

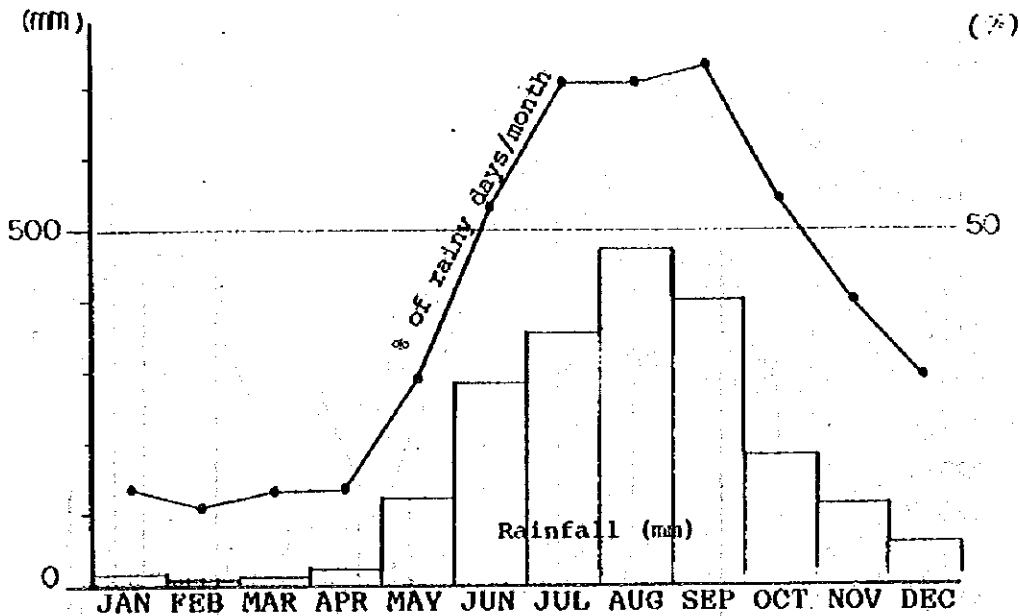
CLIMATOLOGICAL DATA

Station : MANILA

Period of Record : 1951 - 1970

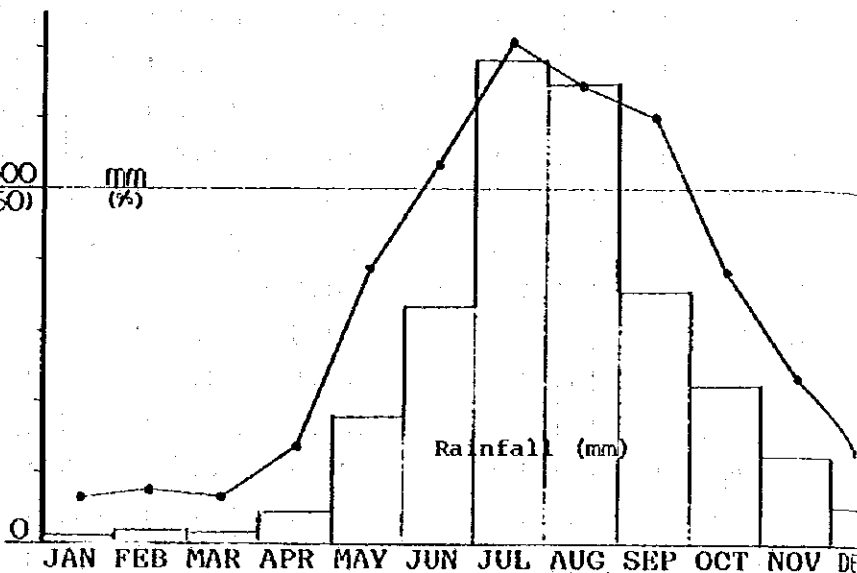
Coordinates : 14° 35' N 120° 59' E

Month	Rainfall (mm.)	No. of Rainy Days	T E M P E R A T U R E (° C .)					
			Mean	Maxi- mum	Mini- mum	Dry : Bulb	Wet : Bulb	Dew Point
JAN	13.3	4	25.9	29.7	22.2	25.6	21.7	20
FEB	6.3	3	26.4	30.3	22.4	26.0	21.7	20
MAR	10.1	4	27.7	31.9	23.5	27.5	22.6	21
APR	21.3	4	29.1	33.2	24.9	29.0	23.7	22
MAY	122.9	9	29.6	33.5	25.6	29.5	24.9	23
JUN	286.9	16	28.7	32.1	25.2	28.6	25.1	24
JUL	354.3	22	28.0	31.2	24.7	27.8	24.9	24
AUG	473.9	22	27.5	30.5	24.5	27.4	24.9	24
SEP	401.0	22	27.5	30.6	24.4	27.3	24.8	24
OCT	181.9	17	27.8	31.0	24.3	27.5	24.3	23
NOV	114.2	12	27.2	30.6	23.7	26.9	23.5	22
DEC	58.1	9	26.3	29.8	22.9	25.9	22.5	21
ANNUAL	2,044.2	142	27.6	30.2	24.0	27.3	23.6	22



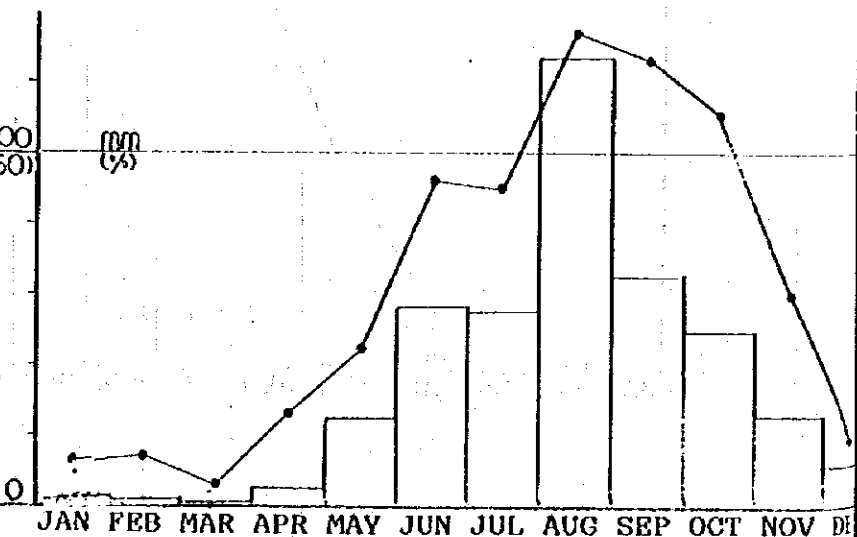
PABANLAG, FLORIDA-
BLANCA, PAMPANGA
14° 59' N 120° 28' E
1923 - 1937

Month	Rainfall (mm.)	No. of Rainy Days
JAN	9.9	2
FEB	18.0	2
MAR	15.2	2
APR	43.7	4
MAY	178.3	12
JUN	333.0	16
JUL	682.2	22
AUG	648.7	20
SEP	354.8	18
OCT	221.2	12
NOV	122.2	7
DEC	51.8	4
ANNUAL	2,679.0	121



LUBAO, PAMPANGA
14° 58' N 120° 38' E
1951 - 1955

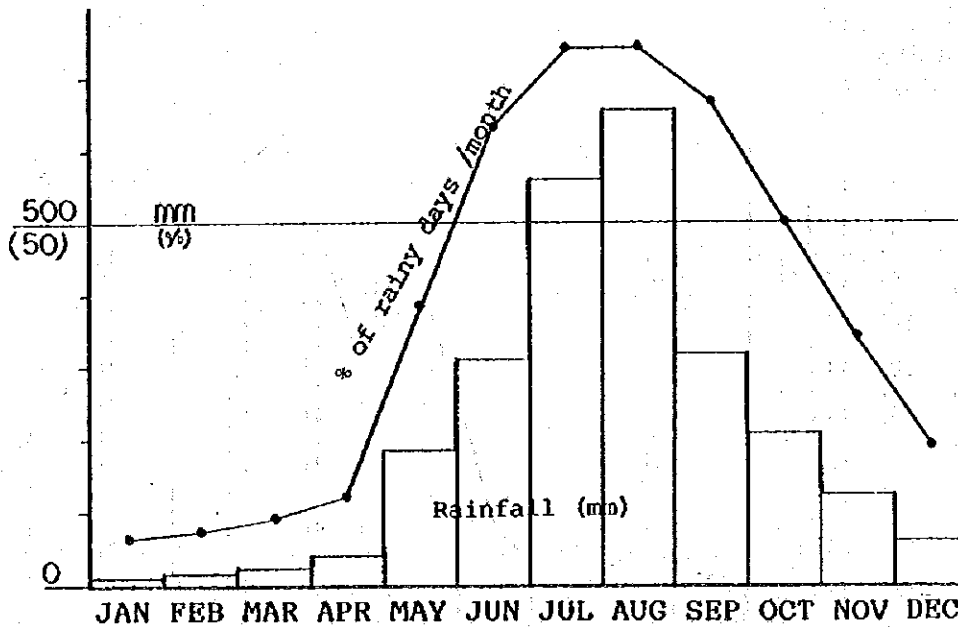
Month	Rainfall (mm)	No. of Rainy Days
JAN	15.2	2
FEB	10.7	2
MAR	5.1	1
APR	27.7	4
MAY	123.9	7
JUN	281.7	14
JUL	277.4	14
AUG	633.7	21
SEP	325.9	19
OCT	247.9	17
NOV	130.6	9
DEC	58.7	6
ANNUAL	2,138.5	116



SMSP/71681

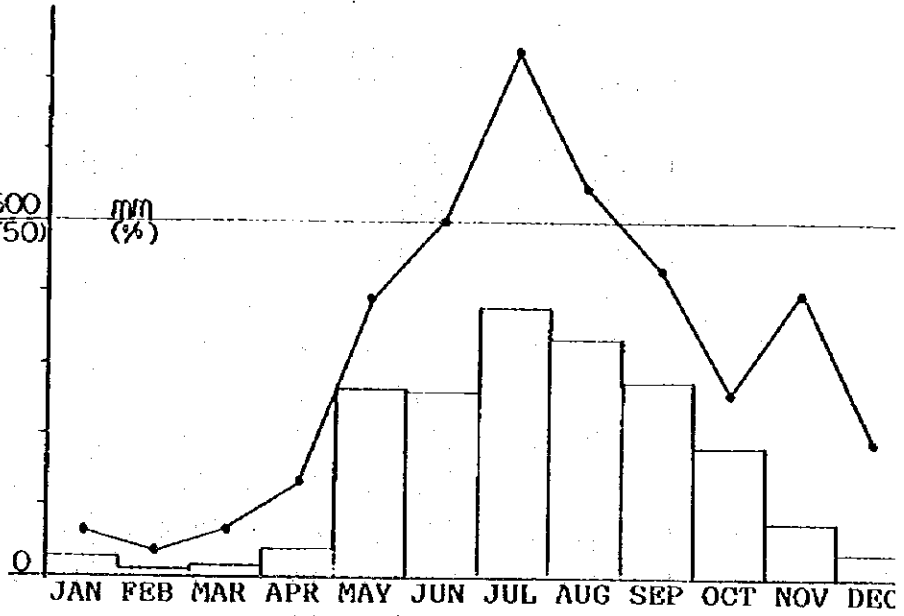
Station : PASUMIL, FLORIDABLANCA, PAMPANGA
Coordinates : 15° 00' N 120° 32' E
Period of Record : 1919 - 1943

Month	Rainfall (mm.)	No. of Painy Days	TEMPERATURE (°C.)		
			Mean	Maxi- mum	Mini- mum
JAN	8.9	2	26.0	31.0	20.6
FEB	14.7	2	26.9	32.8	21.0
MAR	20.1	3	28.0	34.4	21.4
APR	39.9	5	29.3	35.5	23.1
MAY	185.9	12	25.4	34.8	23.8
JUN	310.1	19	23.5	33.3	23.6
JUL	559.3	23	27.6	32.0	23.0
AUG	654.3	23	27.2	31.7	22.8
SEP	317.7	20	27.4	32.0	22.8
OCT	206.5	15	27.2	31.8	22.6
NOV	124.2	10	26.8	31.4	22.0
DEC	58.4	6	25.8	30.8	20.8
ANNUAL	2,500.6	140	27.5	32.6	22.3



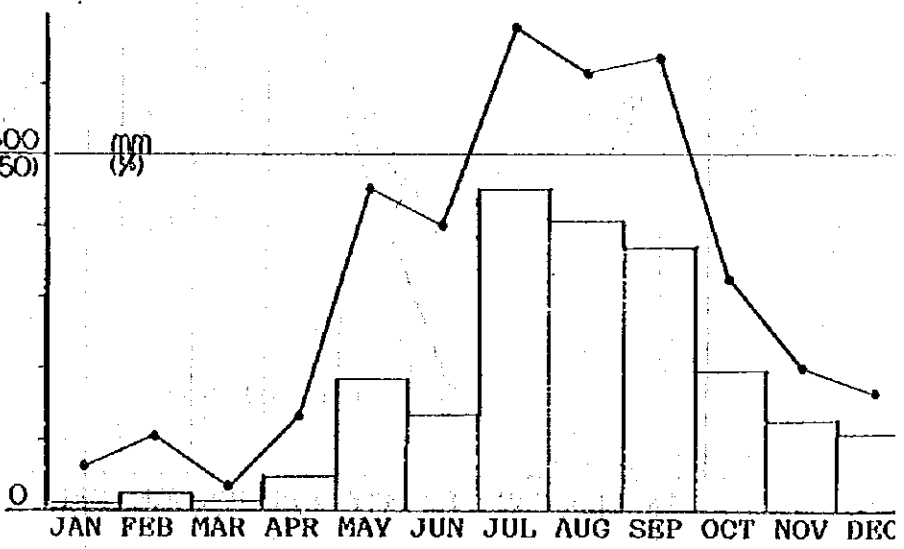
MITLA, PORAC,
PAMPANGA
15° 04' N 120° 34' E
1921 - 1925

::	27.2	:	2	::
::	9.4	:	1	::
::	15.7	:	2	::
::	39.4	:	4	::
::	266.7	:	12	::
::	260.1	:	15	::
::	379.7	:	23	::
::	336.6	:	17	::
::	274.1	::	13	::
::	184.9	:	8	::
::	78.7	:	12	::
::	33.0	:	6	::
::	1,905.5	:	115	::



