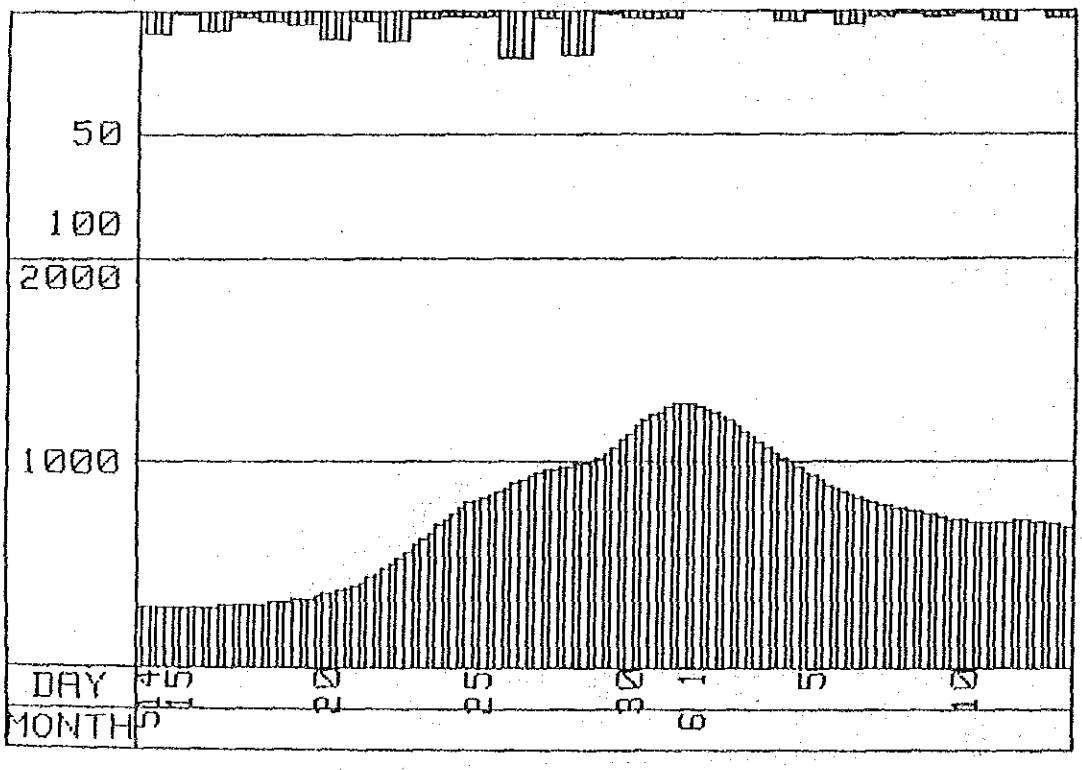


Fig. C-4-12 (4) Result of Flood Analysis
(for 20 year Return Period)

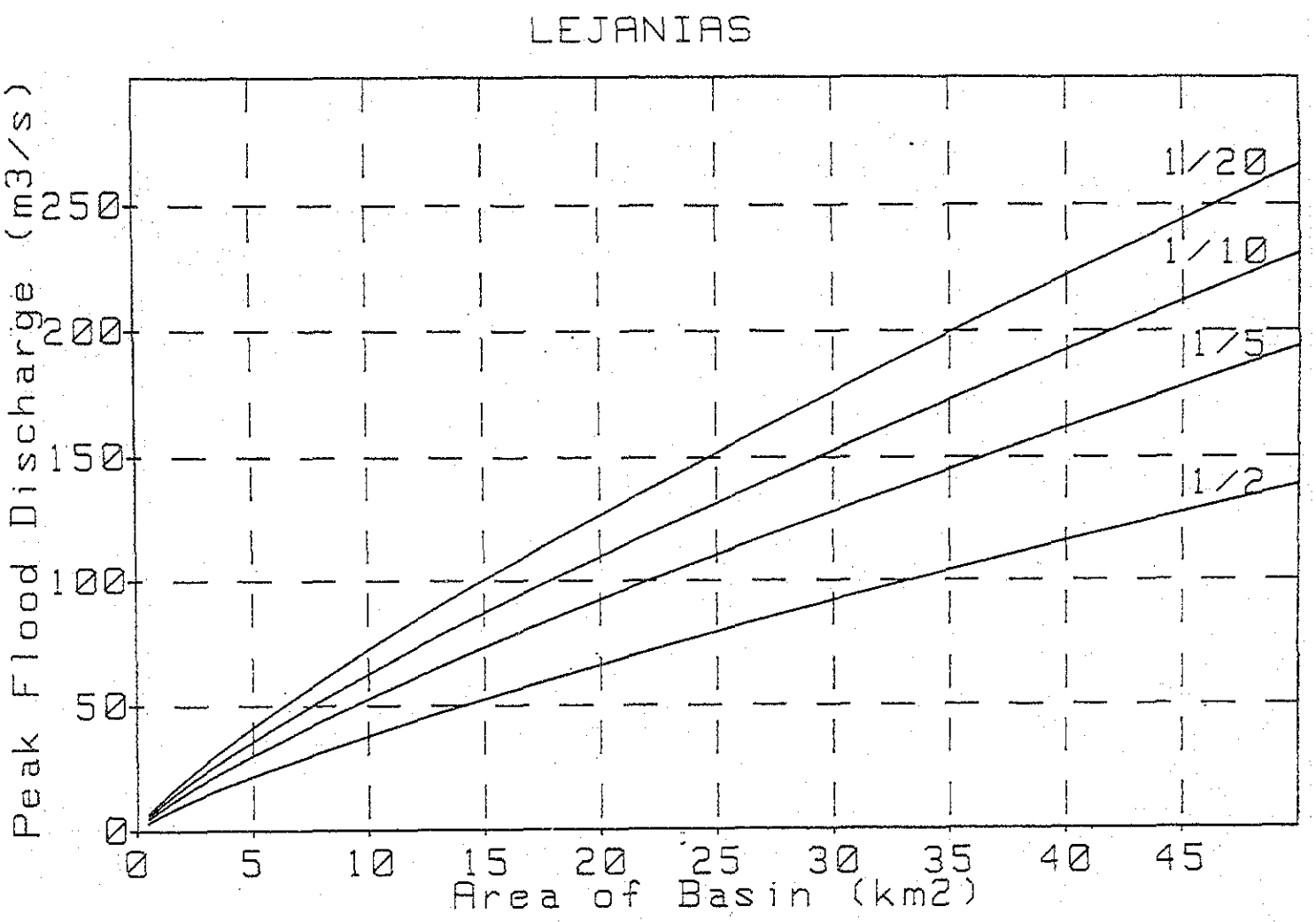


Fig. C-4-13 (1) Peak Flood Discharge (Lejanias Station)

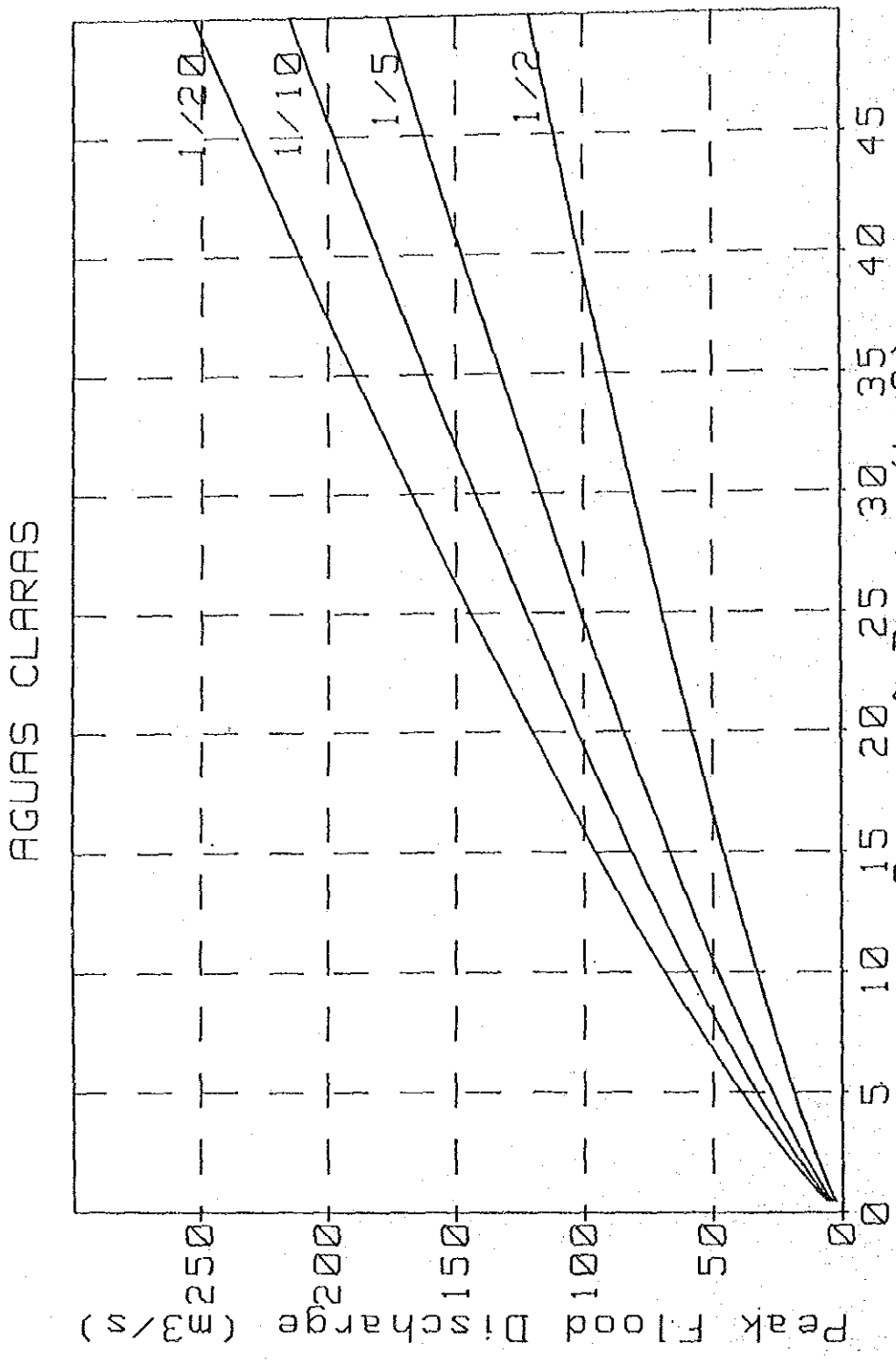


Fig. C-4-13 (2) Peak Flood Discharge (Aguas Claras Station)

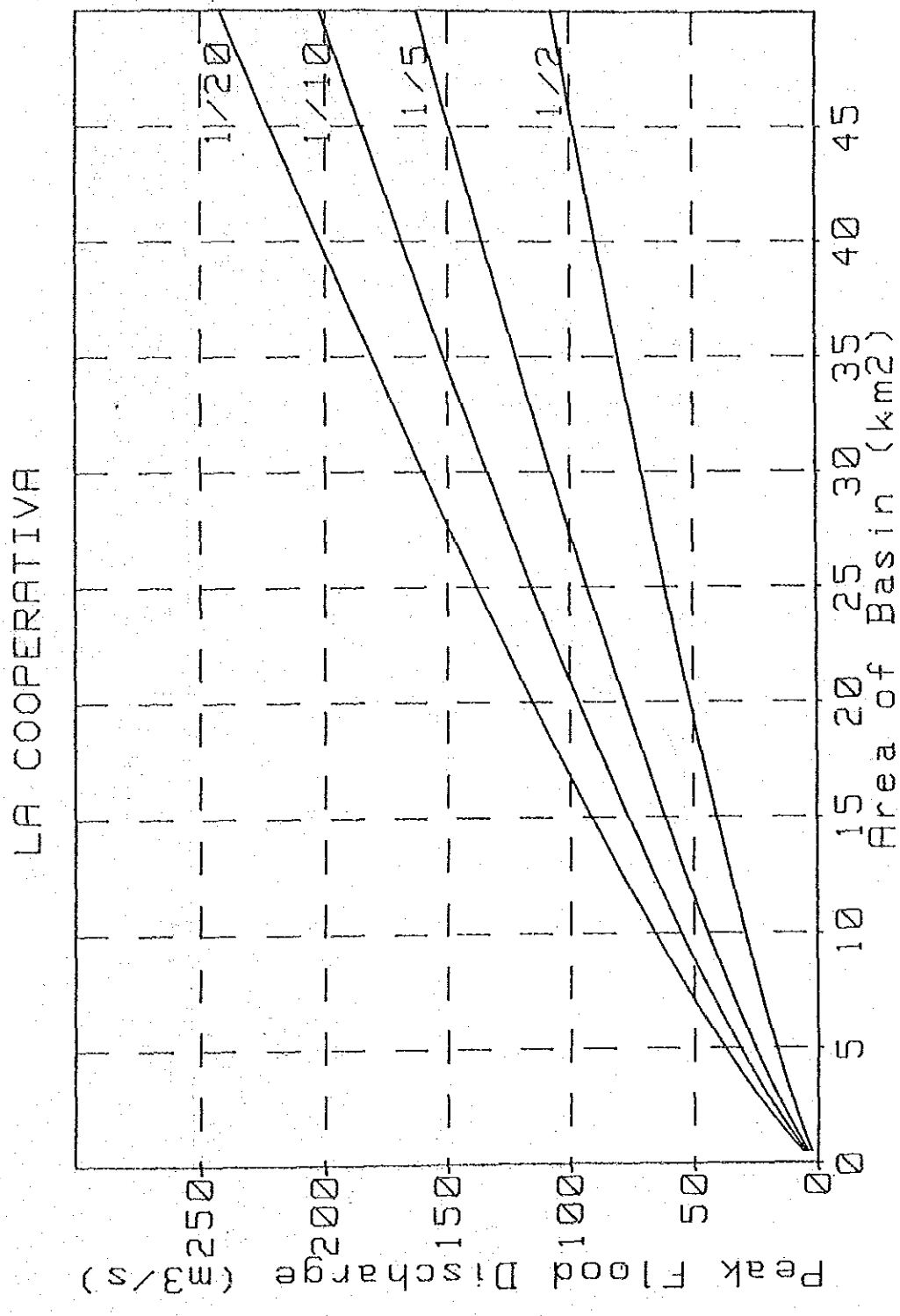


Fig. C-4-13 (3) Peak Flood Discharge (La cooperativa Station)