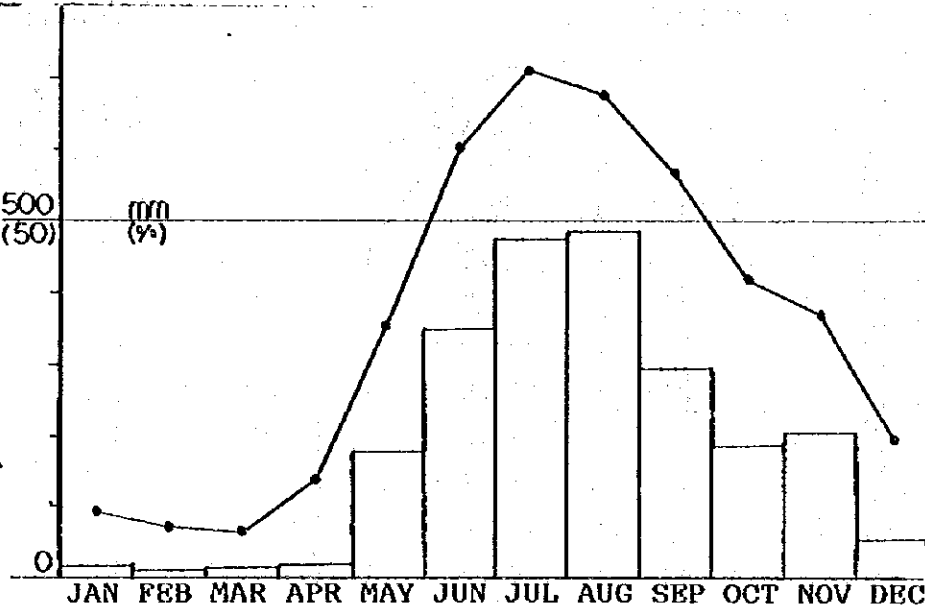
RAMONA OFFICE, PORAC,
PAMPANGA
15° 06' N 120° 32' E
1934 - 1939

::	Rainfall (mm.)	:	no. of Rainy Days	::
::	10.7	:	2	::
::	25.6	:	3	::
::	14.7	:	1	::
::	48.0	:	4	::
::	185.4	:	14	::
::	135.1	:	12	::
::	450.6	:	21	::
::	406.9	:	19	::
::	369.1	:	19	::
::	197.6	:	10	::
::	126.7	:	6	::
::	107.4	:	5	::
::	2,077.8	:	116	::



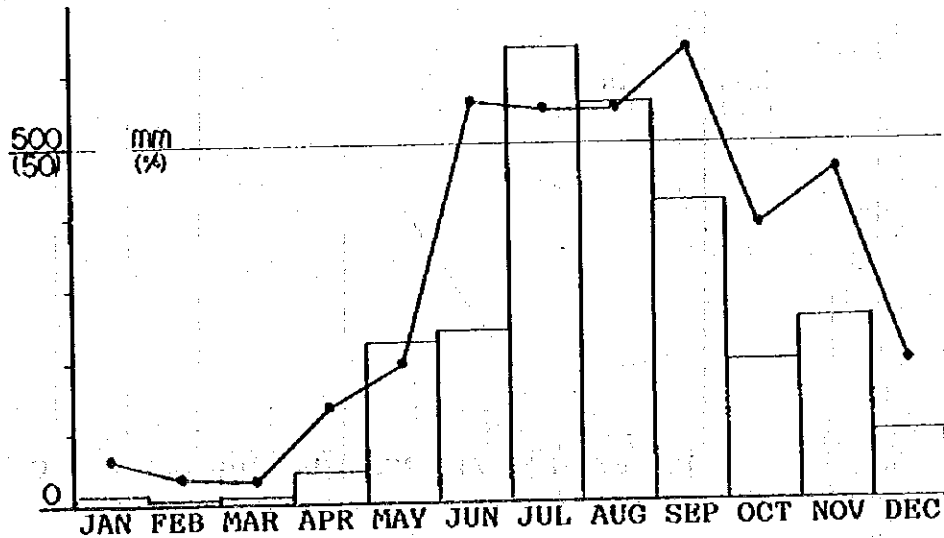
Station : MALOLOS, BULACAN
Coordinates : 14° 51' N 120° 48' E
Period of Record : 1920 - 1933

JAN	18.3	3
FEB	10.7	2
MAR	13.7	2
APR	17.0	4
MAY	177.0	11
JUN	347.2	18
JUL	473.7	22
AUG	486.4	21
SEP	292.6	17
OCT	185.4	13
NOV	203.2	11
DEC	51.8	6
ANNUAL	2,277.0	130



SAN LORENZO, NORZAGARAY, BULACAN
Coordinates : 14° 55' N 120° 46' E
Period of Record : 1961 - 1970

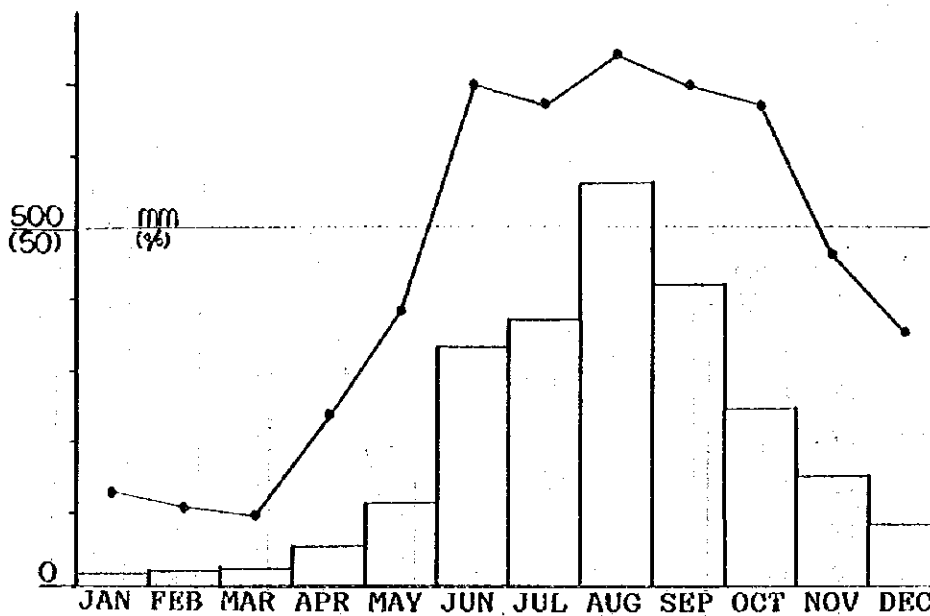
Month	Rainfall (mm.)	No. of Rainy Days
JAN	13.5	2
FEB	4.8	1
MAR	9.6	1
APR	43.4	4
MAY	221.1	6
JUN	239.0	17
JUL	636.8	17
AUG	557.7	17
SEP	418.8	19
OCT	194.2	12
NOV	255.5	14
DEC	94.3	6
ANNUAL	2,886.5	116



CALOOCAN CITY

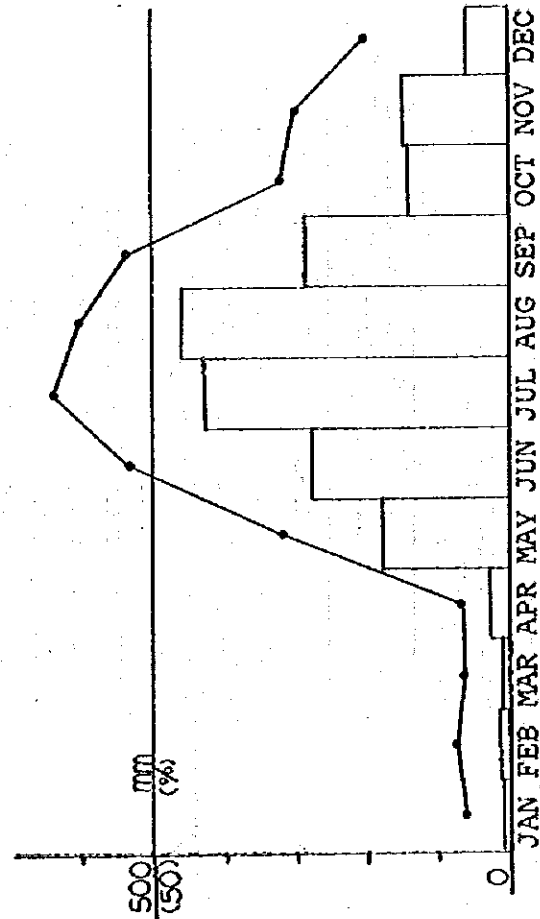
Period of Record: 1951-1970

	Rainfall (mm.)	No. of Rainy Days	Relative Humidity (%)	Cloud- iness (0-8)	Prevailing Wind Direc- tion	& Speed (KPH)
JAN	15.0	4	70	5	NE	9
FEB	18.4	3	69	4	E	9
MAR	21.8	3	62	5	SE	10
APR	54.0	7	65	3	SE	10
MAY	116.6	12	69	5	E	10
JUNE	333.0	21	76	6	SW	9
JULY	371.7	21	79	6	SW	9
AUG	563.2	23	82	6	SW	9
SEP	420.6	21	82	6	SW	9
OCT	248.8	21	80	6	NE	8
NOV	152.3	14	79	5	NE	9
DEC	87.5	11	80	5	NE	8
ANNUAL	2,402.9	161	75	5	NE, SW	9



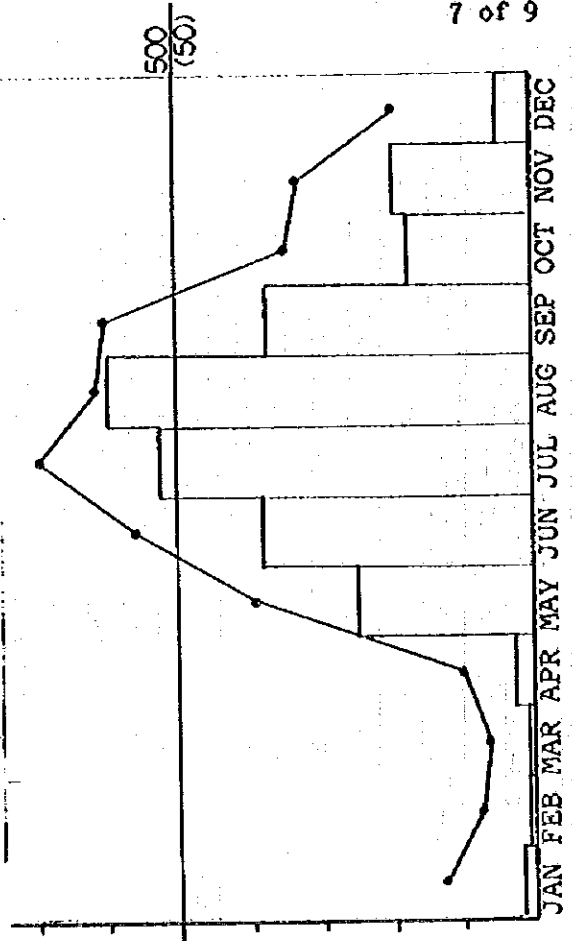
Station : GENERAL TRIAS, CAVITE
Coordinates : 14° 25' N 120° 53' E
Period of Record : 1920 - 1932

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Rainfall (mm.)	6.6	10.4	7.4	24.4	160.6	262.2	427.0	459.2	288.5	139.7	147.6	52.1	2,026.1
Days Rainy	2	2	2	2	10	16	20	18	16	10	9	6	113
Mean Temp (°C)	25.4	26.2	27.7	29.2	28.8	27.2	26.8	26.8	27.0	26.9	26.2	25.6	27.0
Max. Temp (°C)	30.3	30.5	33.3	35.2	33.7	31.2	30.4	30.2	30.6	30.7	30.1	29.8	31.4
Min. Temp (°C)	20.5	21.0	22.0	23.2	23.5	23.5	23.3	23.3	23.3	23.3	22.3	21.2	22.5



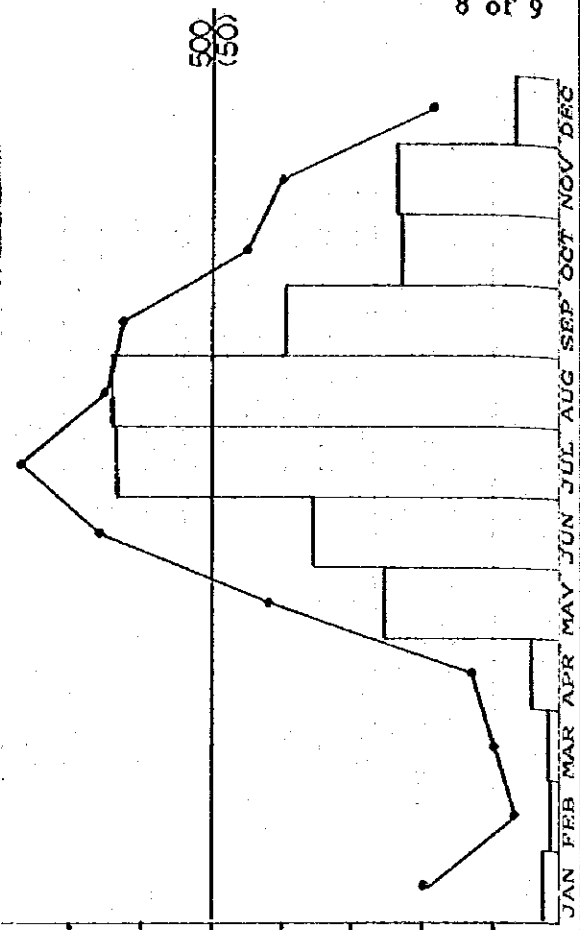
Station : MARAGONSON, CAVITE
Coordinates : 14° 17' N 120° 44' E
Period of Record : 1920 - 1932

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Rainfall (mm.)	17.3	8.9	8.4	24.4	249.7	362.3	523.0	599.2	576.9	175.8	192.1	45.7	2,605.7
Days Rainy	4	2	2	3	12	19	22	19	18	11	10	6	128
Mean Temp (°C)	25.2	25.6	26.7	27.9	27.8	26.7	26.6	26.6	26.9	26.6	26.2	25.3	26.5
Max. Temp (°C)	30.2	31.4	32.4	33.9	32.9	31.0	30.3	30.2	30.9	30.6	30.1	29.9	31.2
Min. Temp (°C)	20.3	19.8	20.9	22.0	22.7	23.2	22.9	23.0	22.8	22.3	22.2	20.7	21.9