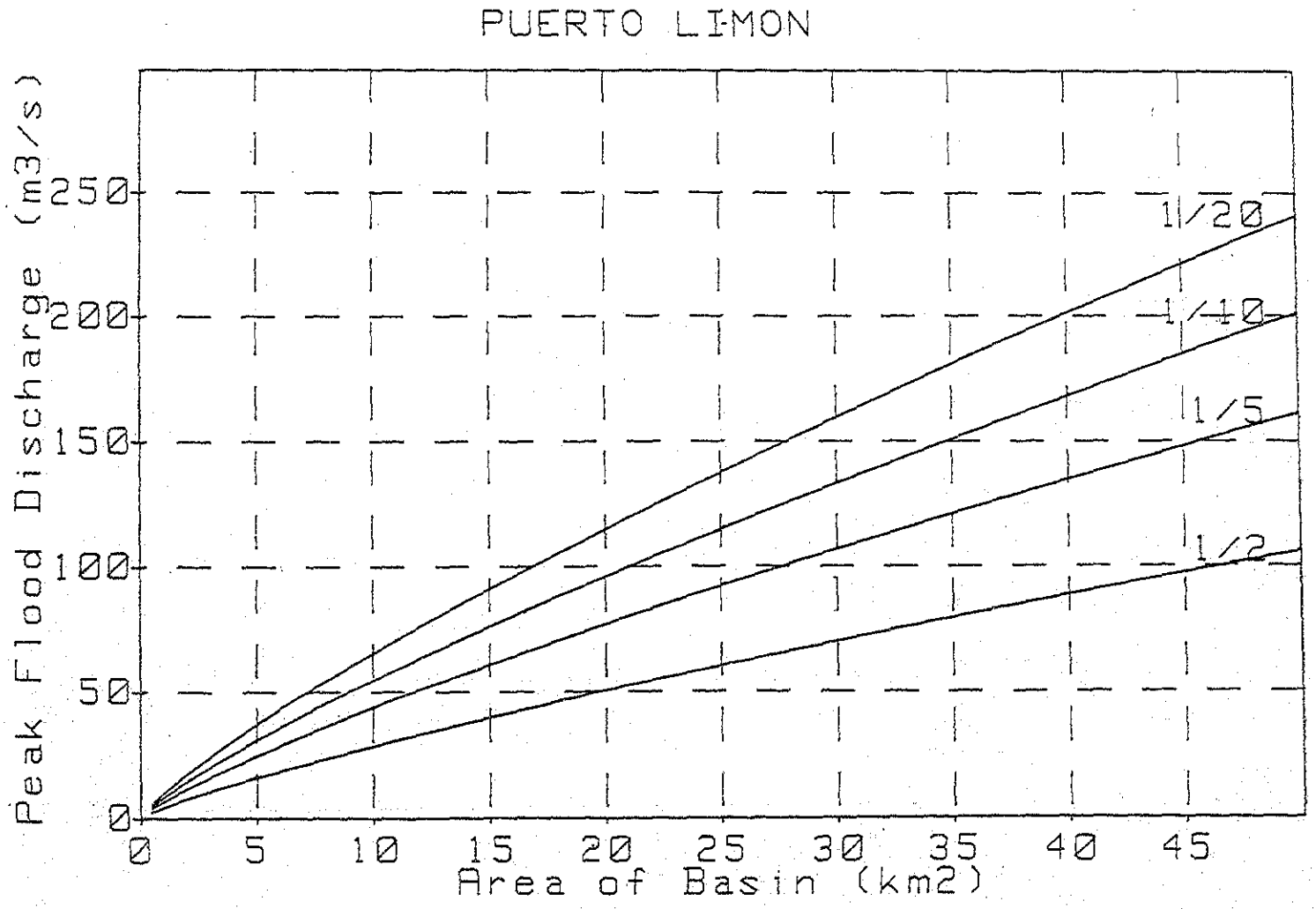


Fig. C-4-13 (4) Peak Flood Discharge (Puerto Limon Station)

ANNEX D : SOIL AND LAND CLASSIFICATION

ANNEX D : SOIL AND LAND CLASSIFICATION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ANNEX D : SOIL AND LAND CLASSIFICATION

D.1 GENERAL

To collect information on kind, characteristics and distribution of soil in the Study Area, the following soil survey was carried out.

- Soil Survey: 90 points (see Fig. D-1-1) 15 points of the excavating pits, 75 points of the examination by soil auger.

- Physical and chemical analysis: 36 samples

Based on the results obtained and prepared, the kinds of soils and their characteristics were clarified and also land for agricultural use was classified. Thus, the basic data for land use planning was obtained.

The Study Area is located on a plain in the basin of the Rivers Guape and Ariari. The area features shows composite fans and alluvial plains.

Soil in the area is composed of alluvial deposits as parent material, and is categorized as below in accordance with the topographic distribution.

1) Soil of River Reservation (LC)

The soil, distributed over a narrow area along the Guape and Ariari Rivers, occupies 520 ha or 1.3% of the Study Area. The land is flat and is subject to flooding from the river at times. Soil texture is medium moderately coarse and drains well.

The PH level is neutral to moderately acid, effective soil depth is shallow and soil fertility is medium to low, and therefore suitable for pastures and perennial crops.

2) Soil of Fan Land (LR, TL, UP, MC)

The soil is distributed over the greater part of the Upper Zone and occupies 9,810 ha or 23.9% of the Study Area.

The land slope is from below 1% to 3% and occasionally consists of MUCH GRAVEL such as Lejanias. Soil texture is medium moderately coarse and drains well.

The PH level is moderately to strongly acid, and the effective soil depth varies greatly.

3) Soil of Hollow in Low Terrace (EC, DQ)

The soil is distributed in the Middle Low Zone and occupies 11,350 ha or 27.6% of the Study Area.

The distribution of this zone is principally along the Ca¥o, flooded in the rainy season. Soil texture is medium to moderately fine, and drainage is fairly poor. The PH level is moderately acid, and the effective soil depth is deep. Soil fertility is medium to low.

Thus, this land often has been used as irrigated paddy fields.

4) Soil of Low-Middle Terrace (GF, GU, FO)

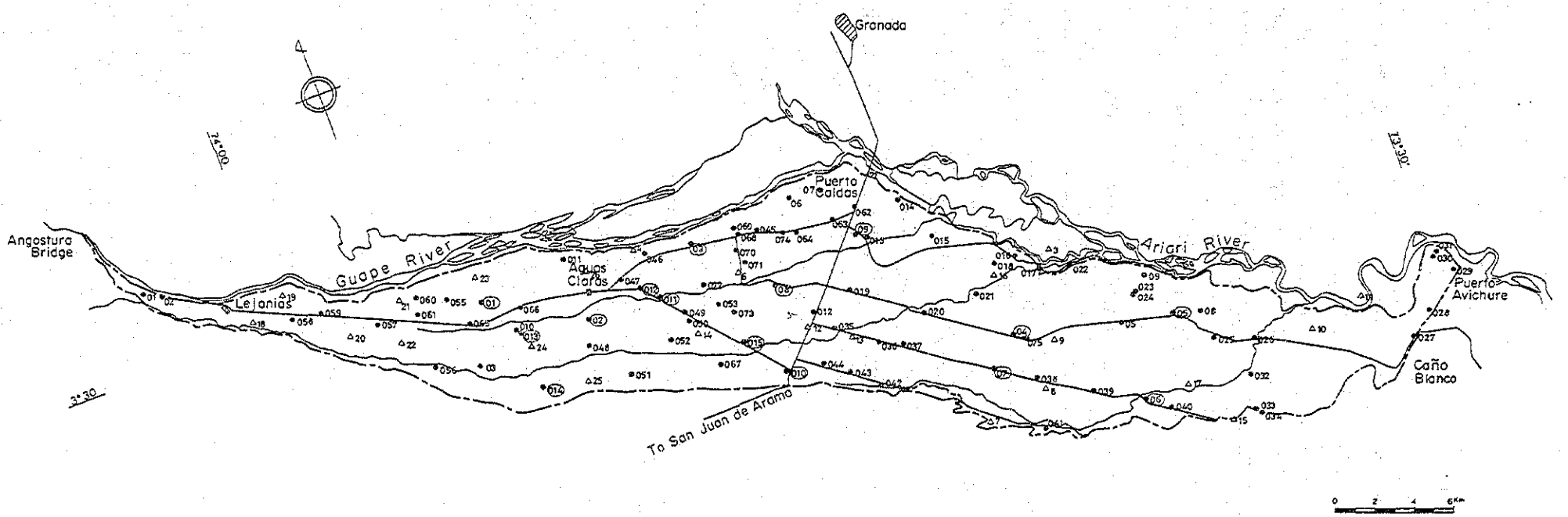
The soil is distributed in the Middle-Low Zone and occupies 16,330 ha or 39.7% of the Study Area.

The land is flat. Soil texture is medium to moderately fine, and drain well.

The PH level is neutral to moderately acid, and the effective soil depth is varies. Soil fertility is the highest in the Study Area.

5) Soil of High Terrace (LA, EB)

The greater part of this soil is distributed in the Low Zone and occupies 3,090 ha, 7.5% of the Study Area. Soil texture is medium to moderately fine, and drains poorly. The PH level is strongly acid and density of in iron and aluminum is high.



LEGEND

⊛ ⊛	Test Pit
●	Soil Auger
△	Test Pit (by pre F/S)

Fig. D-1-1 Location of Soil Survey Points

D.2 SOIL CLASSIFICATION

Soils in the Area are classified as shown in Table D-2-1, according to the Soil Taxonomy of the USDA.

Soils are classified into 4 Orders, 9 Great Groups, and 13 Sub-groups by the USDA Guideline, and a further 15 soil families are in use as soil units in the area. 4 Orders are Entisols, Inceptisols, Mollisols and Oxisols. Many of soils belong to the Inceptisols.

Table D-2-1 Soil Classification (USDA)

Order	Great Group	Sub-group	Family
Entisols	Tropaquents	Typic Tropaquent	El Condor
	Tropofluvents	Aquic Tropofluvent	Limon
	Troporthents	Aquic Troporthent	Playon
	Udorthents	Lithic Udorthent	Lejanias
Inceptisols	Tropaquepts	Typic Tropaquept	Dos Quebradas
	Dystropepts	Oxic Distropept	Los Alpes
		Fluventic Distropept	Fuente de Oro
			Topacio
	Eutropepts	Typic Eutropept	Guape
		Aquic Eutropept	El Porvenir
		Fluventic Eutropept	Urichare
	Haplumbrepts	Typic Haplumbrept	Guanayas
Mollisols	Hapludolls	Typic Hapludoll	Venada
			Macuya
Oxisols	Haplorthox	Typic Haplorthox	El Bosque
4 Orders	10 Great Groups	13 Sub-groups	15 Families

D.3 SOIL CHARACTERISTICS

Characteristics of each soil family are shown in Table D-3-1. The terms used in describing of soil characteristics are based on the Soil Taxonomy and their standard in shown in Table D-3-2 and D-3-3.

Table D-3-1 Characteristics of Soil Family

soil family	drainability	effective soil depth	texture	stoniness	acid	CEC	total base	base saturation	exchangeable K	available P	exchangeable Al	soil fertility
El Condor	poor—mode. poor[1]	deep	medium	no	mode. acid	low—mode. low	low	alt — mode. low	mode. low	low	mode. low	low — medium
Limon	well—mode. poor	shallow — mode. deep			neutality	low	alt	low.	medium—mode. low	medium/mode. low	—	
Playon	well	shallow			mode. acid	mode. alt	mode. low	mode. low	mode. low	—	—	
Lejanias		very shallow		medium—abundant	mode. acid	medium	mode. low	mode. low	low	low/medium	low	medium
Dos Quebradas	well—mode. poor	deep		no	mode. acid — strong acid	medium	low—mode. low	mode. alt	alt —medium	low	—	low —medium
Los Alpes	poor—well	mode. deep			strong acid	mode. low	low	mode. low	medium	low	medium	low.
Fuente de Oro	well	shallow — mode. deep			mode. acid	medium—mode[2]/low	low	medium — low	low	low	—	medium
Topacio		mode. deep —deep	mode. fine —medium		strong acid	medium / low	low	mode. low	mode. low — alt	low	low—mode. low	
Guape		shallow	medium		neutarity —mode. acid	medium	medium— mode/low	alt / medium— mode. low	medium— mode. low	alt / low	—	medium — low
El Porvenir	mode. well —well	deep			neutarity mode. acid	medium— mode/low	alt — mode/low	alt	mode. alt mode. low	low	—	
Urichare	well	deep— —mode. deep	medium— mode. fine		mode. acid — strong acid	alt /medium	medium— mode/low	mode. alt	medium— mode. low	medium — low	low	medium
Guanayas		mode. deep	medium		mode. acid — strong acid	medium— mode/low	mode low	medium	mode. low — alt	low — mode. alt	—	medium — alt
Venado	mode. poor				mode. acid	medium / low	medium /low	mode. alt	mode. low — alt	low — alt	—	
Macuya	well				mode. acid — strong acid	medium mode[2]/low	low	mode. alt	low — alt	low — alt	low	
El Bosque	poor—well				very strong acid	mode. low	low	mode. low	medium — alt	low	mode. low mode. alt	low

1) mode.:moderately 2) /: (I horizon/II horizon)

Table D-3-2 Standard of Characteristics

Characteristics	Standard	
Effective Soil Depth	Very deep	> 150 cm
	Deep	150 - 100
	Moderately deep	100 - 50
	Shallow	50 - 25
	Very shallow	25 - 10
	Extremely shallow	< 10
Texture	Coarse	S, LS
	Moderately coarse	SL
	Medium	L, SiL, Si
	Moderately fine	CL, SCL, SiCL
	Fine	SC, SiC, C
	Very fine	C
Stoniness	No	< 0.1 %
	Few	0.1 - 3
	Medium	3 - 15
	Abundant	15 - 40
	Extreme	40 - 70
	Miscellaneous	> 70
Acid	Very strongly acid	4.5 - 5.0
	Strongly acid	5.1 - 5.5
	Medium acid	5.6 - 6.0
	Slightly acid	6.1 - 6.5
	Neutral	6.6 - 7.3
	Mildly alkaline	7.4 - 7.8
	Moderately alkaline	7.9 - 8.4
	Strongly alkaline	8.5 - 9.0
Soil Fertility	see Table D-3-3	

Table D-3-3 Standard of Soil Fertility

	pH	Range	<4.5 >8.5	4.6-5.0 7.9-8.4	5.1-5.5 7.4-7.8	5.6-6.0	6.1-7.3
	H_2O 1:1	Point	1	2	8	4	5
	Saturation	Range	>60	60 - 30	29 - 15	14 - 5	<5
	% of Al	Point	1	2	3	4	5
	CEC	Range	5	5 - 10	11 - 15	16 - 20	>20
	me/100g	Point	1	2	3	4	5
B	Saturation	Range	<10	10 - 35	36 - 50	51 - 70	>70
a	%	Point	0.5	1.0	1.5	2.0	2.5
s	Total	Range	<4	4 - 8	8.1- 12	12.1-16	>16
e	me/100g	Point	0.5	1.0	1.5	2.0	2.5
O C	Cold	Range	<1.3	1.4-2.6 >10	2.7-4.0 8.1-10	4.1-5.2 8.0-6.6	5.3-6.5
r a							
g r		Point	1	2	3	4	5
a b	Medium	Range	<0.5	0.6-1.7 >7.6	1.8-2.9 6.5-7.6	3.0-4.1 5.4-6.5	4.2-5.3
n o							
i n		Point	1	2	3	4	5
c	Hot	Range	<0.2	0.2-0.5	0.51-1.7	1.71-2.9	>3.0
		Point	1	2	3	4	5
	P ppm	Range	<10	10 - 20	21 - 30	31 - 40	>40
		Point	1	2	3	4	5
	K me/100g	Range	<0.1	0.1-0.2	0.21-0.3	0.31-0.4	>0.4
		Point	1	2	3	4	5

Ft=(0.7F1 + 0.3F2)0.285
F1 : Total point of topsoil(0-25cm)
F2 : Total point of subsoil(25-50cm)

Evaluation of Fertility

Ft	Soil fertility
More then 8.4	Very high
8.4 - 6.8	High
6.7 - 5.2	Medium
5.1 - 3.6	Low
Less than 3.6	Very low

D.4 SOIL MAP

The soil map was worked out by using the associations of the family as map unit, according to the five topographies. There are 12 soil associations, composed of main soil and sub soil families. The soil map is shown in Fig. D-4-1 and the characteristics of associations in Table D-4-1.The associations are described below.

(1) River reservation

The soil originates from recent fluvial sediment. Slopes are generally flat. This group consists of one association.

1) Association LC

The textures are fine to coarse at the surface and gravely or sandy layers are observed in the sub-soil. Soil moisture is excessive owing to the high level of ground-water. Soil fertility is low to medium. The major limitation of this association for plant productivity is flooding in the rainy season. The association is composed of two soil families, Limon (50%) and Playon (50%).

The land is use for uplands (maize, plantain), orchards (cacao) and pastures. Plantain is a staple product of this land.

(2) Hollow in low terrace

This soil originates from alluvial sediment and is composed of a clay-sand mix. The slope is slightly flat. This group is composed of two associations.

1) Association EC

This association is located in the Lower zone. Texture is medium at the surface, gradually changing to moderately fine in the sub-soil. Owing to the variation of the ground water table, the soil colors change from yellowish brown to grayish depending on the depth in the sub-soil, and mottle is abundant. Pools form in especially hollow reliefs in the rainy season because of the generally poor drainage. Soil fertility is low to medium. This association is

composed of two soil families, El Condor (70%) and Dos Quebradas (30%).

At present the land is used for irrigated paddy fields, upland fields (rice, maize, soybean, sorghum) and pastures.

2) Association DQ

This association is located in the neighborhood of Canaguaro and Aguas Claras in the Middle zone. Texture is medium. The slope is slightly flat. Soil drainability is fair to moderately poor. Soil fertility is medium to high. This association is composed of two soil families, Dos Quebradas (65%) and Venado (35%).

At present, the land is used for irrigated paddy fields, upland field (rice, soybean. sorghum, maize, plantain), orchards (cacao) and pasture.

(3) Low-middle terrace

This group is located principally in the Middle to Low zone and is underlain by medium textured soil. The slope is flat to slightly flat. This group is composed of three associations.

1) Association GF

This association is located in the low terrace. The effective soil depth is fragmented. Soil fertility is medium to low. This association is composed of three soil families, Guape (60%), Uricharc (15%) and Lejanias (25%).

At present, the land is used as uplands (rice, sorghum, cotton, soybean, maize, plantain), orchards (cacao) and pastures.

2) Association GU

This association is located in the middle terrace at the altitude of 440 to 550 m. Drainability is generally good to moderately good. The soil colors change from brown to gray yellowish brown at deeper layers. The sub-soil contains irregular sandy layers. The effective

soil depth is deep to moderately deep and soil fertility is medium to high. This association is composed of two soil families, El Porvenir (50%) and Guanayas (50%).

At present, the land is used generally for irrigated paddy fields and uplands (rice, soybean, sorghum, maize, plantain), and some parts are used as orchard (cacao) and pastures.

3) Association FO

This association is located in the middle terrace at the altitude of 430 to 500 m. Drainability is good. The soil colors change from dark gray to light olive brown. Sandy layers are observed at different depth in the sub-soil. This association is composed of three soil families, Fuente de Oro (60%), El Porvenir (30%) and Guanayas (10%).

At present, the land is used principally for uplands (rice, soybean, sorghum, maize, sugarcane, plantain) with other parts devoted to orchards (cacao, african palm) and pastures.

(4) The high terrace

This group is underlain by lateritic soils. The soils is composed of clay-sand mix with hard clay or gravel layers in the sub-soil. The sub-soil color is generally reddish. Soil fertility is low because it is highly acid, has poor chemical properties and high content of exchangeable aluminum. The group is composed of two associations.

1) Association LA

This association is principally located along Road No.7 to No.11 in the Low Zone. The slope is moderately flat to undulating. This association is composed of two soil families, El Bosque (55%) and Los Alpes (45%).

At present, the land is used mainly for pastures.

2) Association EB

This association is located in the highest land of the area. The land has isolated hills and it moderately steep. This association is composed of two soil families, El Bosque (80%) and Los Aples (20%).

At present, the land is used only for pastures and forestry.

(5) Fan land

The soils originated in sediments of fan. This land is predominautly sandy. Overall, the slope is slight with gentle relief. This group is composed of four associations.

1) Association LR

The soil is characterized by the abundance of gravel. The effective soil depth is very shallow because of the gravely layers. Drainability is very good to good. Soil fertility is medium. The association is composed of two soil families, Lejanias (75%) and Topacio (25%).

At present, the land is used principally for pastures and orchards (papaya), with a small upland area (plantain, maize). Papaya is an important product.

2) Association TL

This association is located along Road No.4. The fragmented natuve of the land limits its use for cultivation. This association is composed of three soil families, Topacio (50%), Lejanias (40%) and Guanayas (10%). However, those families are distributed at random.

At present, the land is used variously for uplands (rice, maize, soybean, sorghum, plantain), orchards (cacao, papaya) and pastures owing to the distribution of soils having different characteristics.

3) Association MC

The texture is medium and drainability is good. Soil color is yellowish brown. Effective soil depth ismoderately deep to deep; however, some parts are underlain by rounded gravel in the sub-soil. The association is composed of three soil families, Macuya (45%), Topacio (45%) and Lejanias (10%).

At present, the land is used for uplands (rice, soybean, sorghum, maize, cotton, plantain), orchards (cacao, african palm) and pastures. The form of land use varies, and with irrigated paddy fields seen in small areas.

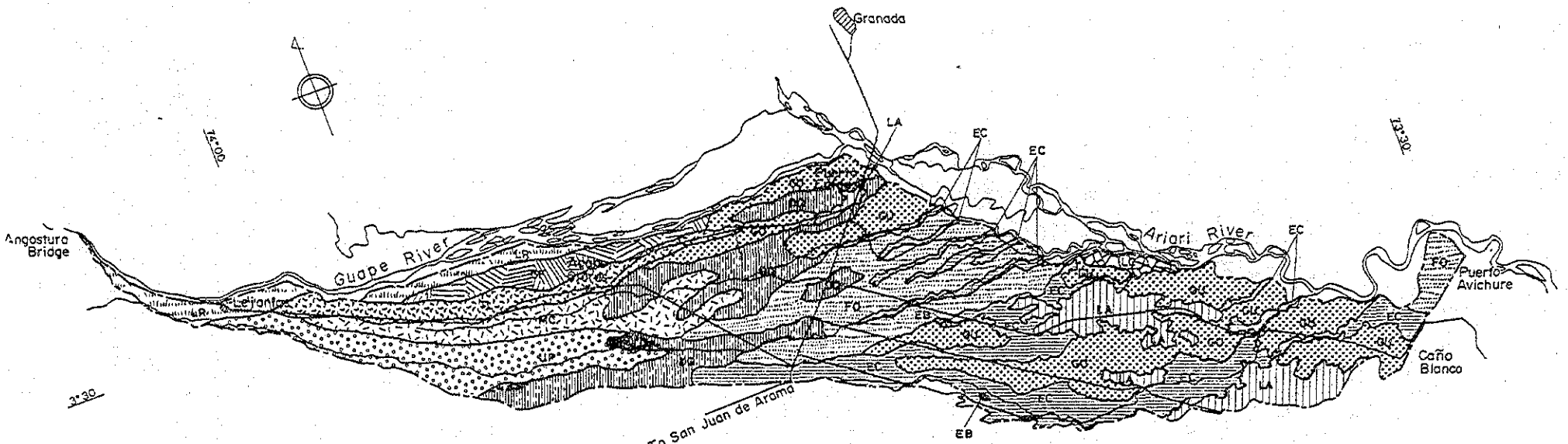
4) Association UP

The texture is medium and drainability is good. Effective soil depth is moderately deep to deep, with gravely layer in the sub-soil. The association is composed of two soil families, Topacio (55%) and Urichare (45%).

At present, the land is used for uplands (rice, soybean, sorghum, maize, plantain), orchards (cacao) and pastures. The form of land use varies as for the case in association MC.

Table D-4-1 Soil Association

Topography	Assoc-iation	Soil family	Soil Classification U S D A	Characteristics	Area ha (%)
River reservation	LC	Limon Playon	Tropofluvents Troporthents	flat. distributed along river side. undeveloped soil. generally over moistture in soil water. flood in rainy season.	520 (1.3)
Hollow in low terrace	EC	El Porvenir Dos Quebradas	Eutropepts Tropaquepts	flat. principally fine textured in subsoil. pseudogleysoil. high underground water level. flooding. distributed in hollow and along river.	6,260 (15.2)
	DQ	Dos Quebradas Venado	Tropaquepts Hapludolls	flat. distributed in hollow in middle zone. pseudogley soil.	5,090 (12.4)
Low - Middle terrace	GF	Guape Urichare Lejanias	Eutropepts Udorthents	moderately flat. distributed in upper-middle zone. fragments appear under different depth.	1,500 (3.6)
	GU	Guanayas El Porvenir	Haplumbrepts Eutropepts	flat. distributed in middle-low zone.	8,960 (21.8)
	FO	Fuente de Oro El Porvenir Guanayas	Dystropepts Eutropepts Haplumbrepts	sandy layer is irregularly distributed in subsoil.	5,870 (14.3)
High terrace	LA	Los Alpes El Bosque	Dystropepts Haplorthox	moderately flat-rolling. distributed in middle-low zone. lateritic soil. soil color is reddish in sub-horizon.	3,050 (7.4)
	EB	El Bosque Los Alpes	Dystropepts Haplorthox	E B is distributed highly more than L A.	40 (0.1)
Fan land	MC	Macuya Topacio Lejanias	Hapludolls Dystropepts Udorthents	moderately flat.	2,865 (7.0)
	UP	Urichare Topacio	Eutropepts Dystropepts	distributed in upper zone.	3,015 (7.3)
	TL	Topacio Lejanias Guanayas	Dystropept Udorthents Haplumbrepts	moderately flat. distributed in upper zone. gravelly soil is irregularly distributed.	2,160 (5.3)
	LR	Lejanias Topacio	Udorthents Dystropepts	moderately flat-rolling. destributed in upper partand-along the Guape River. undeveloped soil. stony land.	1,770 (4.3)



LEGEND

Topography	Association		Soil family	Soil classification USDA	Area ha (%)	Topography	Association		Soil family	Soil classification USDA	Area ha (%)
River reservation		LC	Limon Playon	Tropofluvents Troporthents	520 (1.3)	High terrase		LA	Los Alpes El Bosque	Dystropepts Haplorthox	3,050 (7.4)
Hollow in low terrase		EC	El Porvenir Dos Quebradas	Eutropepts Tropaquepts	6,260 (15.2)			EB	El Bosque Los Alpes	Dystropepts Haplorthox	40 (0.1)
		DQ	Dos Quebradas Venado	Tropaquepts Hapludolls	5,090 (12.4)	Fan land		MC	Macuya Topacio Lejanias	Hapludolls Dystropepts Udorthents	2,865 (7.0)
Low-Middle terrase		GF	Guape Urichare Lejanias	Eutropepts Udorthents	1,500 (3.6)			UP	Urichare Topacio	Eutropepts Dystropepts	3,015 (7.3)
		GU	Guanayas El Porvenir	Haplumbrepts Eutropepts	8,960 (21.8)			TL	Topacio Lejanias Guanayas	Dystropept Udorthents Haplumbrepts	2,160 (5.3)
		FO	Fuente de Oro El Porvenir Guanayas	Dystropepts Eutropepts Haplumbrepts	5,870 (14.3)			LR	Lejanias Topacio	Udorthents Dystropepts	1,770 (4.3)

Fig. D-4-1 Soil Map

D.5 LAND CLASSIFICATION

(1) Method of land classification

In order to assess suitability for cultivation of all kinds of crops, land classification was worked out for the associations. Because the concept of land classification is divided into suitability for paddy rice and for upland crops, for the following reasons, land classification shall be studied in each case.