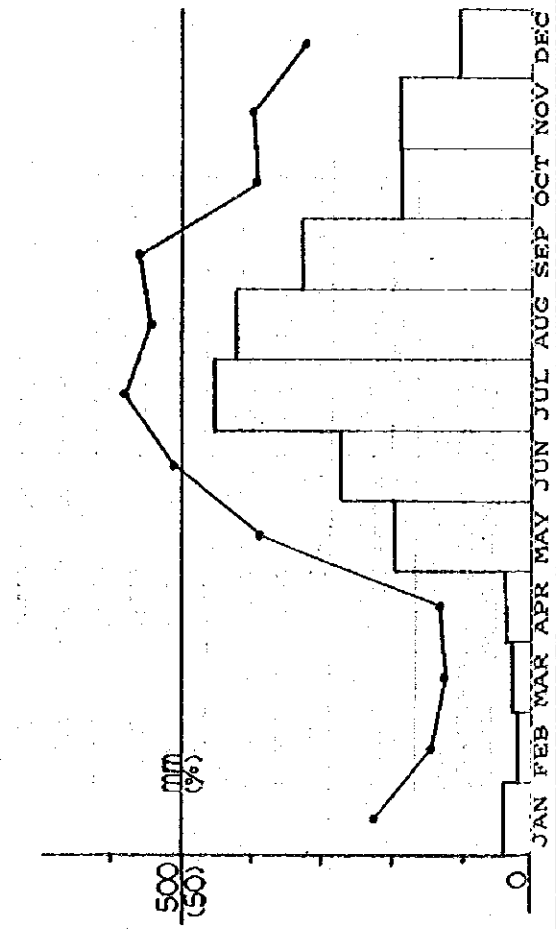
Station : INDANG, CAVITE
Coordinates : 149 12' N 1200 53' E
Period of Record : 1920 - 1932

Month	Rainfall (mm.)	No. of Rainy Days	Mean Temperature (°C.)	Maxi- mum	Mini- mum
JAN	28.4	6	23.6	27.2	20.0
FEB	15.0	2	24.6	28.9	20.2
MAR	17.3	3	25.8	30.5	20.9
APR	46.0	4	27.1	32.2	22.0
MAY	251.2	13	27.1	31.5	22.8
JUN	355.3	19	26.1	29.7	22.4
JUL	636.0	23	25.3	28.7	22.0
AUG	640.8	20	25.2	28.4	22.1
SEP	355.5	19	25.5	29.0	22.0
OCT	222.6	14	25.3	28.6	21.3
NOV	236.0	12	24.7	28.0	21.4
DEC	68.6	6	23.9	27.1	20.6
ANNUAL	2,318.7	143	25.3	29.2	21.5



Station : SILING, CAVITE
Coordinates : 140 24' N 1200 50' E
Period of Record : 1904 - 1913; 1919 - 1932

Month	Rainfall (mm.)	No. of Rainy Days	Mean Temperature (°C.)	Maxi- mum	Mini- mum
JAN	41.1	7	22.2	27.6	18.9
FEB	21.6	4	24.0	29.2	18.9
MAR	29.2	4	25.0	30.4	19.6
APR	30.3	4	26.4	32.3	20.6
MAY	196.9	12	26.0	31.7	20.3
JUN	273.0	16	24.9	30.0	19.7
JUL	454.9	18	24.2	29.2	19.3
AUG	421.6	17	24.3	29.2	19.4
SEP	328.9	17	24.6	29.5	19.6
OCT	187.2	12	24.4	29.4	19.5
NOV	190.0	12	23.9	28.6	19.2
DEC	108.2	10	23.2	27.9	18.6
ANNUAL	2,292.9	153	24.5	29.6	19.4



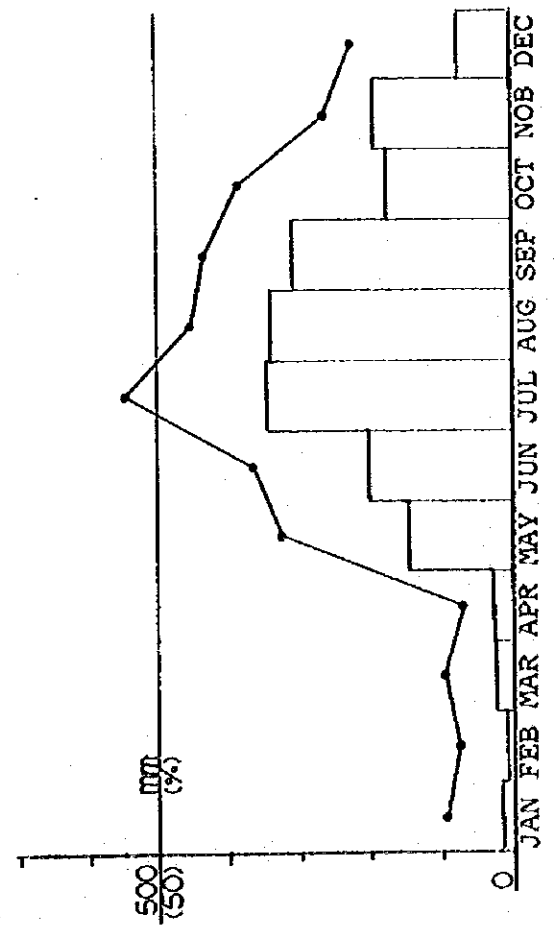
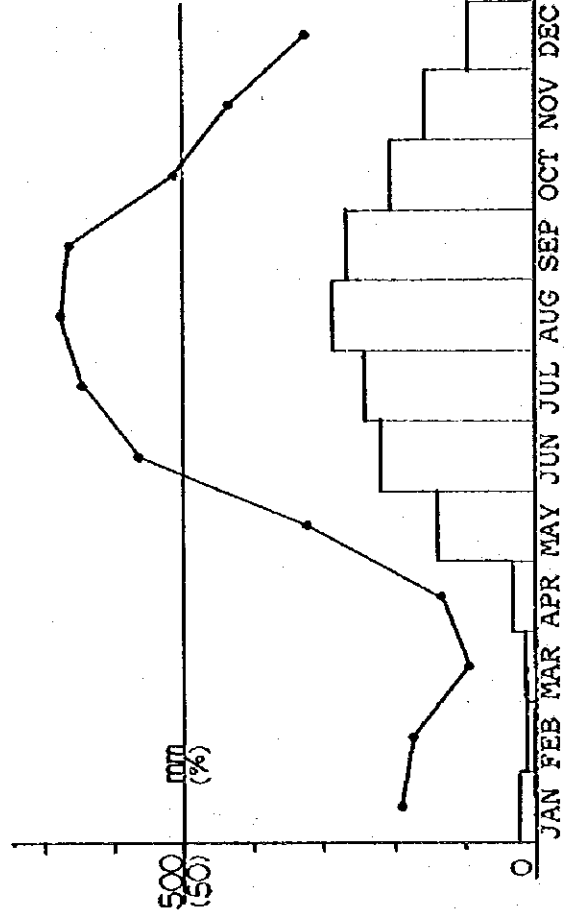
Period of Record : 1951 - 1970
Coordinates: 14° 05' N 121° 04' E

Month : (mm) : No. of : T E M P : Maxi- : Mini- :
: Rainfall : (mm) : Rainy : Days : Mean : mm : mm

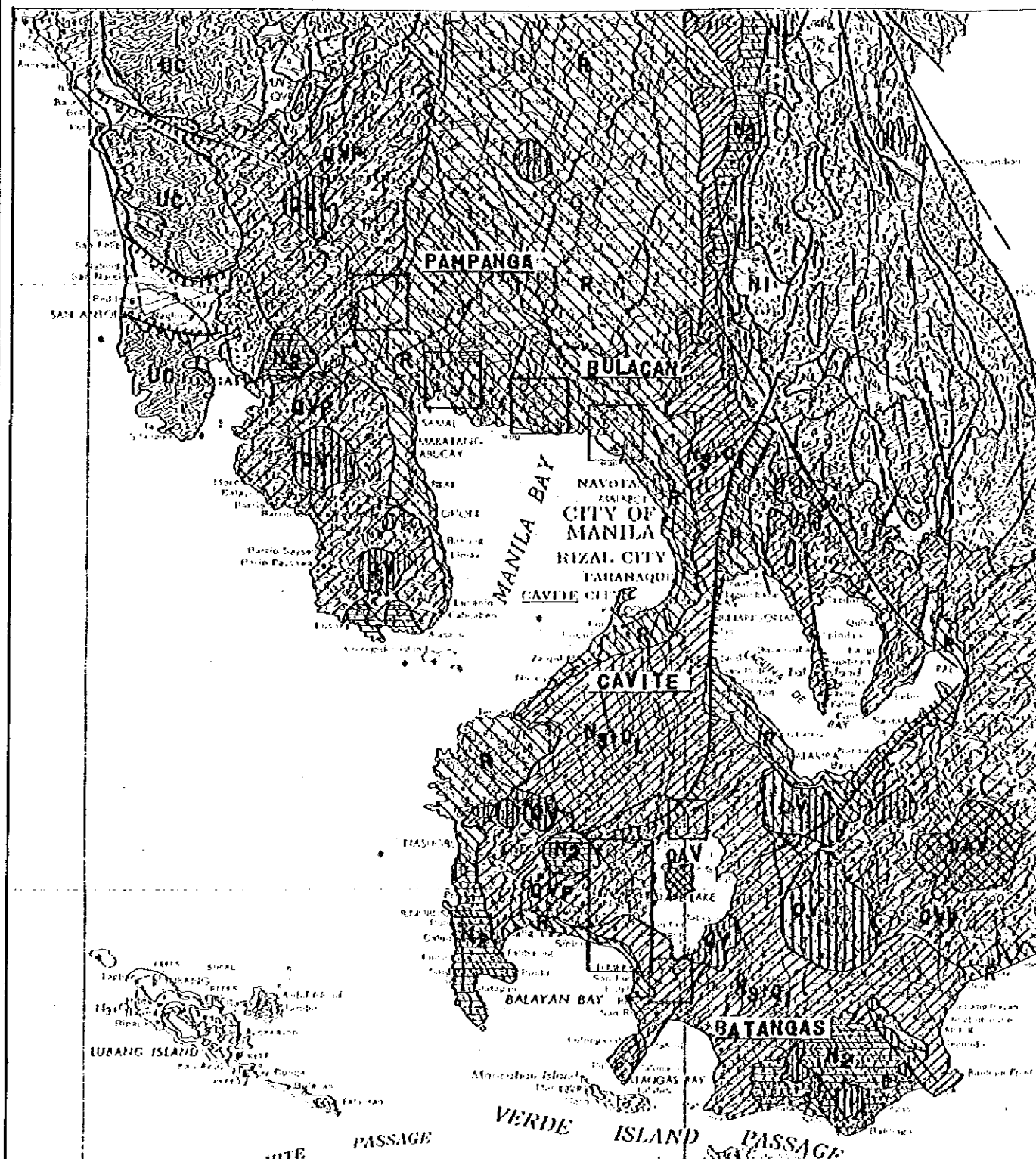
Jan.	26.4	6	28.0	30.2	21.9
Feb.	15.2	5	26.9	31.5	21.7
Mar.	15.4	3	27.9	33.2	22.4
Apr.	33.6	4	29.2	34.9	23.6
May	139.3	10	29.3	34.3	24.1
Jun.	220.1	17	28.3	32.5	24.0
Jul.	241.4	20	27.5	31.5	23.8
Aug.	287.8	21	27.3	30.8	23.9
Sep.	268.5	20	27.4	31.0	23.7
Oct.	206.8	16	27.4	31.5	23.2
Nov.	156.6	13	27.1	31.0	23.0
Dec.	95.5	10	26.3	30.1	22.5
Annual	1706.4	145	27.5	31.9	23.1

Station : LIPA, BATAVIA
Coordinates : 13° 37' N 121° 09' E
Period of Record : 1920 - 1932

Month	Rainfall (mm)	No. of Rainy Days	Mean Temp (°C)	Maxi- (°C)	Mini- (°C)
JAN	13.7	3	22.4	27.7	19.2
FEB	7.6	2	23.9	29.0	18.7
MAR	21.3	5	25.2	30.6	19.3
APR	23.1	2	26.4	32.4	20.4
MAY	146.6	10	25.6	32.0	21.2
JUN	201.4	11	25.6	29.9	21.2
JUL	346.5	17	25.1	28.9	21.3
AUG	340.6	14	25.2	29.1	21.2
SEP	307.1	13	25.4	29.7	21.1
OCT	174.5	12	25.1	29.4	20.9
NOV	191.5	8	24.4	28.5	20.4
DEC	70.9	7	23.7	27.6	19.7
ANNUAL	1,844.8	102	25.0	29.6	20.4



Geological Map



0 10 20 30 40 50 km
scale 1:1,000,000

LEGEND:

Appendix 8-0

GEOLOGIC SIGNS AND SYMBOLS

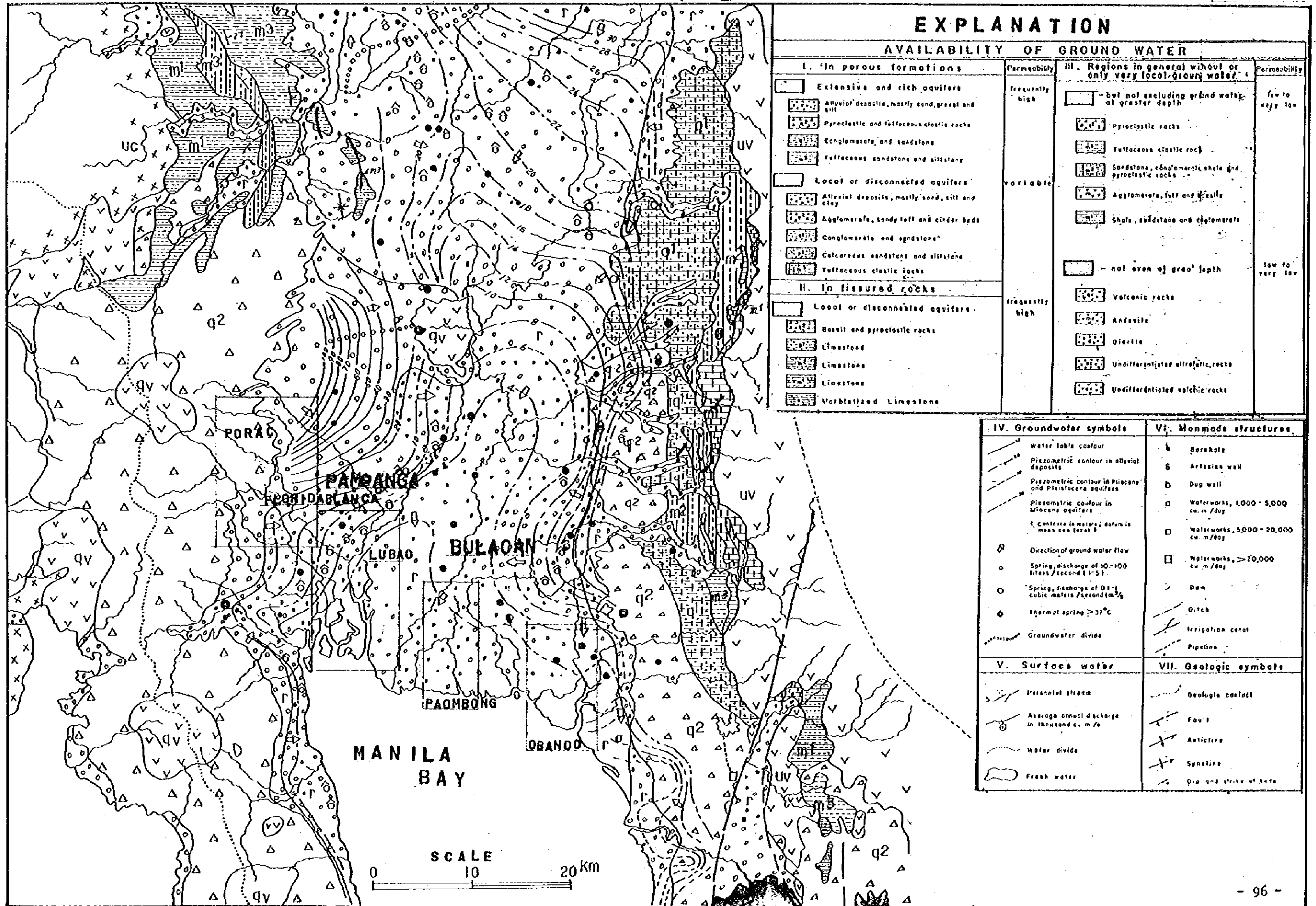
- SEDIMENTARY & METAMORPHIC ROCKS**
- R -- Recent
 - N₃ + Q₁ -- Pliocene Pleistocene (g-h)
 - N₂ -- Upper Miocene Pliocene (f₃-g)
 - N₁ -- Oligocene Miocene (e₂-f₂)
 - Pg₂ -- Oligocene (c-d)
 - Pg₁ -- Paleocene eocene (a-b)
 - KPg -- Undifferentiated
 - K -- Cretaceous
 - J -- Jurassic
 - BC -- Basement Complex (Pre-Jurassic)
- IGNEOUS ROCKS**
- NI -- Neogene

- PgL -- Paleogene
- UC -- Cretaceous Paleogene
- PJ1 -- Pre-Jurassic
- VOLCANIC ROCKS**
- QAV -- Quaternary
- N₂ -- Upper Miocene Pliocene
- N₁ -- Oligocene Miocene
- Pg₂ -- Oligocene
- Pg₁ -- Paleocene eocene
- QV -- Pliocene Quaternary
- UV -- Undifferentiated
- QVP -- Pliocene Quaternary
- K -- Cretaceous Paleocene

GEOLOGIC SYMBOLS

- Formational Boundary
- Anticlinal Axis with Plunge
- Overturned Anticline
- Synclinal Axis with Plunge
- Overturned Syncline
- Close Fold
- High Angle Fault, Dashed where inferred; arrow indicates strike-slip movement
- Normal Fault, Dashed where inferred; hachures on downthrown side
- Thrust Fault, Dashed where inferred; saw-teeth on overriding side

Contour Line Drawing of Groundwater Level
Pampanga, Bulacan



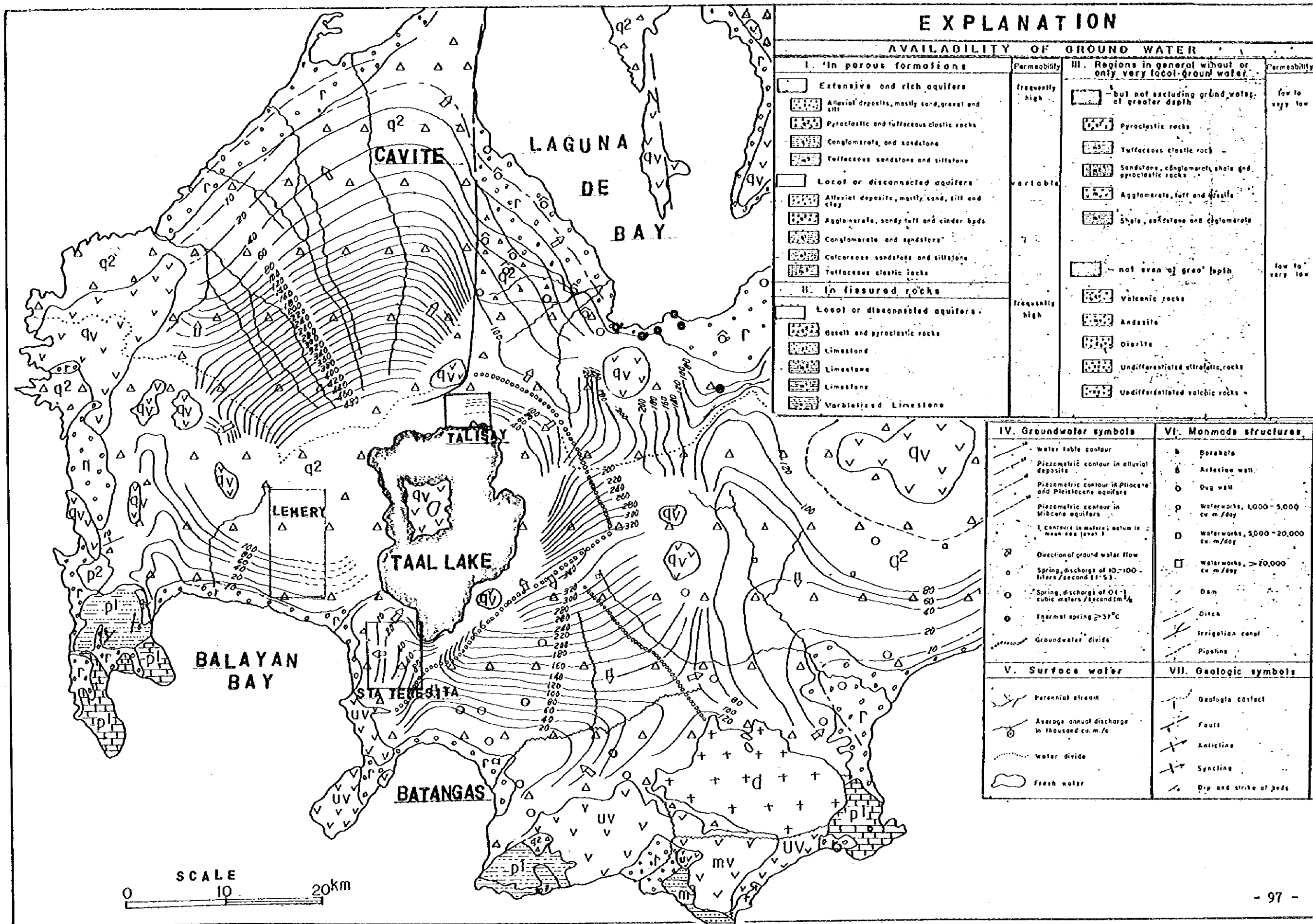
EXPLANATION

AVAILABILITY OF GROUND WATER

I. In porous formations		Permeability	III. Regions in general without or only very local ground water		Permeability
Extensive and rich aquifers Alluvial deposits, mostly sand, gravel and silt Pyroclastic and tuffaceous clastic rocks Conglomerate and sandstone Tuffaceous sandstone and siltstone		frequently high	- but not excluding ground water of greater depth Pyroclastic rocks Tuffaceous clastic rock Sandstone, conglomerate, shale and pyroclastic rocks Agglomerate, tuff and breccia Shale, sandstone and conglomerate		low to very low
Local or disconnected aquifers Alluvial deposits, mostly sand, silt and clay Agglomerate, sandy tuff and cinder beds Conglomerate and sandstone Calcareous sandstone and siltstone Tuffaceous clastic rocks		variable	- not even of great depth Volcanic rocks Andesite Diorite Undifferentiated ultrabasic rocks Undifferentiated volcanic rocks		low to very low
II. In fissured rocks Local or disconnected aquifers Basalt and pyroclastic rocks Limestone Limestone Limestone Marbleized Limestone		frequently high			

IV. Groundwater symbols	V. Surface water	VI. Manmade structures	VII. Geologic symbols
Water table contour Piezometric contour in alluvial deposits Piezometric contour in Pleistocene and Pleistocene aquifers Piezometric contour in Miocene aquifers (contours in meters datum is mean sea level) Direction of ground water flow Spring discharge of 10-100 liters/second (1-5) Spring discharge of 0.1-1 cubic meters/second (1/10) Thermal spring >37°C Groundwater divide	Perennial stream Average annual discharge in thousand cu. m./a Water divide Fresh water	Borehole Artesian well Dug well Waterworks, 1,000-5,000 cu. m./day Waterworks, 5,000-20,000 cu. m./day Waterworks, >20,000 cu. m./day Dam Ditch Irrigation canal Pipeline	Geologic contact Fault Anticline Syncline Dip and strike of beds

SCALE
0 10 20 km



EXPLANATION

AVAILABILITY OF GROUND WATER

I. In porous formations		III. Regions in general without or only very local ground water	
	Permeability		Permeability
<ul style="list-style-type: none"> Extensive and rich aquifers Alluvial deposits, mostly sand, gravel and silt Pyroclastic and tuffaceous clastic rocks Conglomerate and sandstone Tuffaceous sandstone and siltstone 	frequently high	<ul style="list-style-type: none"> but not excluding ground water of greater depth Pyroclastic rocks Tuffaceous clastic rock Sandstone, conglomerate, shale and pyroclastic rocks Agglomerate, silt and shale Shale, sandstone and conglomerate 	low to very low
<ul style="list-style-type: none"> Local or disconnected aquifers Alluvial deposits, mostly sand, silt and clay Agglomerate, sandy tuff and cinder beds Conglomerate and sandstone Calcareous sandstone and siltstone Tuffaceous clastic rocks 	variable	<ul style="list-style-type: none"> not even of great depth Volcanic rocks Andesite Diorite Undifferentiated ultrafic rocks Undifferentiated volcanic rocks 	low to very low
II. In fissured rocks			
<ul style="list-style-type: none"> Local or disconnected aquifers Basalt and pyroclastic rocks Limestone Limestone Limestone Marbleized Limestone 	frequently high		

IV. Groundwater symbols	VI. Manmade structures
<ul style="list-style-type: none"> Water table contour Piezometric contour in alluvial deposits Piezometric contour in Pliocene and Pleistocene aquifers Piezometric contour in Miocene aquifers Contours in meters; datum is mean sea level Direction of ground water flow Spring, discharge of 10-100 liters/second (l/s) Spring, discharge of 0.1 cubic meters/second (m³/s) Thermal spring > 37°C Groundwater divide 	<ul style="list-style-type: none"> Borehole Artesian well Dug well Waterworks, 1,000-3,000 cu. m/day Waterworks, 3,000-20,000 cu. m/day Waterworks, > 20,000 cu. m/day Dam Ditch Irrigation canal Pipeline
V. Surface water	VII. Geologic symbols
<ul style="list-style-type: none"> Perennial stream Average annual discharge in thousand cu. m/s Water divide Fresh water 	<ul style="list-style-type: none"> Geologic contact Fault Anticline Syncline Dip and strike of beds

SCALE
0 10 20km

GROUNDWATER CONDITIONS IN PAMPANGA SITE

Municipality	Barangay	Topography Geology	Elevation (m)	Geological Type	Groundwater Conditions
Lubao	1. Sta Cruz	alluvial plain	15.0±	R	Good Ground- water supply
	2. Bancl Pugad	Alluvial lowland	0 - 2.0	"	"
Florida- blanca	3. Bodega	Alluvial plain	15.0±	"	"
	4. Cama- tchille	mountains	100 - 250	QVR	Groundwater generally scarce
	5. Dampe	alluvial plain	15.0±	R	Good ground- water supply
	6. Gurad	"	"	R	"
	7. Jalung	"	"	R	Some localized discontinuity of groundwater table
Porac	8. Dolores	alluvial delta	50.0±	R	"

R: Recent

QVR: Pliocene to Quaternary

GROUNDWATER CONDITIONS IN BULACAN SITE

Municipality	Barangay	Topography Geology	Elevation (m)	Geological Type	Groundwater Conditions
Obando	9. Bunuangan	alluvial lowland	1.0±	R	Good Ground- water supply
	10. Catangalan	alluvial plain	0 - 2.0	"	"
	11. Hulo	"	"	"	"
	12. Lawa	"	"	"	"
	13. N.S.D. Salambao	alluvial lowland	1.0±	"	"
	14. Paco	alluvial plain	1.0-2.0	"	"
	15. Pag-Asa	"	"	"	"
	Paombong	16. Binakod	alluvial lowland	1.0±	"
17. Kapitangan		alluvial plain	2.0-4.0	"	"
18. Malumot		"	1.0-2.0	"	"
19. Masukol		alluvial lowland	1.0±	"	"
20. Pinalagdan		alluvial plan	2.0-3.0	"	"
21. San Jose		"	2.0-4.0	"	"
22. San Isidro I		"	"	"	"
23. San Isidro II		"	"	"	"