- Soil and water requirements crops, there is differ between paddy rice and upland crops.

- For paddy rice, the suitability of land units limits the crop to one type, for upland crops, land classification shown the land suits various kinds of upland crops.

(2) The criterion of land classification

On land capability for upland crops, the land unit was classified by the topography, soil and drainage factors based on the USDA Guideline. Further, by the use of the same factors, new criteria for paddy rice were adopted.

The criteria of each land classification are listed in Table D-5-1

1) Upland crops

Class I: There are few limitations for land use, and none are major. This land is highly suitable for cultivating upland crops. Intensive farming can be expected by the use of irrigation systems and agricultural mechanization. No land corresponding to this class exists in the area.

Class II: For land use there are moderate limitations which can generally be compensated for by use of adequate technology for supplying moisture and nutrients. This land is suitable for cultivating upland crops. Association GU falls under this class, occupying 22%

of the area.

Class III: Limitations are stronger than for Class II and more appropriate technology would be required for producing many kinds of crops. This land is moderately suitable for cultivating upland crops. Associations FO, MC, UP and DQ fall under this class, occupying 41% of the area.

Class IV: Because of strong limitations, only a few kinds of crops can be cultivated. The land is marginally suitable for cultivating upland crops. In addition to very careful management, there is need to select crops such as shallow-rooted plants or perennial crops. Associations GF, LA, TL and EC fall under this class, and occupying 32% of the area.

Class V: There are very strong limitations and more severe selection of plants would be required than for Class IV. This land is arable only for a few uses such as orchards, perennial crops and pastures. Associations LR and LC fall under this class, occupying 5% of the area.

Class VI: The land is not commonly suitable because of very severe limitations. Association EB steep in land form, and association LC highly prone to flooding fall under this class. The land occupies under 1% than less of the area.

2) Paddy rice

Class P II: There are some limitations for producing paddy rice, but the land is suitable for paddy fields. Association DQ and the major part of associations EC and GU fall under this class, occupying 43% of the area.

Class P III: There are moderate limitations for producing paddy rice; the land is moderately suitable for paddy fields. Association FO and some of association GU fall

under this class, occupying 20%.

Class P IV: There are severe limitations for producing paddy rice. The land is marginally suitable for paddy fields and there are limitations on its utility. High technology for supplying moisture and plant nutrients would be required for cultivation of paddy rice. Associations GF, MC, UP, LA and parts of associations EC and LC fall under this class, occupying 27% of the area.

Class P V: There are very strong limitations for producing paddy rice and the land is not commonly suitable for paddy fields. In addition to association EB, steep in land form, and association LC, highly prone to flooding, associations TL and LR, with stony surface, correspond to this class. The land occupies 10% of the area.

(3) Land classification result

Results of the land classification are listed in Table D-5-2 and Fig. D-5-1 and D-5-2.

According to the results, land for paddy rice is classified as PII - PV and for upland crops as II - VI in the study area.

The utilization for paddy rice in Classes PII and PIII covers 25,970 ha, or 63% of this area, mainly concentrating in the Middle-Low zone. Some 80% of this zone is classified into these classes.

Regarding utilization for upland crops, Classes II and III occupy 25,800 ha, or 63% of this area, same as for paddy fields. Distribution is mainly from the Upper to the Low zone.

Further, from the viewpoint of irrigation adaptability, the land Classes as PII to PIV, and II to IV are generally assessed as cultivable land for paddy rice or upland crops and adaptable for farm irrigation. Classes PV, V and VI are judged inadequate for farm irrigation owing to limited land utilization or non-suitability.

Accordingly, land classes correspond to adaptability for irrigation as follows:

Land Classification	Irrigation Adaptability
PII, II	High
PIII, III	Middle
PV, V, IV	Low

The results arranged from the above perspective are listed Table D-5-3.

Irrigation adaptable land for paddy rice and upland crops covers 37,040 ha and 38,770 ha respectively, and both occupy 90% of the study area.

From the viewpoint of utilization for paddy rice and upland crops, 48% of Class PII is irrigation adaptable, compared with 23% for Class II. Thus, irrigation adaptability is especially high for paddy rice in Class II.

Table D-5-1 Land Classification for Crop Suitability

(1) Upland Crops and Others (USDA Method)

factor	land quality	I	II	III	IV	VI	VI
topography (t)	slope (%)	0-3	3-7	7-12	12-25	3-7	12-25
soil (s)	effective (cm) soil depth	>100	>100	>50-100	>25-50	>25	>25
	stoniness (%) of surface-coverage	<3 [1] <0.1 [2]	<3 <0.1	3-15 0.1-3	<15-45 3-15	3-15 <3-15	<45-70 <15-40
	soil fertility	>6.8	5.2-6.7	3.6-5.1	>3.6	>3.6	>3.6
	acid	5.6-7.8	5.6-7.8	5.6-7.8	1.5-8.4	4.5-8.4	4.5-9.0
	texture	medium-[3] mod.fine	mod.coarse mod.fine	mod.coarse fine.	mod.coarse fine.	mod.coarse fine.	coarse
drainage (d)	drainage	well-mod.well	well-mod.poor	well-mod.poor	very well-poor	well-very poor	very well-very poor
	flood	no	no	often	regularly	irregular-ly	irregular-ly

[1] : Diam. 2-250mm [2] Diam. >250mm [3] mod. = moderately

Land class I very suitable
class II suitable
class III moderately suitable
class IV marginally suitable
class V arable for defined special use
class VI non-arable

(2) paddy rice

factor	land quality	P I	P II	P III	P IV	P V
topography (t)	slope and relief (%)	0-1 flat	>1-2 flat	>2-5 mod. [1] undulating	>5-7 undulating	3-7 undulating-rolling
soil (s)	effective (cm) soil depth	>75	>50-75	>25-50	>25	>25
	texture 0-30 (cm)	medium-mod.fine [1]	medium-mod.fine	mod.coarse medium	mod.coarse medium	mod.coarse-coarse
	subsoil	medium-mod.fine	medium-fine	mod.coarse-medium	mod.coarse-coarse	mod.coarse-coarse
drainage (d)	drainage	poor-mod.poor	poor-very poor	mod.well-well	well-very well	very well

[1] : mod. = moderately

Note : The other land quality is the same as case of the upland crops

Land class P I very suitable for paddy rice
class P II suitable for paddy rice
class P III moderately suitable for paddy rice
class P IV marginally suitable for paddy rice
class P V non-suitable for paddy rice

Table D-5-2 Results of Land Classification

(1) Upland Crops and Others

Class	Limit factor	Principal soil association	Area : ha upper	middle	low	total	(%)
II	s	GU	—	2,630	6,330	8,960	(21.8)
III	s	FO,MC,UP	4,530	5,100	2,120	11,750	(28.6)
	d	DQ	500	4,590	—	5,090	(12.4)
IV	s	GF,LA,TL	2,340	1,470	2,900	6,710	(16.3)
	d	EC	—	1,480	4,780	6,260	(15.2)
V	s	LR	1,690	80	—	1,770	(4.3)
	s, d	CL	—	—	430	430	(1.1)
VI	d	CL	40	50	—	90	(0.2)
	s,t	EB	—	—	40	40	(0.1)
Total			9,100	15,400	16,600	41,100	(100.0)

(2) Paddy rice

Class	Limit factor	Principal soil association	Area : ha upper	middle	low	total	(%)
P II	s	DQ,EC,GU	500	6,330	10,910	17,740	(43.2)
P III	d	GU,FO	—	6,130	2,100	8,230	(20.0)
P IV	t	EC	—	1,47	210	210	(0.5)
	d	GF,MC,UP	5,380	2,000	4,78	7,380	(18.0)
	s	LA	—	140	2,510	2,650	(6.4)
	s,t	LA	—	1,48	400	400	(1.0)
	s,d	LC	—	1,48	430	430	(1.0)
P V	d	LC	40	50	—	90	(0.2)
	s, d	TL,LR	3,180	750	43	3,930	(9.6)
	s,t	EB	—	—	40	40	(0.1)
Total			9,100	15,400	16,600	41,100	(100.0)

Limitat factor
t : topography, s : soil, d : drainage

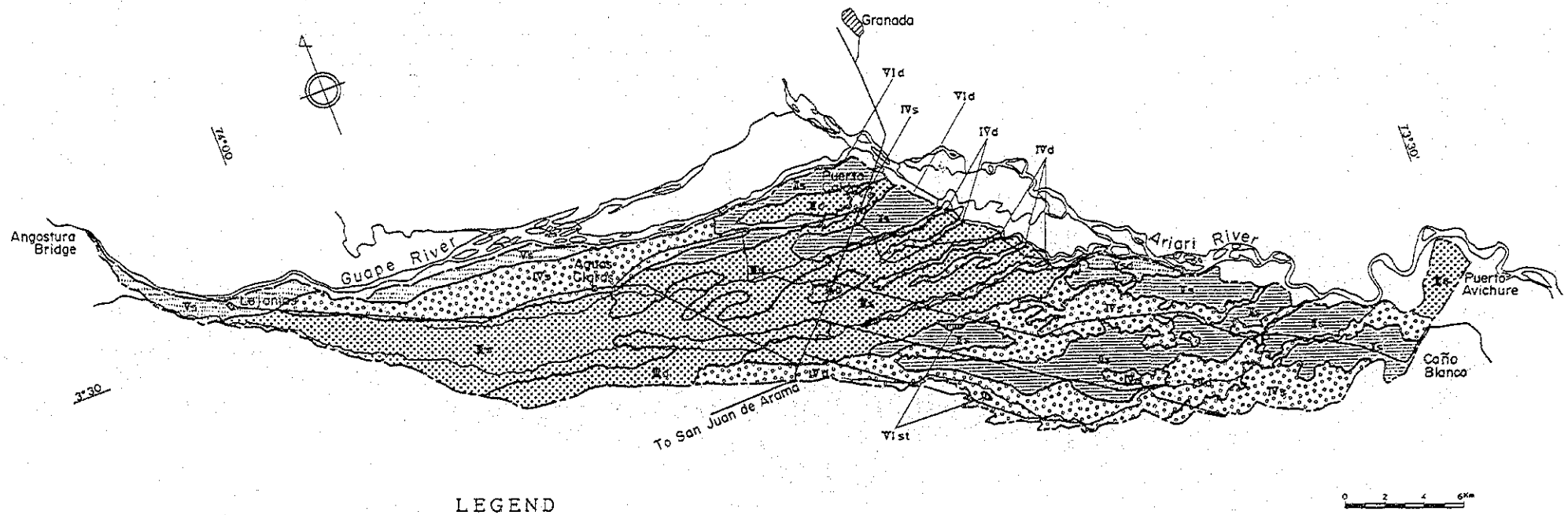
Table D-5-3 Area by Land Classification

Paddy rice

Class		Area (ha)				
		Upper zone	Middle zone	Low zone	Total	%
Suitable land for irrigation	P II	500	6,330	10,910	17,740	43.2(47.9)
	P III	0	6,130	2,100	8,230	20.0(22.2)
	P IV	5,380	2,140	3,550	11,070	26.9(29.9)
Sub total (%)		5,880 (65)	14,600 (95)	16,560 (100)	37,040	90.1(100)
Non suitable land for irrigation	P V	3,220	800	40	4,060	9.9
Total		9,100	15,400	16,600	41,100	100

Upland crops

Class		Area (ha)				
		Upper zone	Middle zone	Low zone	Total	%
Suitable land for irrigation	II	0	2,630	6,330	8,960	21.7(23.1)
	III	5,030	9,690	2,120	16,840	41.0(43.4)
	IV	2,340	2,950	7,680	12,970	31.6(33.5)
Sub total (%)		7,370 (81)	15,270 (99)	16,130 (97)	38,770	94.3(100)
Non suitable land for irrigation	V	1,690	80	430	2,200	5.4
	VI	40	50	40	130	0.3
Total		9,100	15,400	16,600	41,100	100