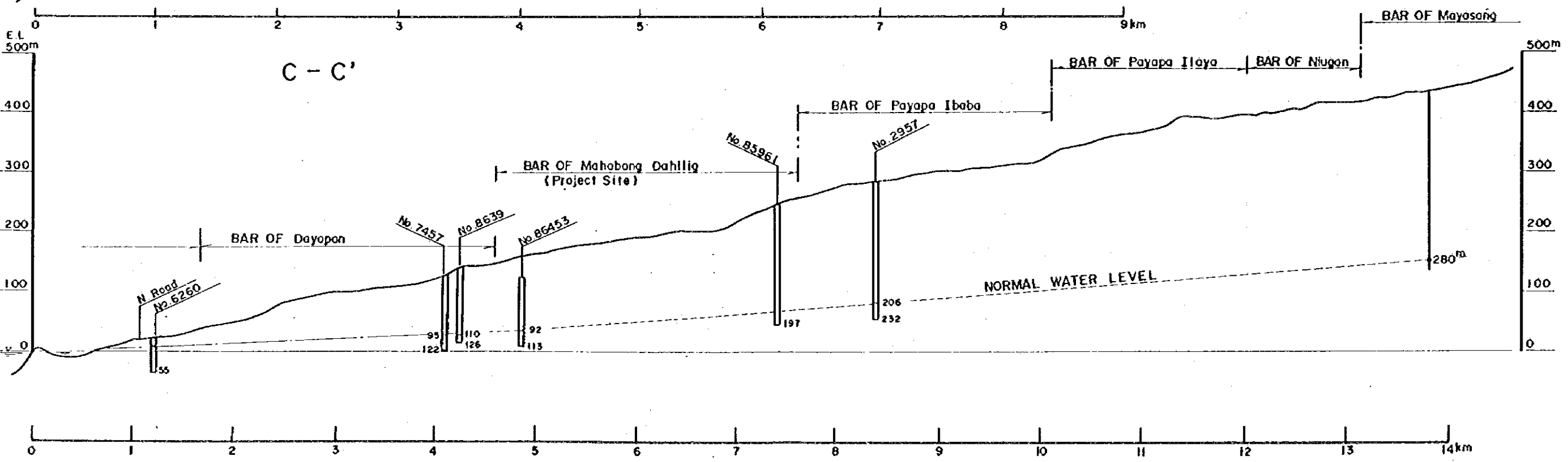
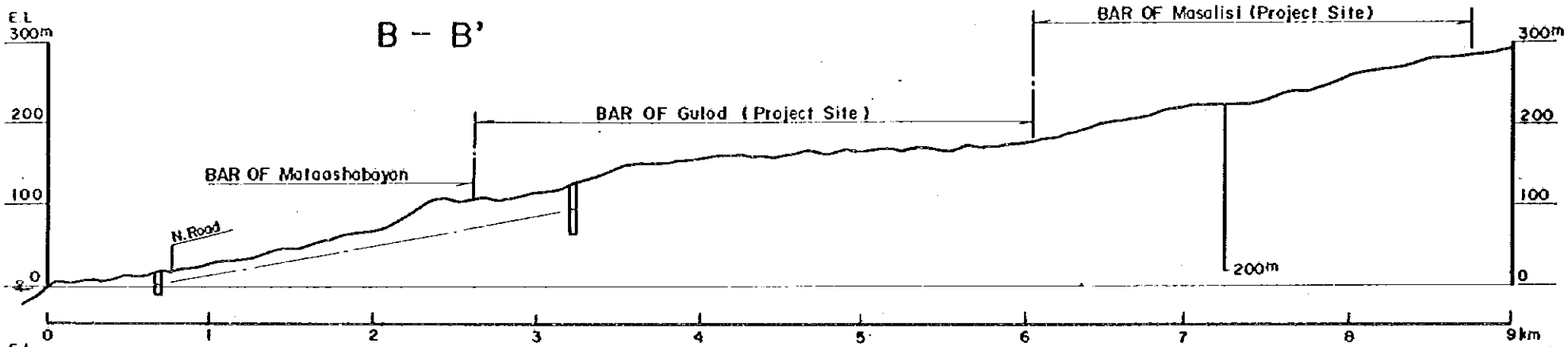
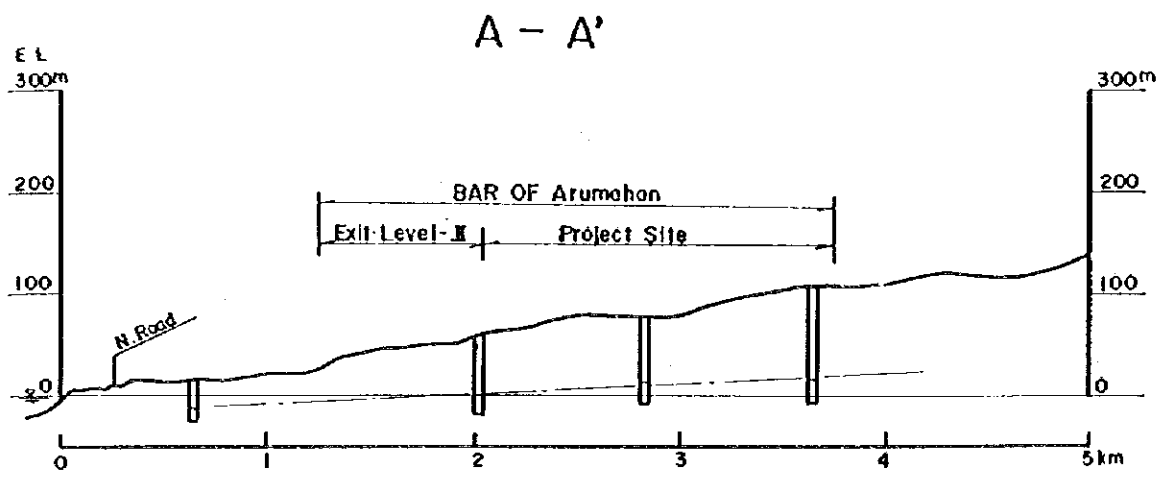
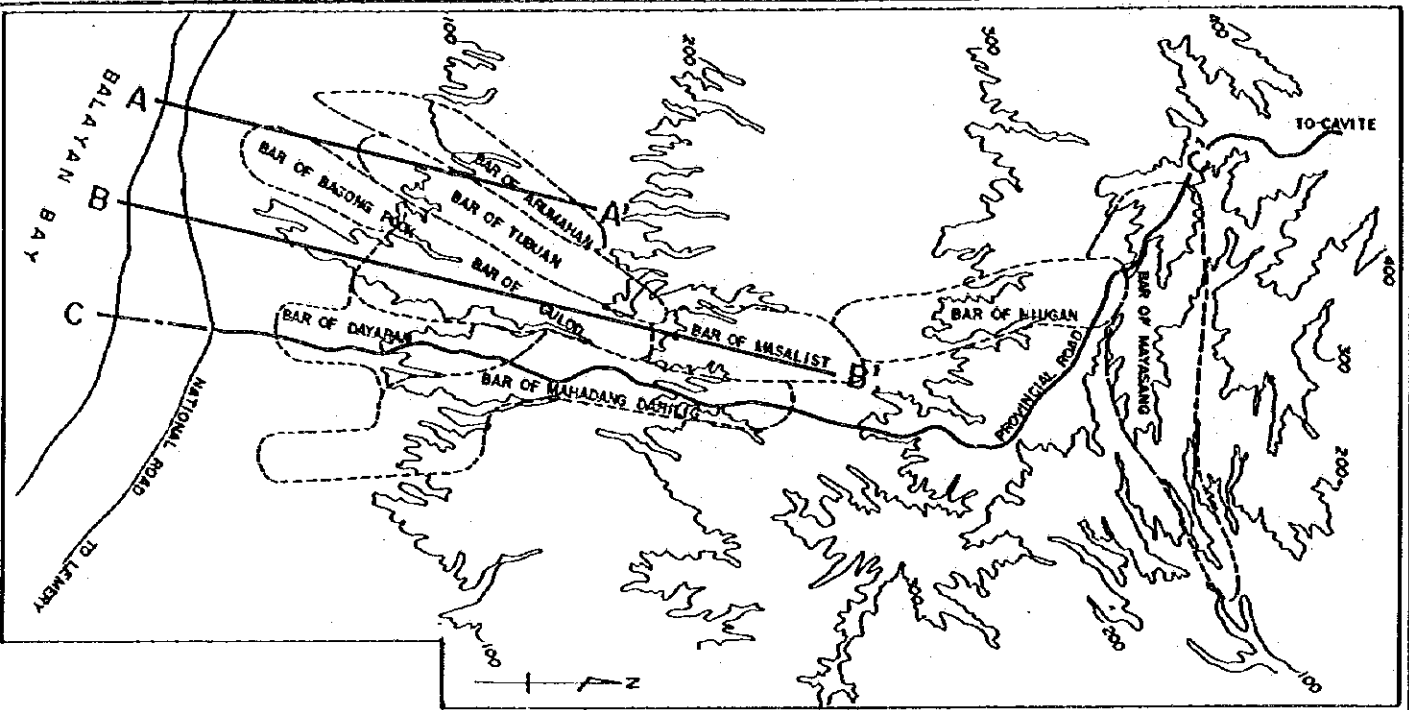
R: Recent

GROUNDWATER CONDITIONS IN CAVITE SITE

Municipality	Barangay	Topography Geology	Elevation (m)	Geological Type	Groundwater Conditions
Amadeo	24. Maitim	plateau	510-530	N ₃ +Q ₁	Some discontinuity of groundwater table in localized areas
Gen-Trias	25. Buenavista	"	100±	"	"
	26. Manggahan	"	115-120	"	"
Indang	27. Balagbag	"	430-450	"	"
	28. Pilipit	"	450-470	"	"
	29. Guyam Malaki	"	390-400	"	"
Maragondon	30. San Pascual	"	390-400	"	"
	31. Agus-os	"	150-170	"	"
	32. Pantihan III	"	160-180	"	"
	33. Tulay	"	30-40	"	"
Maragondon	34. Malainen Luma	"	50-60	"	"
	35. Malainen Bago	alluvial plain	2.0 ±	R	"
	36. Palanque I	plateau	60-70	N ₃ +Q ₁	"
	37. Palanque II	"	60-70	"	"
	38. Pasong Langka	"	420 ±	"	"

N₃+Q₁: Pliocene to Pleistocene
R: Recent

Estimated Groundwater Level
Batangas-Lemery



GROUNDWATER CONDITIONS IN BATANGAS SITE

Municipality	Barangay	Topography Geology	Elevation (m)	Geological Type	Groundwater Conditions
Lemery	39. Arumahan	plateau	80-140	N ₃ +Q ₁	Some discontinuity of groundwater table in localized areas
	40. Bagong Pook	"	40-80	"	"
	41. Gulod	"	60-100	"	"
	42. Mahabang Dahilig	"	100-140	"	"
	43. Masalisi	mountains	200-240	QVP	Groundwater generally scarce
	44. Tubuan	"	100-200	"	"
Sta Teresita	45. Bihis	plateau	130±	N ₃ +Q ₁	"
	46. Buroi	"	120±	"	"
	47. Irukan				
	48. Kalayaan	"	100-120	"	"
	49. Cuta East	"	180-190	"	"
	50. Cuta West	"	160-170	"	"
	51. Sampa	"	130-140	"	"
Talisay	52. Aya	alluvial delta	10-20	"	"
	53. Balas	"	5-15	"	"
	54. Banga	"	10-15	"	"
	55. Caloocan	"	5-10	"	"
	56. Miranda	mountain	190-200	"	"
	57. Quiling	alluvial delta	15-20	"	"
	58. Sampaloc	"	10-15	"	"
	59. Sta Maria	"	5-15	"	"
	60. Tumaway	"	20-30	"	"

N₃+Q₁: Pliocene to Pleistocene

QVR: Pliocene to Quaternary

BASIC DESIGN DATA OF WELL

Pampanga

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m ³ /day)	Proposed Well Depth (m) Dia (m/m)		
		Topographical	Geological	Depth (m) Dia (m/m)	Groundwater Level (m)	Capacity (l/min)	Survey			Plan	
LUBAO	1 Sta Cruz	A * P (EL 5.0m±)	Alluvium	106.7 (150.0)	-	-	II	I (100)	696 (27.8)	100	100
	2 Banaoa Pugas	A * L (EL 0-2.0m)	"	146.3 (125.0)	9.1	94.0	II	II (118)	821 (65.7)	150	150
FLORIDABLANCA	3 Bodega	A * P (EL 15.0m±)	"	36.6 (75)	6.1	-	III	II (250)	1,740 (174.0)	50	200
	4 Camatchilla	Mountainous (EL 100-250m)	Pyroclastic	20.0 (-)	-	-	I	I (70)	482 (19.3)	60	100
ROBAC	5 Dampas	A * P (EL 15.0m±)	Alluvium	36.6 (-)	-	-	III	II (219)	1,524 (152.4)	50	200
	6 Gatad	"	"	36.5 (-)	-	-	III	II (200)	1,392 (139.2)	50	200
ROBAC	7 Jalung	A * P (EL 70-80m)	"	30.5 (200)	-	-	III	II (300)	2,088 (208.8)	100	200
	8 Dolores	Fan (EL 130-160m)	"	Spring	-	(180)	III	II (479)	3,480 (348.0)	Spring	-

A * P: Alluvial Plain

A * L: Alluvial Lowland

BASIC DESIGN DATA OF WELL

Bulacan

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m ³ /day)	Proposed Well Depth (m) Dia (m/m)
		Topographical	Geological	Depth (m) Dia (m/m)	Groundwater Level (m)	Capacity (l/min)	Survey		
OBANDO	9 Binuangan	A * L (EL 1.0m)	Alluvium	289.6 (300-200)	-	-	I	I (70)	200 150
	10 Catangalan	" (EL 1.0-2.0m)	"	121.9 (70-50)	18.3	-	I	I (70)	120 100
	11 Hulo	"	"	30.5 (50)	-	-	III	III (70)	150 200
	12 Lava	"	"	121.9-152.4 (70-50)	5.5	-	II	II (100)	150 150
	13 N.S.D. Salambao	A * L (D) (EL 1.0m)	"	182.9 (70)	12.2	-	I	I (30)	200 100
	14 Paco	A * L (EL 1.0-2.0m)	"	60.9 (70-50)	-	-	I	I (100)	150 100
	15 Pag-Asa	"	"	121.9 (70)	23.0	-	I	I (50)	120 100
	16 Binakoc	A * L (EL 1.0m)	"	121.9 (50)	2.4	-	I	I (30)	130 100
	17 Kapitangan	A * L (EL 2.0-4.0m)	"	137.2 (100)	6.1	-	I	I (40)	150 100
	18 Malunot	A * L (EL 1.0-2.0m)	"	121.9 (-)	6.1	-	II	II (222)	120 150
	19 Masukol	A * L (EL 1.0m)	"	61.0 (75-50)	24.4	-	I	I (35)	130 100
	20 Pinalagdan	A * L (EL 2.0-3.0m)	"	137.2 (-)	-	-	I	I (20)	150 100
21 San Jose	A * L (EL 2.0-4.0m)	"	121.9 (200)	6.1	-	I	III (180)	120 150	
22 San Isidro I	A * L (EL 2.0-4.0m)	"	120 (-)	-	-	I	I (20)	120 100	
23 San Isidro II	A * L (EL 2.0-4.0m)	"	121.9 (129)	5.5 7.6	-	I	I (20)	120 100	
	Poblacion	School Toilet	-	-	-	-	-	-	-

A * L: Alluvial Lowland

BASIC DESIGN DATA OF WELL

Cavite

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m ³ /day)	Proposed Well		
		Topographical	Geological	Depth (m) Dia (m/m)	Groundwater Level (m)	Capacity (l/min)	Survey		Plan	Depth (m)	Dia (m/m)
AMADEO	24 Matlim	Mountain (EL 510-530m)		45.7 (-)	19.8	7.58	I	I (250)	1,740 (69.6)	100	150
	25 Buenavista	" (EL 100m±)		61.0 (-)	-	-	II	II (360)	2,506 (200.5)	150	200
	26 Manggahan	" (EL 115-120m)	"	61.0 (125)	13.1	-	I	I (100)	696.0 (27.8)	100	150
INDANG	27 Balagbag	" (EL 430-450m)	"	91.4 (125)	-	-	II	II (132)	919 (73.5)	100	150
	28 Pilapit	" (EL 450-470m)	"	61.0	54.9	-	II	II (70)	487 (48.7)	100	200
MARANGONDON	29 Guyan, Malaki	" (EL 390-400m)	"	76.2 (100)	30.5	-	II	I (50)	348 (13.9)	100	150
	30 San. Pasoual	" (EL 390-400m)	"	45.1 (-)	12.2	18.95	II	I (40)	278 (11.1)	100	150
	31 Agus-Os	" (EL 150-170m)	"	109.7-79.2 (50)	30.5	-	II	II (150)	1,044 (104.4)	100	200
NAIC	32 Pantiban III	" (EL 160-180m)	"	45.7 (-)	-	-	I	I (50)	348 (13.9)	100	150
	33 Tulay	" (EL 30-40m)	"	91.4 (50)	45.7	-	I	I (30)	209 (8.4)	100	150
	34 Malainon Luma	" (EL 50-60m)	"	30.5 (50)	15.2	-	I	I (50)	348 (13.9)	100	150
SILANG	35 Malainon Bago	" (EL 20m±)	"	15.2 (50)	9.1	-	I	I (60)	418 (16.7)	100	100
	36 Palangue I	" (EL 60-70m)	"	45.7 (-)	-	-	I	I (40)	278 (11.1)	100	100
	37 Palangue II	" (EL 60-70m)	"	-	-	-	I	I (40)	278 (11.1)	100	100
	38 Pasong nangka	" (EL 420m±)	"	61.0 (-)	36.6	-	II	II (150)	1,044 (83.5)	150	150

BASIC DESIGN DATA OF WELL

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m ³ /day)	Proposed Well Depth (m) Dia (m/m)
		Topographical	Geological	Depth (m) Dia (m/m)	Groundwater Level (m)	Capacity (l/min)	Survey Plan		
LEMBRY	39 Arumahan	Mountainous (EL 80-140m)	Tuff Breccia	152.4 (125)	112.8	11.37	II	905 (72.4)	150 150
	40 Bagong Pook	" (EL 40-80m)	"	73.2 (75)	30.5	18.95	II	696 (55.7)	150 150
	41 Guled	" (EL 60-100m)	"	132.6 (5)	-	15.16	II	1,044 (83.5)	150 300
	42 Mahabang Danilis	" (EL 100-140m)	"	-	-	-	I	800 (32.0)	200 200
	43 San Isidro	" (EL 100-200m)	"	-	-	-	I	696 (27.8)	200 100
	44 Masalasi	" (EL 200-240m)	"	-	-	-	I	793 (31.7)	250 200
	45 Tubuan	" (EL 100-200m)	"	125.0 (-)	-	-	I	724 (29.0)	200 150
	46 Binlis	" (EL 130m±)	"	115.8 (-)	-	-	II	654 (65.4)	150 150
	47 Buroi	" (EL 120m±)	"	82.3 (100)	58.0	18.95	II	487 (39.0)	100 150
	48 Irukan	" (EL 90-100m)	"	36.6 (75)	7.6	22.7	I	209 (8.4)	100 150
STA. TERESITA	49 Kalayaan	" (EL 100-120m)	"	106.7 (150)	-	18.95	I	487 (19.5)	150 150
	50 Cuta East	" (EL 180-190m)	"	167.7 (200)	-	-	II	696 (27.8)	200 200
	51 Cuta West	" (EL 160-170m)	"	-	-	-	II	418 (16.7)	150 200
	Poblacion	School Toilet	"	-	-	-	-	-	-
	52 Aya	Fan (EL 10-20m)	"	85.3 (125)	54.9	18.95	I	696 (27.8)	100 150
	53 Balas	" (EL 5-15m)	"	36.6 (-)	1.50	-	I	348 (13.9)	60 150
	54 Banga	" (EL 10-15m)	"	21.3 (50)	-	-	I	418 (16.7)	60 150
	55 Caloccan	" (EL 5-10m)	"	21.3 (-)	-	-	II	1,044 (104.4)	100 150
	56 Miranda	Mountainous (EL 190-200m)	"	-	-	-	I	1,044 (41.8)	Spring
	57 Quiling	Fan (EL 15-20m)	"	54.9 (75)	30.5	18.95	I	1,044 (41.8)	60 150
TALISAY	58 Sampaloc	" (EL 10-15m)	"	9.1 (50)	3.1	-	I	696 (27.8)	60 150
	59 Sta. Maria	" (EL 5-15m)	"	60.0 (50)	-	-	I	209 (8.4)	60 150
	60 Tumaway	" (EL 20-30m)	"	9.1 (-)	4.5	-	I	139 (5.6)	60 150

RESULTS OF GROUNDWATER QUALITY SURVEY

Province	Municipality	Barangay	Well	pH	NH ₄		NO ₂		Electric Conduc- tivity	
					NH ₄	NH ₄ -N	NO ₂	NO ₂ -N		
Pampanga	Porac	Jalong			ppm		ppm		ur/cm	
		Dolores	Spring	6.8	0.5	0.4	0.02	0.006	-	
	Floridablanca	Bodega	Shallow	7.2	0.5	0.4	0.02	0.006	-	
		Camatchille	"							
		Dempe	"	7.8	0.5	0.4	0.02	0.006	-	
		Gutad	"	7.0	0.5	0.4	0.02	0.006	-	
	Lubao	Bancal	Shallow		0.5	0.4	0.02	0.006	-	
		Puged	Deep		1.0	0.8	0.02	0.006	-	
	Bulacan	Paombong	Binakod			1.0	0.8	0.02	0.006	
			Kapitangan		7.4	0.5	0.4	0.02	0.006	
Malumot										
Masukol				6.8	0.5	0.4	0.02	0.006		
Pinalagdan										
San Jose										
San Isidro I " II										
Obando		Binuangan								
		Catangalan	Shallow	6.8	0.5	0.4			1,400	
			Deep	7.0	0.5	0.4			1,400	
		Hulo								
		Lawa								
		N. Sra. de Salambao								
Paco										
Pag-asà										

Note: Hydrogen ion exponent, (pH); Ammoniacal nitrogen (NH₄);
Nitrous acid (NO₂)

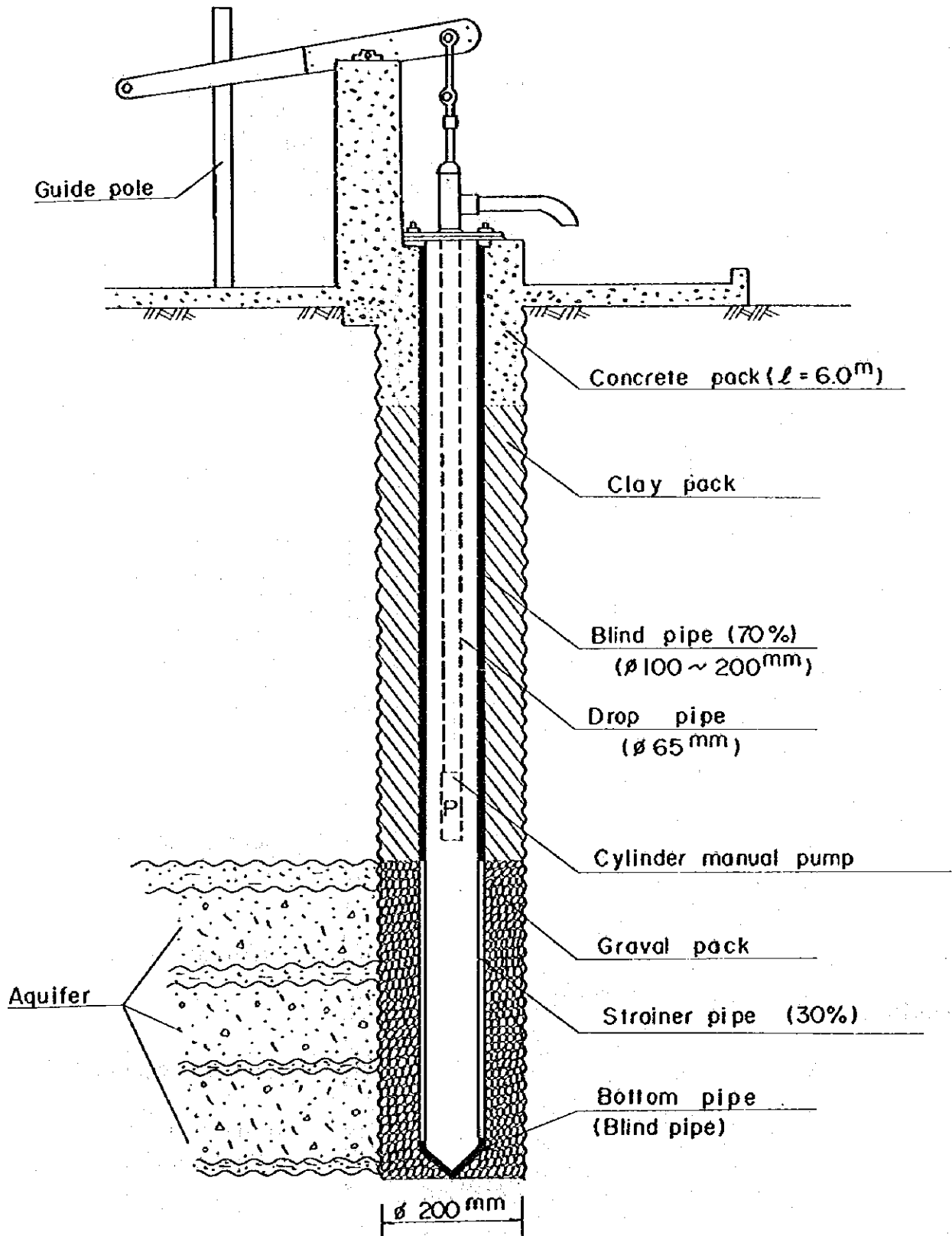
RESULTS OF GROUNDWATER QUALITY SURVEY

Province	Municipality	Barangay	Well	pH	NH ₄		NO ₂		Electric Conduc- tivity
					NH ₄	NH ₄ -N	NO ₂	NO ₂ -N	
Cavite	Gen Trias	Buenavista							
		Manggahan							
	Naic	Malainen							
		Bago	Shallow	7.4	0.5	0.4	0.02	0.006	-
		Pulangue I		6.6					
		" II							
		Malainen							
		Luma	Shallow	7.6	0.5	0.4	0.02	0.006	-
	Magallanes	Medina	Deep	7.0	1.0	0.8	0.02	0.006	
		Bendita							
	Caluangan	Shallow	6.8	2.0	1.6	0.02	0.006	-	
Marogondon	Tulay	Deep	6.8	0.5	0.4	0.6	0.006		
	Pantihan	Deep	6.7	0.5	0.4	0.02	0.006	-	
Indang	Balagbag								
	Pilipit	Deep	6.8	0.5	0.4	0.02	0.006		
Amadeo	Maitim								
Silang	Pasong Nangka								
Indang	San Pascual								
	Agus-05								
	Guyam Malaki								