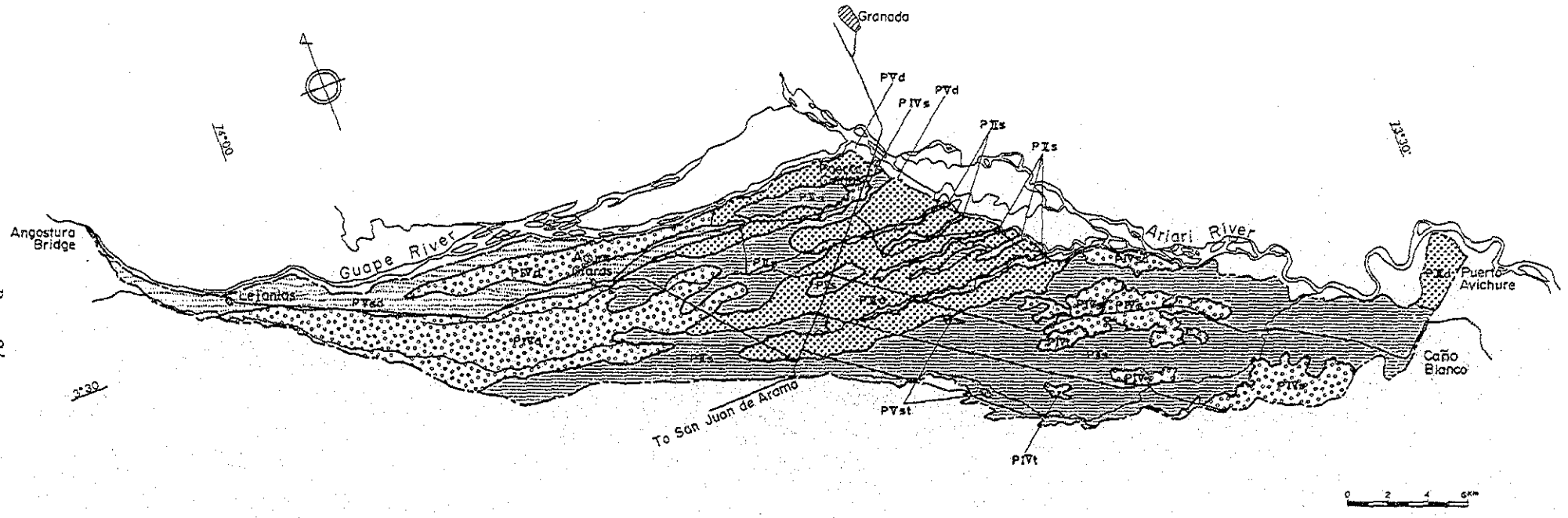


LEGEND

	Class	Limitation	Suitability
	II	s	Suitable
	III	s. d	Moderately Suitable
	IV	s. d	Marginally Suitable
	V	s. sd	Arable for defined special use
	VI	d. st	Non-arable

Note : Limitation s=soil. d=drainage. t=topography

Fig. D-5-1 Land Classification for Uplad Crops



LEGEND

	Class	Limitation	Suitability
	P II	s	Suitable
	P III	d	Moderately Suitable
	P IV	d.s.t.sd.st	Marginally Suitable
	P V	d.sd.st	Non-suitable

Note : Limitation s=soil, d=drainage, t=topography

Fig. D-5-2 Land Classification for Paddy Rice

D.6 LAND USE SUITABILITY

To assess the overall suitability for agricultural land use and to obtain study materials for planning land use, the suitability of land use for paddy fields and uplands is reviewed in this chapter.

On the study of land use, suitability by combination of respective class matrix on the basis of land classification result for paddy rice and upland crops, making clear of land use suitability in the Study Area, and then zoned in 9 class by 1-9 putting importance on paddy production mainly.

Further, in case existents difference of soil or present land use in the same class, more detailed distinction was adopted.

The relations between land classification and land use suitability land use are shown on Table D-6-1. Land use suitability is as shown in Table D-6-2 and Fig. D-6-1. The classes are described below.

Class 1-1: Distributed in parts of the hollow, nearly flat land in the low terrace. Drainability is poor to fair. Fertility is medium. This class is suitable for irrigated paddy fields and uplands, and double cropping could be feasible through irrigation. However, some parts of the hollow land flood during the rainy season, so surface drainage needs to be improved.

Class 1-2: Distributed on a nearly flat terrace, in the hollow, and consists of middle textured alluvial soil with moderately good drainability. Fertility is medium to high. It suitable for irrigated paddy fields and uplands and, with irrigation, irrigated paddy crops.

Class 2: Distributed on a nearly flat terrace, in the hollow. Drainability is somewhat poor to poor. The land is suitable for irrigated paddy fields. Fertility is generally low, and fertilizing would be necessary. On account of poor drainage,slightly suitable for uplands, with double cropping of irrigated paddy fields. In the many hollows plagued by poor drainage during the rainy

season, improved surface drainage is needed. Part of this class extending along Cano is suitable for pastures lands.

Class 3: Covers a part of the nearly flat middle terrace located near the Guape River in the Middle zone. Drainability is good to moderately good. It is suitable for uplands and moderately suitable for irrigated paddy fields .With adequate water supply double cropping is feasible in the paddy fields.

Class 4-1: This class is part of the nearly flat middle terrace and the soil has good drainage. It is moderately suitable for irrigated paddy field and upland. In case it should supply water enough, like class 3, it is possible of double cropping in the paddy field.

Class 4-2: Suitability of land use is the same as for class 4-1, but use must allow for the flatter topography.

Class 5: Distributed over a somewhat flat alluvial fan. Soil is medium texture. Good drainability. Fertility is medium to high. Moderately suitable for upland crops. However, the lack of water makes this class less suitable for paddy rice. With adequate water supply, irrigated paddy fields.

Class 6-1: Distributed on a part of the low terrace in the nearly flat Upper-zone. Soil is medium texture, fertility is low and drainability is good. This class is slightly suitable for upland crops on account of changeable in sub-soil. Further, its good drainage, makes it slightly suitable for irrigated paddy fields. The different depths of gravel must be allowed for when considering land utilization. Where effective soil depth is shallow, perennial crops, orchards and pastures are preferable to irrigated paddy fields.

Class 6-2: Distributed over a nearly flat to undulating high terrace in Lateritic soil. Drainability is poor to good.

Because the soil is strongly to very strongly acid, it has poor chemical properties and low water retentivity, which mean problems for fertility control. Adaptability for irrigated paddy fields and uplands is assessed as low. Suitable for pasture lands. To convert this class into land with high productivity, manuring, soil improvement and irrigation are required.

Class 6-3: Distributed over a part of the hollow in the low terrace, with undulating land form. Drainability is poor owing to moderately fine texture. Characteristics of soil are the same as class-2, slightly suitable for uplands. The topographic condition is disadvantageous for water control, but this class is slightly suitable for irrigated paddy fields. Rain-fed paddy fields or pastures is recommended for land use.

Class 7: Distributed over a belt-like part of the fan land. Not suitable for paddy fields owing to the high content of rounded gravel. It is slightly suitable for general uplands. For land utilization, maize, orchards, perennial crops and pastures are recommended. However, on account of irregular distribution of different soils in this class, the soil characteristics must be considered.

Class 8-1: Nearly flat to moderately flat land, from the top of the fan to the Guape shore. Medium texture alluvial fan soil. Surface soil is very fine, with much rounded gravel in the sub-soil. Introduction of mechanization would be difficult because of the story surface. Not suitable for irrigated paddy fields and upland crops. Perennial crops such as plantain, orchards and pastures are recommended.

Class 8-2: Nearly flat land, on river reservation of the Rivers Ariari and Guape. Soil is medium texture alluvial soil originated from recent fluvial sediments. Gravely and sandy layers appear at shallow depths in the sub-soil, and soil moisture is excessive owing to the high ground

water table, so it is not suitable for general upland crops. Further, flooding occurs frequently during the rainy season, and damages agricultural production. Perennial crops such as plantain are recommended for land use. Owing to the excessive moisture content in the soil,irrigation is not so necessary but surface drainage is required.

Class 9-1: Topographic features in this class are isolated hills with moderately steep slope. Soil is strongly acid and has poor chemical properties, so normal growth of plants is limited. The land is subject to soil erosion. The land use recommended is pastures.

Class 9-2: The land is an area subject to flooding. Land is used for grass and bush land, and no change is recommended.

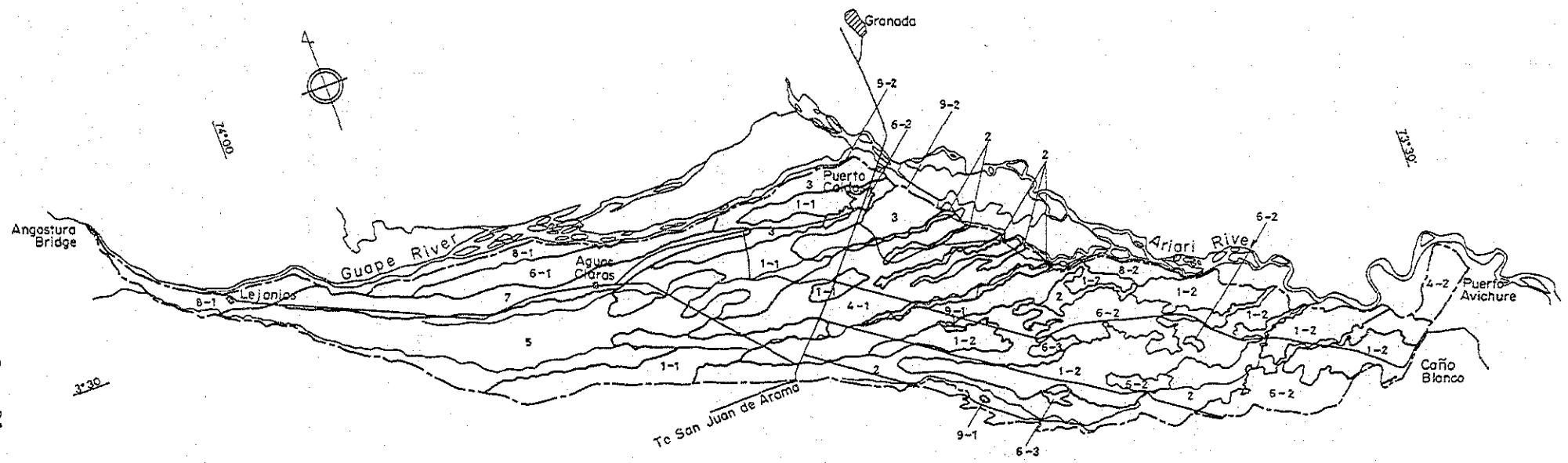
Table D-6-1 Land Classification and Land Use Suitability

paddy rice \ upland crops		II	III		IV		V		VI	
		s	d	s	s	d	s	s d	d	s t
P II	s	1-2	1-1			2				
P III	d	3		4-1 4-2						
P IV	d			5	6-1					
	t					6-3				
	s				6-2					
	s t				6-2					
	s d							8-2		
P V	s d				7		8-1			
	d								9-2	
	s t									9-1

Table D-6-2 Land Use Suitability

Class		Association	Land classification		Present land use	Land use suitability		Area ha (%)					Subject
			Paddy rice	Upland crops		Paddy field with irrigation	Ordinary upland field	Upper zone	Middle zone	Low zone	Sub-total	Total (%)	
1	1-1	DQ	PII	III	paddy field[1] ordinary upland[2] orchard. pasture.	suitable	suitable	500	4,590	0	5,090	11,690 (28.4)	irrigation
	1-2	GU	PII	II	paddy field. ordinary upland pasture.			0	270	6,330	6,600		
2		EC	PII	IV	paddy field. ordinary upland pasture.	suitable	poorly suitable	0	1,490	4,560	6,050	6,050 (14.7)	irrigation. surface drainage in the Rainy Season
3		GU	PIII	II	ordinay upland. pasture.	moderately suitable	suitable	0	2,360	0	2,360	2,360 (5.7)	irrigation.
4	4-1	FO	PIII	III	paddy field. ordinary upland pasture. orchard.	moderately suitable	moderately suitable	0	3,750	1,610	5,360	5,870 (14.3)	
	4-2	FO	PIII	III	ordinary upland.			0	0	510	510		
5		MC. UP	PIV	III	paddy field. ordinary upland orchard. pasture.	poorly suitable	moderately suitable	4,530	1,350	0	5,880	5,880 (14.3)	
6	6-1	GF	PIV	IV	ordinary upland. pasture. orchard.	poorly suitable	poorly suitable	850	650	0	1,500	4,760 (11.6)	plowing. irrigation.
	6-2	LA	PIV	IV	pasture.			0	140	2,910	3,050		glassland improvement
	6-3	EC	PIV	IV	pasture. ordinary upland.			0	0	210	210		surface drainage in the Rainy Season
7		TL	PV	IV	pasture. orchard. ordinary upland.	non-suitable	poorly suitable	1,490	670	0	2,160	2,160 (5.3)	plowing. land use for pasture or orchard
8	8-1	LR	PV	V	pasture. orchard.	non-suitable	defined use	1,690	80	0	1,770	2,200 (5.4)	land use for pasture or orchard
	8-2	LC	PIV	V	ordinary upland.			0	0	430	430		surface drainage in the Rainy Season
9	9-1	EB	PV	VI	pasture. orchard.	non-suitable	non-suitable	0	0	40	40	130 (0.3)	glassland improvement
	9-2	LC	PV	VI	forest.			40	50	0	90		revetment
Total								9,100	15,400	16,600	41,100	41,100 (100)	

Note [1] paddy field : paddy field with irrigation. [2] ordinay upland : annual crops. perennial crops. upland rice.



LEGEND

Class		Asso-ciation	Land classification		Major present land use	Land use suietability	
			Paddy	Upland		Paddy	upland
1	1-1	DQ	P II	III	upland	suitable	suitable
	1-2	GU	P II	II	paddy. upland		
2		EC	P II	IV	paddy. upland		poorly suitable
3		GU	P III	II	upland. pasture. orchard	moderately suitable	suitable
4	4-1	FO	P III	III	upland		moderately suitable
	4-2	FO	P III	III	upland		
5		MC · UP	P IV	III	upland. orchard	poorly suitable	poorly suitable
6	6-1	GF	P IV	IV	pasture. orchard		
	6-2	LA	P IV	IV	pasture		
	6-3	EC	P IV	IV	pasture		
7		TL	P V	IV	pasture. orchard	non suitable	defined use
8	8-1	LR	P V	V	pasture. orchard		
	8-2	LC	P IV	V	upland		
9	9-1	EB	P V	VI	pasture		non-suitable
	9-2	LC	P V	VI	forest		

Fig. D-6-1 Land Use Suitability

D.7 SOIL PROFILES

Representative soil profiles are as follows :

PROFILE No. : P－01

CLASSIFICATION : Lithic Udorthent

UNIT CHARTOGRAPHY : Association TL, Soil family Lejanias

ALTITUDE : 530 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial - fan deposit

EFFECTIVE SOIL DEPTH : Very shallow

DRAINAGE, SURFACE : lent SUBSURFACE : medium NATURAL : well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : deep than 0.70 m

NATURAL VEGETATION : Short grass type

LAND USE : Natural pasture

PROFILE DESCRIPTION

Ah 0-23 cm Black($10YR^2/_1$) sandy loam ; moderate fine subangular blocky and medium granular sturucture ; many fine pores ; friable moist ; nonsticky nonplastic ; many fine roots ; abundante organism active ; abrupt wavy boundary ;pH 5.9.