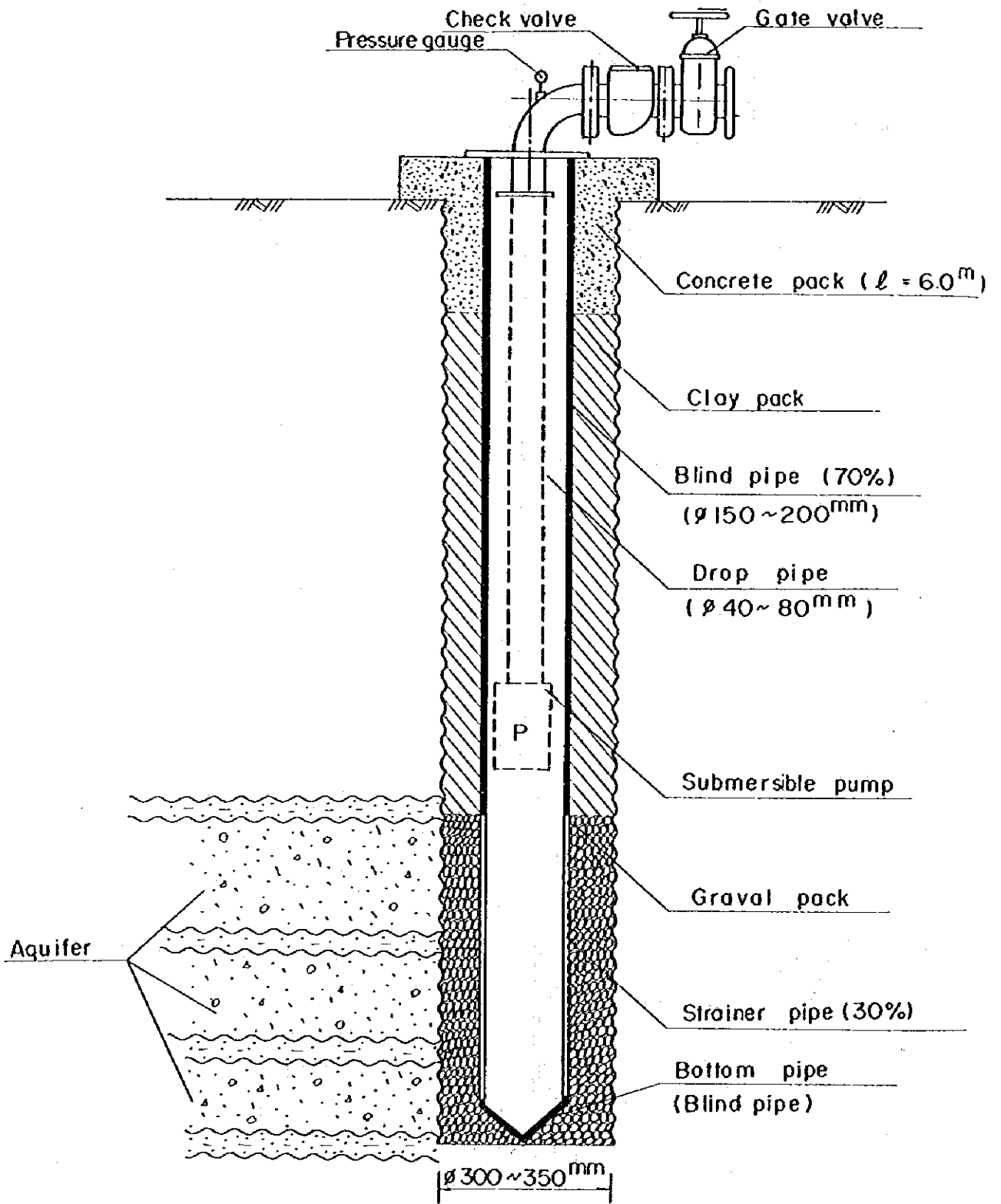
RESULTS OF GROUNDWATER QUALITY SURVEY

Province	Municipality	Barangay	Well	PH	NH ₄		NO ₂		Electric Conduc- tivity	
					NH ₄	NH ₄ -N	NO ₂	NO ₂ -N		
Batangas	Talisay	Aya	Shallow	7.2	0.5	0.4	0.02	0.006	-	
		Caloocan								
		Tumaway	Shallow	7.6	1.0	0.8	0.1	0.03	-	
		Banga								
		Balas								
		Sta. Maria								
		Mitanda	Spring	7.0	0.5	0.4	0.02	0.006	350	
		Sampaloc								
		Quiling	Deep	7.6	0.5	0.4	0.015	0.05		
		"	Shallow	7.4	0.5	0.4	0.015	0.05		
	Lemery	Arumahan	Deep	7.8	0.5	0.4	0.02	0.006		
		Bagong Pook								
		Gulod	Deep	7.8	0.5	0.4	0.02	0.006		
		Mahebang								
		Dahilig								
		Mayasang								
		Masalisi	Rain Water	5.6	1.0	0.8	0.02	0/006		
		Niyugan								
		Sta. Teresita	Burol							
			Sinipian							
Bihis										
Antipolo										
Kalayaan	Deep		7.2	0.5	0.4	0.02	0.006	700 2800		
Irukan	Deep		7.2	0.5	0.4	0.02	0.006	600 2800		
Poblacion										
Zone I										
" II										
" III										
Cuta West										
Cuta East										

PROPOSED DESIGN: TYPICAL DEEP WELL

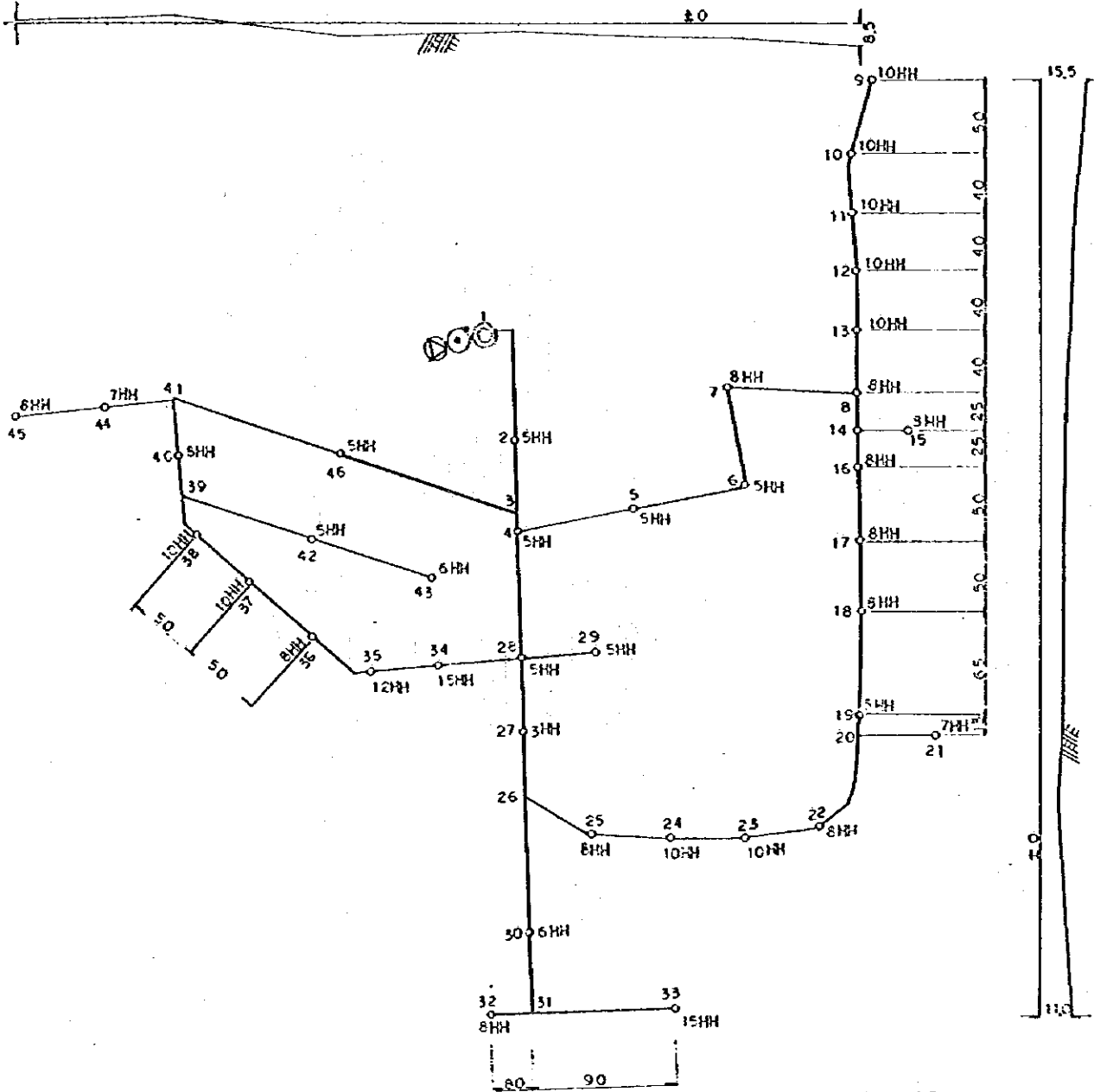


SOURCE FOR LEVEL - II SYSTEM



TYPICAL SCHEMATIC OF THE SYSTEM

APPENDIX 29

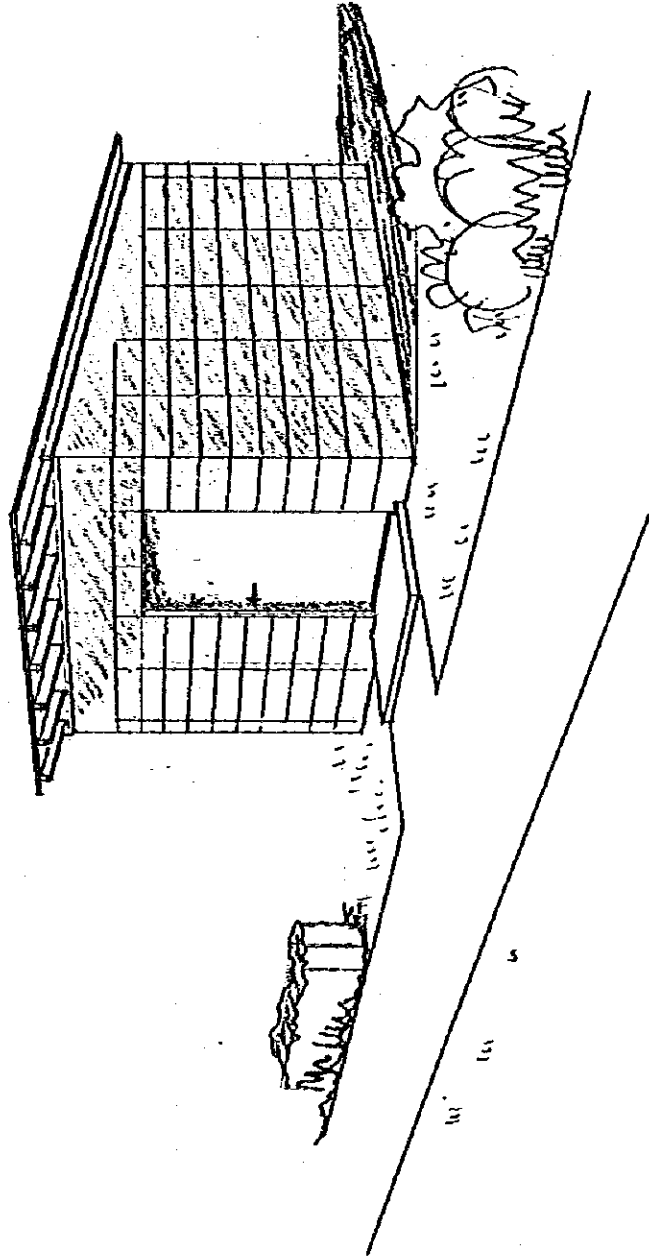


BARANGAY : JALONG
 MUNICIPALITY : PORAC
 PROVINCE : PAMPANGA

LEGEND :

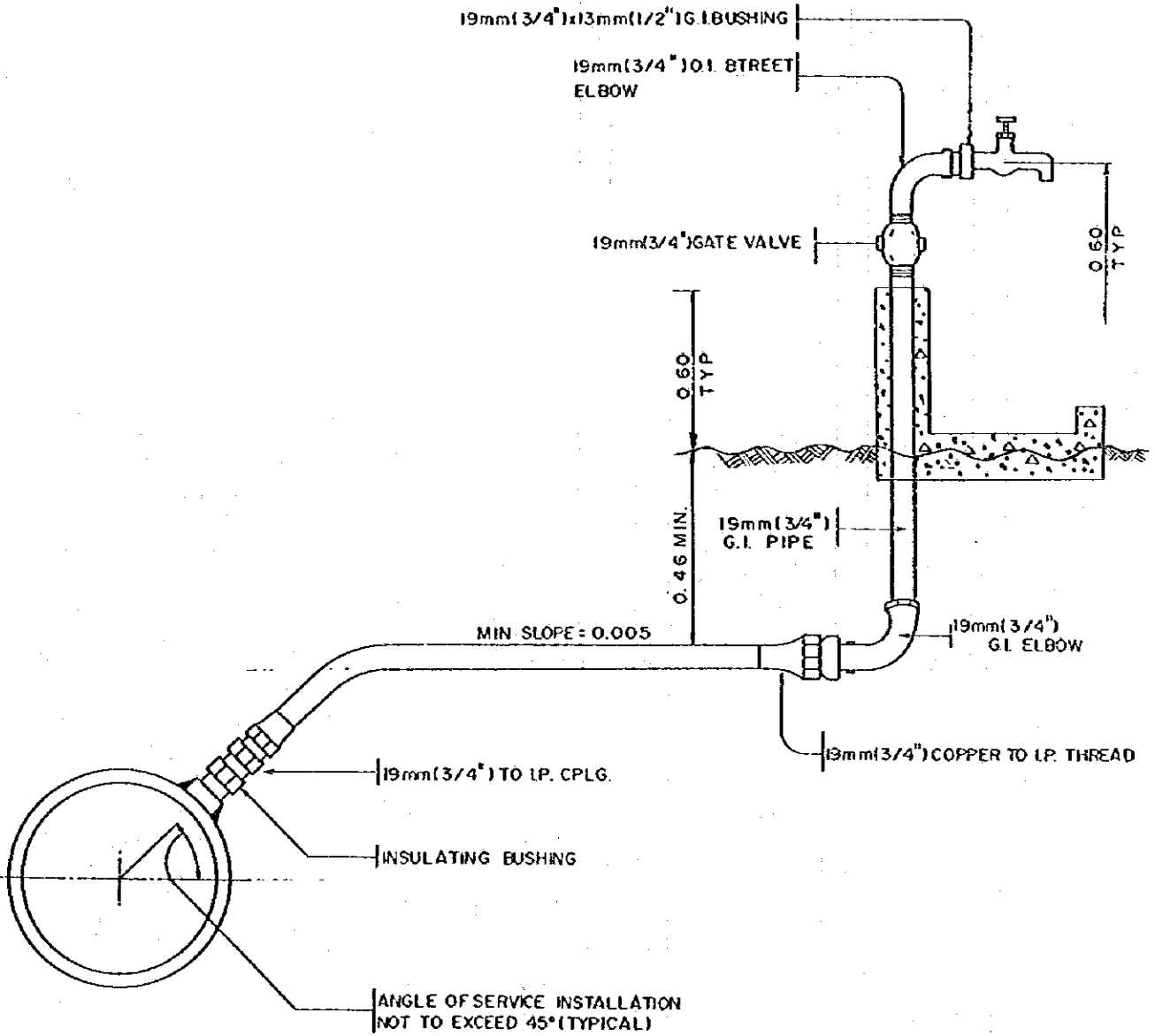
- ⊙ - WELL
- ⊗ - SPRING
- ⊗ - COMMUNAL FAUCET
- ⊗ - WATER TANK
- ⊗ - PUMP STATION
- HH - NO. OF HOUSEHOLD
- 2 - NODE NUMBER