Cr 23－X cm Gravel

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 273.716

Nos CAMPO : P-01 (1)

DEPARTAMENTO : META

MUNICIPIO : LEJANIAS

UNIDAD DE SUELOS: Proyecto Ariaria

LOCALIZACION : Vda El Brillante

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDIDAD Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	1:5	$CaCO_3$ %		HUMEDAD %
0-23	62	24	14	FA	5.9				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
19.8	7.3	5.7	1.2	0.2	0.2	36.9	28.8	6.1	1.0

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
2.62			3						

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 13 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－02

CLASSIFICATION : Typic Hapludoll

UNIT CHARTOGRAPHY : Association MC, Soil family Macuya

ALTITUDE : 450 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial - fan deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE. SURFACE : lent SUBSURFACE : moderately lent
NATURAL : moderately poor to moderately well

EPIPEDON : Molic

DEPTH OF GRAND WATER : 0.95 m

NATURAL VEGETATION : Totumo, Fique

LAND USE : Rice

PROFILE DESCRIPTION

Ap 0-17 cm Very dark brown ($10YR^{2}/_{2}$) silt loam ; moderate very fine subangular blocky sturucture ; many fine and common medium pores ; friable moist ; slightly sticky, slightly plastic; many fine roots ; abundante organism active ; common filmy color mottling ; clear wavy boundary ; pH 5.6.

B_{21} 17-60 cm Yellow ($10YR^{8}/_{6}$) 50% - dark olive ($5Y^{5}/_{8}$) 50% silt loam ; moderate fine subangular blocky sturucture; many very fine -fine pores ; friable moist ; sticky, plastic; many common fine roots ; many filmy color mottling, common Fe + Mn concretion ; gradual irregular boundary ; pH 5.9.

C 60-100 cm Yellowish brown ($10YR^{6}/_{8}$) 50% - light gray ($5Y^{6}/_{1}$) 50% sandy clay loam ; moderate fine subangular blocky - fine granular sturucture ; few fine pores ; slightly sticky, slightly plastic ; many fine filmy color mottling, many Fe + Mn concretion ;

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INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.717/718

Nos CAMPO : P-02 (1.2)

DEPARTAMENTO : META

MUNICIPIO : Corregimiento Aguas Claras

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : Vda Aguas Claras

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA				PH		CaO_3 %		HUMEDAD %
	% ARENA	% LIMOS	% ARCILLA	TEXTURA	1:1	1:5			
0-17	26	50	24	FL	5.6				1.0
17-60	26	52	22	FL	5.9				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
14.5	8.0	5.3	2.0	0.5	0.2	55.2	36.6	13.8	3.4
8.6	3.8	1.6	1.6	0.4	0.2	44.2	18.6	18.6	4.7

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	$C/_N$	PPm		me/100 g		CE	SNa	CLASE
1.68			8						
0.27			8						

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 13 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－03

CLASSIFICATION : Lithic Udorthent

UNIT CHARTOGRAPHY : Association T L. Soil family Lejanias

ALTITUDE : 370 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvium

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : Very shallow

DRAINAGE. SURFACE : lent SUBSURFACE : rapid NATURAL : Well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : 0.50 m

NATURAL VEGETATION : Balso, Olivon, Ensenijo, Guamo, Guasimo

LAND USE : Natural pasture

PROFILE DESCRIPTION

0-12 cm Dark brown ($10YR^{3}/_{3}$) silt loam ; moderate fine granular sturucture ; many fine pores ; friable moist ; slightly sticky, slightly plastic ; many fine roots ; abundante organism active ; abrupt smooth boundary ; pH 5.5.

Cr 12-55 cm Gravel ; Dark yellowish brown ($10YR^{4}/_{4}$) sand ; single grain ; many fine pores ; many fine roots ; regular organism active ;

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INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.719

Nos CAMPO : P-03 (1)

DEPARTAMENTO : Proyecto Ariari META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS:

LOCALIZACION : CAÑO SARDINATA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-12	26	54	20	FL	5.5				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
15.1	6.0	4.5	0.8	0.5	0.2	39.7	29.8	5.3	3.3

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	$C/_N$	PPm		me/100 g		CE	SNa	CLASE
1.54			3		0.2				

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－04

CLASSIFICATION : Typic Tropaquept

UNIT CHARTOGRAPHY : Association E.C, Soil family Dos Quebradas

ALTITUDE : 320 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvium

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : deep

DRAINAGE, SURFACE : lent SUBSURFACE : Medium
NATURAL : moderately poor

EPIPEDON : Ochric

DEPTH OF GRAND WATER : 1.00 m

NATURAL VEGETATION : Short grass tyoe

LAND USE : Rice

PROFILE DESCRIPTION

Ap 0-22 cm Dark yellowish brown ($10YR^{3}/_{4}$) loam ; moderate fine subangular blocky sturucture ; many very fine pores ; friable moist ; slightly sticky, slightly plastic ; many fine roots ; abundante organism active ; few Fe + Mn concretion ; abrupt smooth boundary ; pH 5.4.

B_1 22-35 cm Brown ($10YR^{5}/_{3}$) loam ; moderate fine subangular blocky sturucture ; many very fine pores ; friable moisture ; slightly sticky, slightly plastic ; few very fine roots ; fewspeckled color mottling, few Mn concretion ; clear smooth boundary ; pH 5.8.

B_{21} 35-65 cm Light yellowish brown ($2.5Y^{6}/_{4}$) 50% - olive yellow ($2.5Y^{6}/_{6}$) 50% loam ; moderate fine subangular blocky - fine granular ; common medium pores ; friable moist ; common very fine roots ; few speckled color mottling, few Fe + Mn concretion ; clear wavy boundary ; pH 5.5.

B_{22} 65-105cm Olive yellow ($2.5Y^{6}/_{6}$) 50% - light gray ($2.5Y^{7}/_{2}$) 50% sandy loam ; moderate very fine granular ; few fine-medium pores ; friable moist ; slightly sticky, slightly plastic; many filmy color mottling, few Fe + Mnconcretion ;

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INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.720/722

Nos CAMPO : P-04 (1-2-3)

DEPARTAMENTO : Proyecto Ariari META

MUNICIPIO : FUENTE DE ORO

UNIDAD DE SUELOS:

LOCALIZACION : VEREDA GUACAMAYA.

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	1:5	CaO_3 %		HUMEDAD %
0-22	40	42	18	F	5.4				1.0
22-35	46	36	18	F	5.8				1.0
35-65	48	30	22	F	5.5				0.5

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
7.3	3.2	2.0	0.8	0.2	0.2	43.8	27.4	11.0	2.7
8.6	3.2	1.6	1.2	0.3	0.1	37.2	18.6	14.0	3.5
9.0	1.8	0.6	0.6	0.4	0.2	20.0	6.7	6.7	4.4

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
0.47			1		0.4				
0.20			1						
0.20			3		1.6				

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－05

CLASSIFICATION : Typic Haplorthox

UNIT CHARTOGRAPHY : Association L.A. Soil family El Bosque

ALTITUDE : 330 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE, SURFACE : lent SUBSURFACE : medium NATURAL : well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : 1.05 m

NATURAL VEGETATION : Short grass type

LAND USE : Natural pasture

PROFILE DESCRIPTION

A 0-7 cm Yellowish brown ($10YR^{5}/_{6}$) loam ; moderate fine subangular brocky structure ; many fine pores ; friable moist ; slightly sticky, plastic ; many fine roots ; clear smooth boundary ; pH 4.6.

AB 7-20 cm Yellowish brown ($10Y^{5}/_{8}$) silt loam ; moderate fine subangular brocky structure ; many fine roots ; friable moist ; sticky, plastic ; common fine roots ; many thready color mottling ; gradual wavy boundary ; pH 4.8.

B 20-115cm Yellowish red ($5YR^{5}/_{8}$) silt ; moderate fine subangular structure ; few fine pores ; very sticky, very plastic ; few fine roots (till 60cm) ; many filmy color mottling ; oxic B horizon ; pH 4.9.

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES-AÑO

No. LABORATORIO: 2-73.723/725

Nos CAMPO : P-05 (1-2-3)

DEPARTAMENTO : META

MUNICIPIO : FUENTE DE ORO

UNIDAD DE SUELOS:

LOCALIZACION : VEREDA LA ESTANCIA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDIDAD Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-7	34	40	26	F	4.6				0.5
7-20	30	42	28	FAr	4.8				1.0
20-115	22	30	48	Ar	4.9				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
9.8	3.2	1.6	0.8	0.6	0.2	32.7	16.3	8.2	6.1
9.4	2.4	1.0	0.6	0.4	0.4	25.5	10.6	6.4	4.3
9.4	1.4	0.6	0.4	0.3	0.1	14.9	6.4	4.3	3.2

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
1.21			3		0.6				
0.73			1		2.2				
0.27			1		3.0				

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－06

CLASSIFICATION : Aquic Eutropept

UNIT CHARTOGRAPHY : Association GU, Soil family El Porvenir

ALTITUDE : 260 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvium

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : deep

DRAINAGE, SURFACE : pool SUBSURFACE : lent - very lent
NATURAL : very poor

EPIPEDON : Ochric

DEPTH OF GRAND WATER : 1.05 m

NATURAL VEGETATION : Short grass type

LAND USE : Grassland

PROFILE DESCRIPTION

A 0-3 cm Dark gray (10YR$^{4}/_{1}$) 50% - light gray (10YR$^{6}/_{1}$) 50% sandy clay loam ; many fine roots ; smooth boundary.

B_{21} 3-65 cm Yellow (10YR$^{7}/_{8}$) 30% - gray (10YR$^{5}/_{1}$) 30% - light gray (10YR$^{7}/_{1}$) 30%, clay loam ; moderate - strong fine subangular blocky structure ; few fine-medium pores ; friable moist ; sticky, plastic ; few fine roots ; manyfilmy color mottling ; clear wavy boundary ; pH 6.6.

B_{22} 65-84 cm Gray (5Y$^{5}/_{1}$) 70% - strong brown (7.5YR$^{5}/_{8}$) 30% clay loam ; moderate fine-medium subangular blocky-fine granular structure ; many fine-medium pores ; friable moist ; very sticky, very plastic ; few fine roots ; common filmy-thready color mottling ; clear wavy boundaray;pH 6.4.

B_{23} 84-117cm Olive yellow (2.5Y$^{6}/_{8}$) 50% - gray (2.5Y$^{6}/_{1}$) 50% clay loam; week fine subangular blocky structure ; many fine-medium pores ; friable moist ; sticky, plastic ; few fine roots ; common filmy color mottling, many Fe + Mn concretion ; pH 6.4

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INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA / MES / AÑO
No. LABORATORIO: 2-73.726/728
Nos CAMPO: P-06 (1-2-3)

DEPARTAMENTO: META
MUNICIPIO: FUENTE DE ORO
UNIDAD DE SUELOS: Proyecto Ariari
LOCALIZACION: VEREDA BAJO OPIN
FOTO No.
COLECTOR: FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-65	24	38	38	FAr	6.6				1.0
65-84	28	42	30	FAr	6.4				1.0
84-117	28	38	34	FAr	6.4				2.0

COMPLEJO DE CAMBIO me/100 g. CCC	BT	Ca	Mg	K	Na	SATURACIONES % ST	SCa	SMg	SK
16.7	16.0	4.9	10.0	0.5	0.6	95.8	29.3	59.9	3.0
12.6	8.2	2.8	4.1	0.4	0.9	65.1	22.2	32.5	3.2
14.7	(15.9)	2.0	12.7	0.4	0.8	-	-	-	2.7

MATERIA ORGANICA % C	% N	C/N	P PPm		Al me/100 g		SALINIDAD CE	SNa	CLASE
0.33			1						
0.27			4						
0.13			5						

OBSERVACIONES:

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－07

CLASSIFICATION : Aquic Eutropept

UNIT CHARTOGRAPHY : Association G U. Soil family El Porvenir

ALTITUDE : 340 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvium

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : deep

DRAINAGE. SURFACE : lent SUBSURFACE : lent NATURAL : moderately poor

EPIPEDON : Ochric

DEPTH OF GRAND WATER : 1.20 m

NATURAL VEGETATION : Short grass type

LAND USE : Natural pasture

PROFILE DESCRIPTION

Ap 0-22 cm Brown ($7.5YR^{5}/_{2}$) loam ; strong medium angular blocky structure ; many medium pores ; friable moist ; slightly sticky, slightly plastic ; many fine roots ; gradual smooth boundary ; pH 5.4.

B_t 22-38 cm Light brownish gray ($10YR^{6}/_{2}$) with strong brown ($7.5YR^{5}/_{6}$) spoted loam ; strong fine-medium angular blocky structure; many medium pores ; friable moist ; sticky, plastic ; few very fine roots ; many filmy color mottling, few Mn concretion ; gradual wave boundary ; pH 5.4.

B_{21} 38-65 cm Light red ($2.5YR^{6}/_{6}$) 50% - gray ($10YR^{5}/_{1}$) 50% clay loam ; moderate medium angular blocky structure; many fine pores; friable moist ; no roots ; many filmy color mottling, many Mn concretion ; clear wavy boundary ; pH 6.6.

B_{22} 65-120cm Brownish yellow($10YR^{6}/_{8}$)50% -light brownish gray($10YR^{6}/_{2}$) 50% clay loam ; moderate medium angular blocky structure ; many fine-medium pores ; friable moist ; sticky, plastic ; many filmy color mottling, many Mn concretion ;

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.729/731

Nos CAMPO : P-07 (1-2-3)

DEPARTAMENTO : META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : VEREDA GUACAMAYA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA				PH		CaO_3 %		HUMEDAD %
	% ARENA	% LIMOS	% ARCILLA	TEXTURA	1:1	1:5			
0-22	30	50	20	F	5.4				1.0
22-38	32	50	18	F	6.0				1.0
38-65	26	40	34	FAr	6.6				0.5

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %			
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
9.8	2.7	1.2	0.8	0.3	0.4	27.6	12.2	8.2	3.1
5.3	2.1	0.8	0.8	0.3	0.2	39.6	15.1	15.1	5.7
11.8	9.8	2.8	5.9	0.4	0.7	83.1	23.7	50.0	3.4

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
0.87			1		0.8				
0.20			1						
0.20			1						

OBSERVACIONES :

FIRMA : GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－08

CLASSIFICATION : Typic Tropaquept

UNIT CHARTOGRAPHY : Association D Q. Soil family Dos Quebradas

ALTITUDE : 350 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvium

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : deep

DRAINAGE. SURFACE : lent SUBSURFACE : Medium NATURAL : well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : > 1.00 m

NATURAL VEGETATION : Cedro

LAND USE : Harvesting grassland

PROFILE DESCRIPTION

A_1 0-30 cm Very dark brown ($10YR^2/_2$) sandy loam ; moderate medium subangular blocky - granular structure ; many very fine pores ; friable moist ;slightly sticky, slightly plastic ; few very fine - medium roots;abundante organism active ; clear wavy boundary ; pH 5.8.

A_2 30-44 cm Dark yellowish brown ($10YR^3/_4$) sandy loam ; moderate very fine granular structure ; many very fine pores ; friable moist ; slightly sticky, slightly plastic ; common very fine - medium roots ; clear wavy boundary ; pH 6.0.

B_{21} 44-76 cm Pale olive ($5Y^6/_3$) 80% - dark yellowish brown ($10YR^4/_6$) 20% sandy loam ; single grain structure : many fine-few medium pores ; friable moist ; few very fine roots ; many filmy color mottling ; clear wavy boundary ; pH 6.5.

B_{22} 76-105cm Dark yellowish brown($10YR^4/_6$)50% - light gray($2.5Y^7/_1$) 50% sandy clay loam ; week fine granular structure ; many fine pores ; friable moist ; slightly sticky, slightly plastic; many filmy color mottling.

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.732/734

Nos CAMPO : P-08 (1-2-3)

DEPARTAMENTO : META

MUNICIPIO : GUANAGUARO

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION :

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA				PH		CaO_3 %		HUMEDAD %
	% ARENA	% LIMOS	% ARCILLA	TEXTURA	1:1	1:5			
0-30	56	28	16	FA	5.8				1.0
30-44	60	28	12	FA	6.0				0.5
44-76	56	36	8	FA	6.5				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
12.2	5.3	4.4	0.4	0.3	0.2	43.4	36.1	3.3	2.5
5.7	3.7	2.4	0.8	0.4	0.1	64.9	42.1	14.0	7.0
4.1	3.2	1.2	1.6	0.3	0.1	78.0	29.3	39.0	7.3

MATERIA ORGANICA			P		Al		SALINIDAD		
%G	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
1.54			125						
0.47			70						
0.13			160						

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－09

CLASSIFICATION : Typic Haplumbrept

UNIT CHARTOGRAPHY : Association GU, Soil family Guanayas

ALTITUDE : 320 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE, SURFACE : lent SUBSURFACE : medium NATURAL : well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : 1.00 m

NATURAL VEGETATION : Guarumo, Matarraton

LAND USE : Natural pasture

PROFILE DESCRIPTION

A 0-30 cm Yellowish brown ($10YR^{3}/_{4}$) loam ; moderate fine subangular blocky structure ; many fine and medium pores ; friable moist ; slightly sticky, plastic ; many fine roots ; abundante organism active ; clear wavy boundary ; pH 5.1.

B 30-50 cm Yellowish brown ($10YR^{5}/_{6}$) loam ; moderate fine - medium subangular blocky structure ; many very fine -fine pores ; friable moist ; sticky, plastic ; common fine roots ; gradual irregular boundary ; pH 5.7.

C 50-105 cm Light gray ($2.5YR^{7}/_{1}$) 70% - Yellowish brown ($10YR^{5}/_{6}$) 20% - dark yellowish brown ($10YR^{4}/_{4}$) 10% sandy loam; strucuture - less : few fine pores ; few fine roots.

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | ANO

No. LABORATORIO: 2-73.735/736

Nos CAMPO : P-09 (1-2)

DEPARTAMENTO : META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : VEREDA SARDINATA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-30	30	50	20	F	5.1				1.0
30-50	30	50	20	F	5.7				0.5

	COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
11.8	5.5	2.4	2.4	0.6	0.1	46.6	20.3	20.3	5.1
9.4	3.4	1.2	1.6	0.4	0.2	36.2	12.8	17.0	4.3

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
1.08			13		0.8				
0.13			3						

OBSERVACIONES :

FIRMA : GLORIA DE BENAVIDES

FECHA ENTREGA: Dia 14 | Mes 10 | Ano 88

FORMA 623-20/83

PROFILE No. : P－010

CLASSIFICATION : Fluventic Dystropept

UNIT CHARTOGRAPHY : Association F O, Soil family Fuente de Oro

ALTITUDE : 350 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE, SURFACE : lent～poor SUBSURFACE : medium
NATURAL : well～moderately well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : 0.70 m

NATURAL VEGETATION : Short grass type

LAND USE : Natural pasture

PROFILE DESCRIPTION

Ap 0-20 cm Very dark gray brown(10YR$^{3}/_{2}$)80%- strong brown(7.5YR$^{4}/_{6}$) 20% loam ; moderate fine subangular blocky structure;many very fine pores ; friable moist ; sticky, slightly plastic ; many fine roots ; abundante organism active ; common filmy - threadly color mottling ; gradual irregular boundary ; pH 5.8.

B_{21} 20-32 cm Dark yellowish brown (10YR$^{3}/_{4}$) loam ; moderate fine subangular blocky - granular structure ; many fine -medium pores ; friable moist ; slightly sticky, plastic; few fine roots ; gradual irregular boundary ; pH 5.7.

C 32-60 cm Yellowish brown (10YR$^{5}/_{8}$) sandy loam ; single grain structure ; many fine - medium pores ; abrupt smooth boundary

Cr 60- x cm Rounded frangments

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INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.737/738

Nos CAMPO : P-10 (1-2)

DEPARTAMENTO : META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : VEREDA LA CABAÑA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-20	40	40	20	F	5.8				0.5
20-32	32	46	22	F	5.7				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
11.1	4.6	2.4	1.6	0.4	0.2	41.4	21.6	14.4	3.6
9.4	3.5	1.2	1.6	0.5	0.2	37.2	12.8	17.0	5.3

MATERIA ORGANICA			P		Al	SALINIDAD		
%C	%N	C/N	PPm		me/100 g	CE	SNa	CLASE
1.20			5					
0.47			2					

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－011

CLASSIFICATION : Typic Hapludoll

UNIT CHARTOGRAPHY : Association D Q, Soil family Venado

ALTITUDE : 380 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE, SURFACE : lent SUBSURFACE : medium NATURAL : well

EPIPEDON : Molic

DEPTH OF GRAND WATER : > 1.10 m

NATURAL VEGETATION : Short grass type

LAND USE : Grassland

PROFILE DESCRIPTION

A 0-20 cm Dark brown ($10YR^{3}/_{3}$) loam ; moderate fine subangular blocky-granular structure ; many very fine pores ; friable moist ; sticky, plastic ; many very fine roots ; abundante organism active ; clear wavy boundary ; pH 5.8.

C_1 20-66 cm Yellowish brown ($10YR^{5}/_{7}$-$^{5}/_{4}$) loamy sand ; week very fine - fine subangular blocky - single grain structure ; few fine pores ; friable moist ; few fine roots ; irregularly thin gravelly layer ; clear wavy boundary ; pH 5.8.

C_2 66-110cm Yellowish brown ($10YR^{5}/_{8}$) 50%-dark yellowish brown ($10YR^{4}/_{4}$) 50% sandy clay loam ; week fine subangular blocky - fine granular structure ; few fine pores ; sticky, plastic ; pH 6.1.

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.739/741

Nos CAMPO : P-011 (1-2-3)

DEPARTAMENTO : META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : ESCUELA LA FLORIDA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	1:5	CaO_3 %		HUMEDAD %
0-20	44	38	18	F	5.8				1.0
20-66	78	14	8	AF	5.8				1.0
66-110	50	32	18	F	6.1				0.5

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
11.8	7.5	4.4	2.4	0.5	0.2	63.6	37.2	20.3	4.2
3.7	0.8	0.2	0.2	0.3	0.1	21.6	5.4	5.4	8.1
5.4	3.0	1.2	1.2	0.4	0.2	55.6	22.2	22.2	7.4

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	$C/_N$	PPm		me/100 g		CE	SNa	CLASE
1.48			11						
0.13			90						
0.20			26						

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－012

CLASSIFICATION : Typic Tropaquept

UNIT CHARTOGRAPHY : Association D Q, Soil family Dos Quebradas

ALTITUDE : 420 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : deep

DRAINAGE, SURFACE : lent SUBSURFACE : medium
NATURAL : moderately well

EPIPEDON : Ochric

DEPTH OF GRAND WATER : > 1.05 m

NATURAL VEGETATION : Guarumo, Balso, Matarraton

LAND USE : Rice

PROFILE DESCRIPTION

Ap 0-9 cm Dark yellowish brown(10YR$^{4}/_{4}$)90%-light brownish gray (10 YR$^{5}/_{2}$)10% loam ; week fine subangular blocky - granular structure ; many very fine - fine pores ; friable moist ; sticky, plastic ; many very fine - fine roots ; abundante organism active ; common filmy color mottling ; clear wavy boundary ; pH 5.0.

B_{21} 9-68 cm Light Yellowish brown(2.5Y$^{6}/_{4}$)50%-light olive brown(2.5 Y$^{5}/_{8}$) 50% clay loam ; moderate fine subangular blocky - granular structure ; many fine - medium pores ; friable moist ; slightly sticky, plastic ; few fine roots ; common filmy color mottling, common Fe + Mn concretion ; difuso irregular boundary ; pH 6.5.

B_{22} 68-105cm Gray(5Y$^{6}/_{1}$)60%-yellowish brown(10YR$^{5}/_{8}$)40% sandy clay loam ; week fine-medium subangular blocky structure ; manyfine pores ; friable moist ; sticky, plastic ; many fine filmy color mottling, many Fe concretion ;

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.742/743

Nos CAMPO : P-012 (1-2)

DEPARTAMENTO : META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : VEREDA FLORIDA BAJA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA				PH		CaO_3 %		HUMEDAD %
	% ARENA	% LIMOS	% ARCILLA	TEXTURA	1:1	1:5			
0-9	30	44	26	F	5.0				1.0
9-68	24	48	28	FAr	6.5				1.0

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
17.1	1.8	0.6	0.4	0.6	0.2	10.5	3.5	2.3	3.5
11.4	7.7	1.2	5.7	0.4	0.4	67.5	10.5	50.0	3.6

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	C/N	PPm		me/100 g		CE	SNa	CLASE
1.81			1		2.0				
0.20			1						

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－013

CLASSIFICATION : Fluventic Dystropept

UNIT CHARTOGRAPHY : Association MC. Soil family Topacio

ALTITUDE : 490 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial fan

RELIEF : Flat

PARENT MATERIAL : Alluvial - fan deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE. SURFACE : lent SUBSURFACE : medium NATURAL : well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : > 0.95 m

NATURAL VEGETATION : Weed type

LAND USE : Plantain

PROFILE DESCRIPTION

Ap 0-40 cm Very dark brown ($10YR^{2}/_{3}$) silt loam; moderate fine-medium subangular blocky - granular structure ; many fine pores ; friable moist ; sticky, plastic ; many fine roots ; abundante organism active ; clear wavy boundary ; pH 5.3.

AB 40-52 cm Dark yellow brown ($10YR^{3}/_{4}$) loam ; moderate fine - medium subangular blocky-granular structure ; many fine-medium pores ; friable moist ; slightly sticky, slightlyplastic ; common fine roots ; clear wavy boundary ; pH 5.5.

B 52-68 cm Very yellowish brown ($10YR^{4}/_{7}$) sandy loam ; moderate medium subangular blocky structure ; many fine pores ; friable moist ; slightly sticky, slightly plastic ; few fine roots ; abrupt smooth boundary.

Cr 68- x cm Rounded fragmentes

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.744/745

Nos CAMPO : P-013 (1-2)

DEPARTAMENTO : META

MUNICIPIO : LEJANIAS

UNIDAD DE SUELOS: Proyecto Ariari

LOCALIZACION : VEREDA GUANAYA BAJA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-40	28	42	20	FL	5.3				1.0
40-52	42	38	20	F	5.5				0.5

COMPLEJO DE CAMBIO me/100 g. CCC	BT	Ca	Mg	K	Na	SATURACIONES % ST	SCa	SMg	SK
11.8	2.6	0.8	1.2	0.4	0.2	22.0	6.8	10.2	3.4
7.3	3.8	0.8	2.4	0.4	0.2	52.1	11.0	32.9	5.5

MATERIA ORGANICA % C	% N	$C/_N$	P PPm		Al me/100 g		SALINIDAD CE	SNa	CLASE
1.48			3		1.4				
0.33			3		1.4				

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 8

FORMA 623-20/83

PROFILE No. : P－014

CLASSIFICATION : Fluventic Dystropept

UNIT CHARTOGRAPHY : Association U P. Soil family Topacio

ALTITUDE : 460 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvium - fun

RELIEF : Flat

PARENT MATERIAL : Alluvial - fun deposit

EFFECTIVE SOIL DEPTH : moderately deep

DRAINAGE. SURFACE : lent SUBSURFACE : medium - rapid NATURAL : well

EPIPEDON : Umbric

DEPTH OF GRAND WATER : > 1.10 m

NATURAL VEGETATION : Weed type

LAND USE : Grassland

PROFILE DESCRIPTION

A 0-22 cm Dark brown(10YR$^{3}/_{3}$)loam ; week fine angular structure ; many fine -medium pores ; friable moist ; slightly sticky, plastic ; many fine roots ; abundante organism active ; clear wavy boundary ; pH 5.3.

C 22-52 cm Dark yellowish brown(10YR$^{4}/_{4}$)silt loam ; week fine angular structure ; many fine - medium pores ; friable moist ; slightly sticky, slightly plastic ; few fineroots ; clear wavy boundary ; pH 5.7.

Ab 52-67 cm Dark yellowish brown(10YR$^{3}/_{4}$ loam ; week fine subangular blocky granular structure ; many fine - medium pores ; friable moist ; few fine roots ; plastic, slightly sticky; clear wavy boundary ; pH 5.8.

C_1 67-94 cm Light olive brown(2.5Y$^{5}/_{4}$)loam ; week fine subangular blocky - granular structure ; many fine - medium pores ; friable moist ; slightly sticky, slightly plastic ; defuso irregular boundary.

C_2 94-110cm Dark yellowish brown(10YR$^{4}/_{6}$)90%-light olive brown(2.5 Y$^{5}/_{3}$) 10% sandy loam ; week fine subangular blocky - granular structure ; common filmy color mottling.

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.746/748

Nos CAMPO : P-014 (-1-2-3)

DEPARTAMENTO : META

MUNICIPIO : sa SAN JUAN DE ARANA

UNIDAD DE SUELOS: PROYECTO ARIARI

LOCALIZACION : VEREDA EL ROSAL

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-22	36	48	16	F	5.3				0.5
22-52	36	52	12	FL	5.7				1.0
52-67	38	46	16	F	5.8				0.5

COMPLEJO DE CAMBIO me/100 g.							SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
9.0	1.2	0.4	0.4	0.3	0.1	13.3	4.4	4.4	3.3
3.7	1.3	0.4	0.4	0.4	0.1	35.1	10.8	10.8	10.8
5.7	1.4	0.4	0.4	0.5	0.1	24.6	7.0	7.0	8.8

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	$C/_N$	PPm		me/100 g		CE	SNa	CLASE
0.73			20		0.6				
0.27			100						
0.20			55						

OBSERVACIONES :

FIRMA : GLORIA DE BR NAVIDES

FECHA ENTREGA: Dia 14 | Mes 10 | Año 88

FORMA 623-20/83

PROFILE No. : P－015

CLASSIFICATION : Typic Hapludoll

UNIT CHARTOGRAPHY : Association D Q. Soil family Venado

ALTITUDE : 415 m

POSITION OF PHYSICAL GEOGRAPHY : Alluvial

RELIEF : Flat

PARENT MATERIAL : Alluvial deposit

EFFECTIVE SOIL DEPTH : Moderately deep

DRAINAGE. SURFACE : lent SUBSURFACE : medium NATURAL : well

EPIPEDON : molic

DEPTH OF GRAND WATER : > 0.76 m

NATURAL VEGETATION : Guarumo

LAND USE : Plantain. Cassava

PROFILE DESCRIPTION

A 0-14 cm Dark brown(7.5YR$^{3}/_{4}$)silt loam ; moderate fine - medium subangular blocky - granular structure ; many very fine-medium pores ; friable moist ; sticky, very plastic ; many fine roots ; abundante organism active ; clear wavy boundary ; pH 5.4.

B_{21} 14-32 cm Dark yellowish brown (10YR$^{4}/_{6}$) silt loam ; moderate medium angular blocky structure ; many very fine - medium pores ; friable moist ; sticky, very plastic ; many fine roots ; few organism active : clear wavy boundary ; pH 5.3.

BC 32-76 cm Yellowish brown(10YR$^{5}/_{6}$)silt loam ; week medium angular blocky structure ; many fine pores ; friable moist ; sticky, very plastic ; few fine roots ; abrupt wavy boundary ; pH 5.5.

Cr 76- x cm Rounded fragmentes

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

ANALISIS FISICOQUIMICOS

FECHA RECIBO: DIA | MES | AÑO

No. LABORATORIO: 2-73.749/751

Nos CAMPO : P-015 (1-2-3)

DEPARTAMENTO : META

MUNICIPIO : GRANADA

UNIDAD DE SUELOS: PROYECTO ARIARI

LOCALIZACION : VEREDA LA CABAÑA

FOTO No.

COLECTOR : FRANCISCO RUEDA

PROFUNDID Cm	GRANULOMETRIA % ARENA	% LIMOS	% ARCILLA	TEXTURA	PH 1:1	PH 1:5	CaO_3 %		HUMEDAD %
0-14	22	52	26	FL	5.4				1.0
14-32	22	52	26	FL	5.3				0.5
32-76	18	66	16	FL	5.5				0.5

COMPLEJO DE CAMBIO me/100 g.						SATURACIONES %		
CCC	BT	Ca	Mg	K	Na	ST	SCa	SMg	SK
17.0	10.1	6.1	3.2	0.6	0.2	59.4	35.9	18.8	3.5
12.1	4.6	2.0	2.0	0.4	0.2	38.0	16.5	16.5	3.3
5.7	2.1	0.8	0.8	0.4	0.1	36.8	14.0	14.0	7.0

MATERIA ORGANICA			P		Al		SALINIDAD		
%C	%N	$C/_N$	PPm		me/100 g		CE	SNa	CLASE
1.48			12		0.6				
0.73			2		1.4				
0.40			7		1.0				

OBSERVACIONES :

FIRMA: GLORIA DE BENAVIDES

FECHA ENTREGA: Día 14 | Mes 10 | Año 88

FORMA 623-20/83

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

RESULTADO DE LAS DETERMINACIONES FISICAS DE LOS SUELOS

DEPARTAMENTO: Meta
MUNICIPIO: Ariari
FECHA: DIA 04 MES XI AÑO 88
No. 1

INTERESADO: Proyecto Ariari
NOMBRE DEL PREDIO:
DIRECCION Y TELEFONO:
ANALISIS SOLICITADO: Caracterización Física

NUMERO LABORATORIO	TAXONOMIA No. PERFIL	HORIZONTE	PROFUNDIDAD cms.	PENDIENTE %	GRANULOMETRIA % ARENA	LIMO	ARCILLA	TEXTURA	SUPERFICIE ESPECIFICA	DENSIDAD, gr/cc REAL	APARENTE	POROSIDAD, % MICRO	MACRO	TOTAL
2-73.716	P-01		00-23							2.62	1.24			
717	P-02		00-17							2.47	1.35			
718			17-60							2.55	1.50			
719	P-03		00-12							2.48	1.43			
720			00-22							2.54	1.53			
721			22-35							2.62	1.56			
722			35-65							2.65	1.70			
723	P-05		00-7							2.52	1.64			
724			07-20							2.55	1.53			
725			20-115							2.65	1.58			
726	P-06		00-65							2.70	1.58			
727			65-84							2.69	1.60			
728			84-117							2.70	1.73			
729	P-07		00-22							2.52	1.58			
730			22-38							2.42	1.63			
731			38-65							2.70	1.73			

NUMERO DE LABORATORIO	PUNTO SATURACION %	TENSIONES, Bars 0.1	0.3	1	5	10	15	HUMEDAD, % APROVECHABLE	EQUIVALENTE	CONDUCTIVIDAD HIDRAULICA cm/h	CONSISTENCIA LIMITE LIQUIDO	LIMITE PLAST.	INDICE PLAST.	COLE	INDICE DE AGREG. YODER	FRANCES
716	55.11		28.51			16.60	15.59	12.92								
717	50.22		31.10			18.10	17.00	14.10								
718	29.56		25.83			15.89	15.02	10.81								
719	47.24		25.40			15.82	14.98	10.42								
720	33.65		19.19			11.21	10.53	8.66								
721	28.44		17.61			10.21	9.59	8.02								
722	38.10		18.92			11.05	10.38	8.54								
723	42.18		22.58			13.26	12.47	10.11								
724	37.98		20.80			12.52	11.81	8.99								
725	44.11		22.96			13.76	12.97	9.99								
726	38.96		22.98			13.79	13.00	9.98								
727	32.86		24.41			14.22	13.36	11.05								
728	36.91		24.00			13.95	13.10	10.90								
729	42.48		23.16			13.81	13.01	10.15								
730	30.16		20.33			11.91	11.20	9.13								
731	37.25		22.65			13.15	12.35	10.30								

FORMA 022-09 A2

SECRETARIA DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

RESULTADO DE LAS DETERMINACIONES FISICAS DE LOS SUELOS

DEPARTAMENTO:
MUNICIPIO:
FECHA: DIA | MES | AÑO
No. 2

INTERESADO: Proyecto Arimi
NOMBRE DEL PREDIO:
DIRECCION Y TELEFONO:
ANALISIS SOLICITADO:

NUMERO LABORATORIO	TAXONOMIA No. PERFIL	HORIZONTE	PROFUNDIDAD cms.	PENDIENTE %	GRANULOMETRIA %: ARENA	LIMO	ARCILLA	TEXTURA	SUPERFICIE ESPECIFICA	DENSIDAD, gr/cc: REAL	APARENTE	POROSIDAD, %: MICRO	MACRO	TOTAL
2-73.732	P-08		00-30							2.30	1.33			
733			30-44							2.58	1.46			
734			44-76							2.55	1.54			
735	P-09		00-30							2.57	1.26			
736			30-50							2.66	1.60			
			50-70		No vino muestra					-	-			
737	P-010		00-20							2.61	1.50			
738			20-32							2.60	1.41			
739	P-011		00-20							2.61	1.38			
740			20-66							2.59	1.64			
741			66-110							2.62	1.75			
742	P-012		00-9							2.58	1.25			
743			09-68							2.60	1.61			
744	P-013		00-40							2.59	1.35			
745			40-52							2.70	1.64			

NUMERO DE LABORATORIO	PUNTO SATURACION %	TENSIONES, Bars: 0.1	0.3	1	5	10	15	HUMEDAD, %: APROVECHABLE	EQUIVALENTE	CONDUCTIVIDAD HIDRAULICA cm/h	CONSISTENCIA: LIMIT. LIQUI.	LIMITE PLAST.	INDIC. PLAST.	COLE	INDICE DE AGREG.: YODER	FRANCES
732	53.87		26.14			16.15	15.28	10.86								
733	33.77		19.01			11.65	11.01	8.00								
734	24.33		16.43			9.78	9.21	7.22								
735	49.48		28.44			16.74	15.75	12.69								
736	27.59		21.16			12.33	11.58	9.58								
-	-		-			-	-	-								
737	55.81		30.12			17.52	16.46	13.66								
738	44.58		30.97			17.95	16.85	14.12								
739	50.99		28.64			16.77	15.76	12.88								
740	22.50		12.52			7.44	7.01	5.51								
741	19.96		16.02			9.65	9.10	6.92								
742	64.20		37.14			21.59	20.28	16.86								
743	39.33		25.45			14.89	14.00	11.45								
744	48.43		31.20			18.25	17.15	14.05								
745	32.67		21.78			12.64	11.87	9.91								

FORMA 627-02 84

MINISTERIO DE HACIENDA Y CREDITO PUBLICO
INSTITUTO GEOGRAFICO "AGUSTIN CODAZZI"

RESULTADO DE LAS DETERMINACIONES FISICAS DE LOS SUELOS

DEPARTAMENTO | MUNICIPIO | FECHA: DIA, MES, AÑO | No. 3

INTERESADO: Proyecto Ariari | NOMBRE DEL PREDIO | DIRECCION Y TELEFONO:

ANALISIS SOLICITADO:

NUMERO LABORATORIO	TAXONOMIA No. PERFIL	HORIZONTE	PROFUNDIDAD cms.	PENDIENTE %	GRANULOMETRIA %: ARENA	LIMO	ARCILLA	TEXTURA	SUPERFICIE ESPECIFICA	DENSIDAD, gr/cc: REAL	APARENTE	POROSIDAD, %: MICRO	MACRO	TOTAL
2-73.746	P-014		00-22							2.68	1.38			
747			22-52							2.69	1.43			
748			52-67							2.66	1.55			
749	P-015		00-14							2.71	1.25			
750			14-32							2.70	1.38			
751			32-76							2.68	1.46			

NUMERO DE LABORATORIO	PUNTO SATURACION %	TENSIONES, Bars: 0.1	0.3	1	5	10	15	HUMEDAD, %: APROVECHABLE	EQUIVALENTE	CONDUCTIVIDAD HIDRAULICA cm/h	CONSISTENCIA: LIMITE LIQUIDO	LIMITE PLASTICO	INDICE PLASTICO	COLE	INDICE DE AGREG.: YODER	FRANCES
746	49.25		31.89			18.13	16.98	14.91								
747	34.02		26.58			15.54	14.60	11.98								
748	34.44		24.51			14.29	13.43	11.08								
749	61.86		38.25			22.35	21.00	17.25								
750	47.34		15.57			9.30	8.76	6.81								
751	38.59		27.13			15.89	14.94	12.19								

FORMA 022-02 A4