DRWG FOR PUMP HOUSE



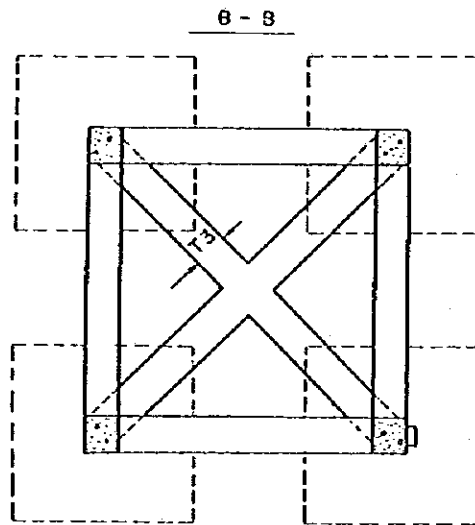
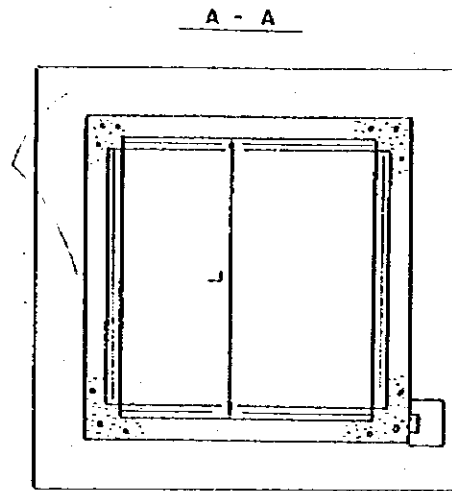
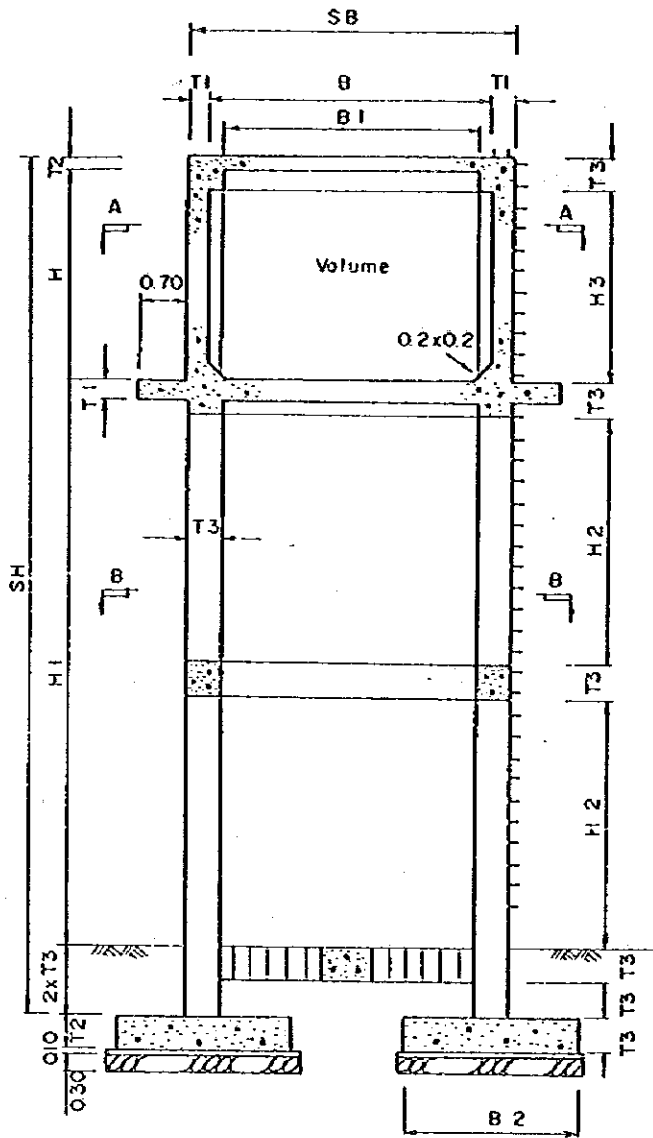
PERSPECTIVE

TYPICAL COMMUNAL FAUCETS



PROPOSED BASIC DESIGN OF STORAGE TANK

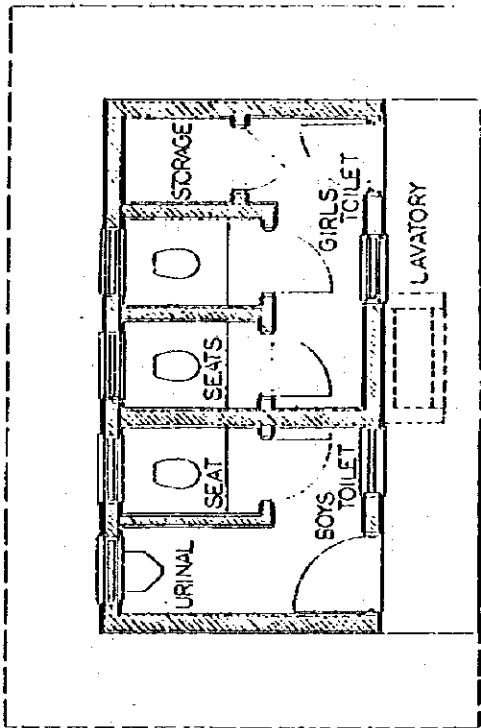
APPENDIX 3



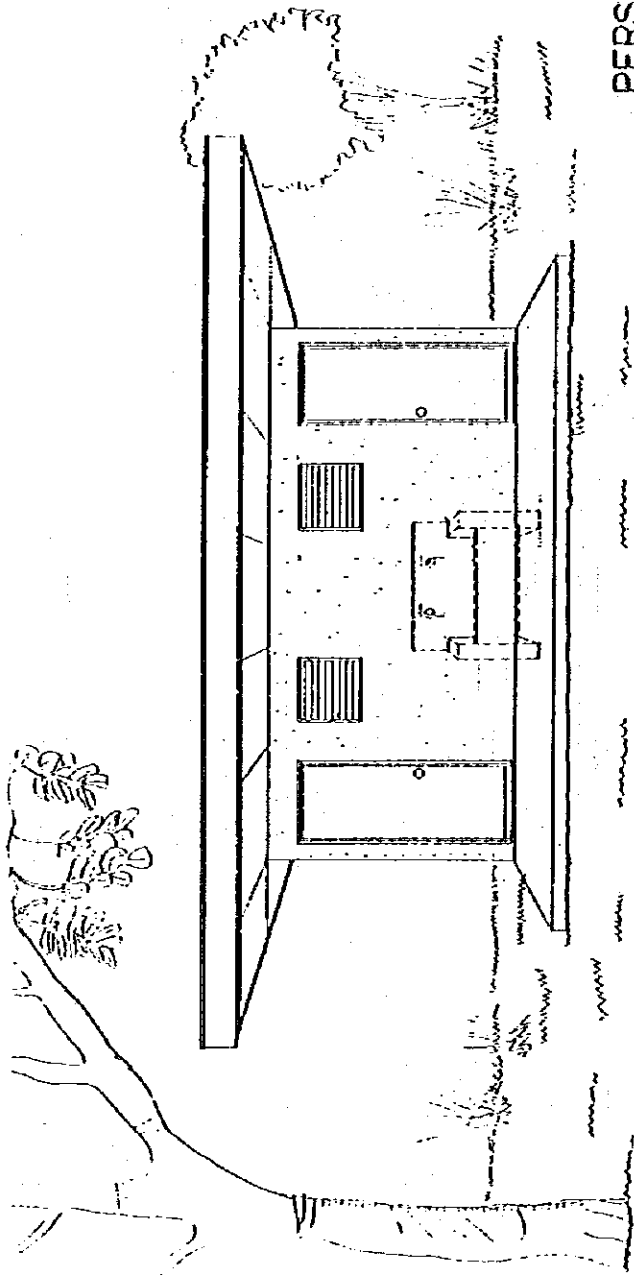
	I	II	III	IV	V
Volume (m ³)	10	20	40	70	
B (m)	2	3	4	5	
L "	2	3	4	5	
H "	2.5	2.5	3	3	
H1 "	5	6	7	9	
H2 "	2.1	2.5	2.9	3.7	
H3 "	2.3	2.25	2.65	2.5	

	I	II	III	IV
Volume (m ³)	10	20	40	70
T1 (m)	0.25	0.3	0.3	0.4
T2 "	0.2	0.25	0.25	0.3
T3 "	0.4	0.5	0.6	0.8
B1 "	1.7	2.6	3.4	4.2
B2 "	1.5	2.0	2.5	3.2
SH "	8.5	9.8	11.5	14.0
SB "	2.5	3.6	4.6	5.8

PROPOSED TOILET FACILITIES: TYPE A

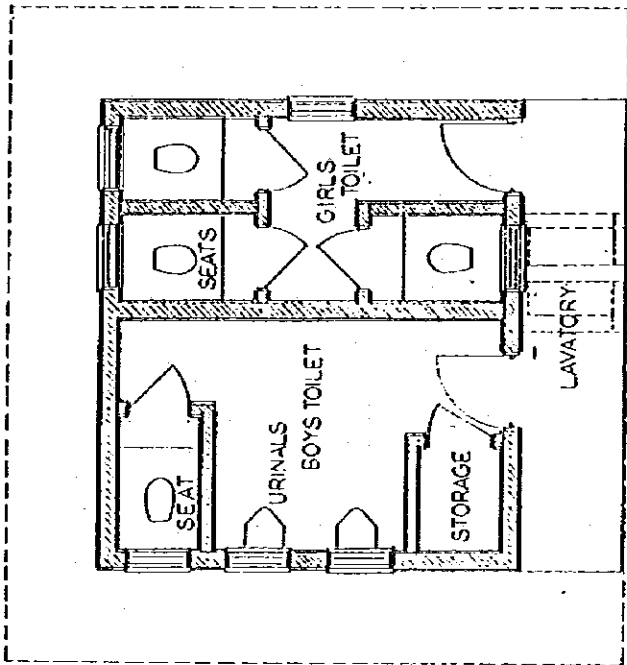


FLOOR PLAN

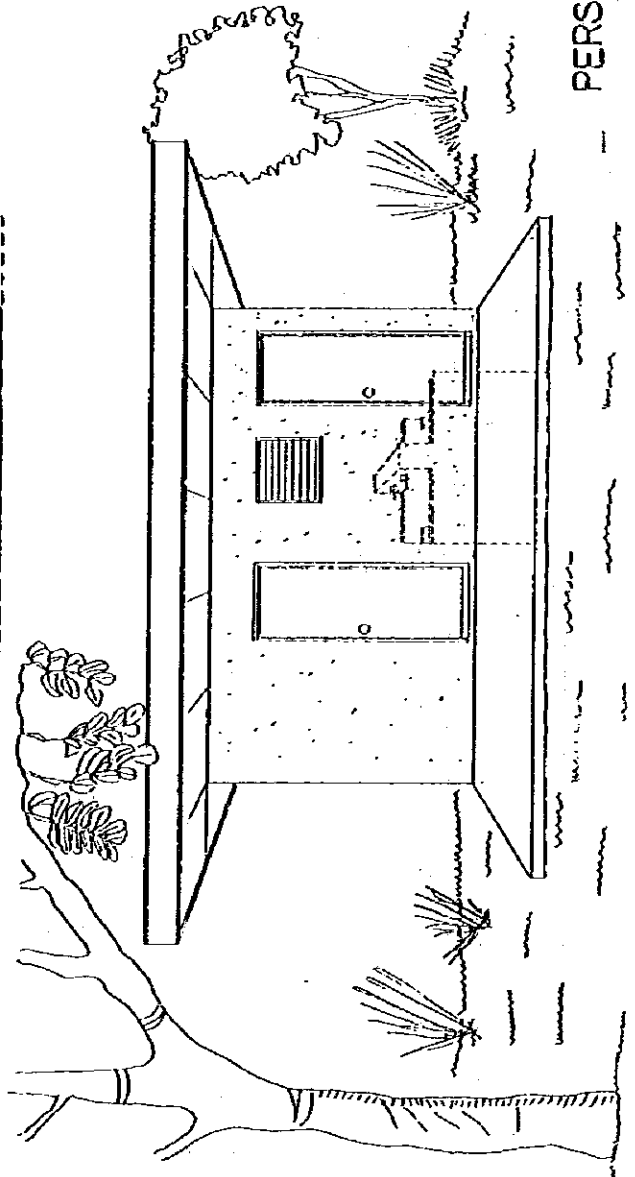


PERSPECTIVE

PROPOSED TOILET FACILITIES: TYPE B

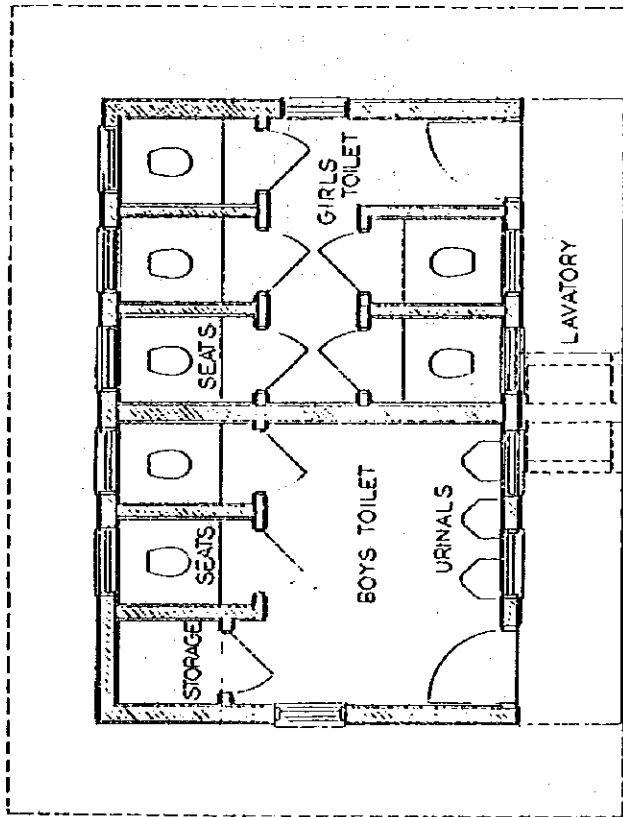


FLOOR PLAN

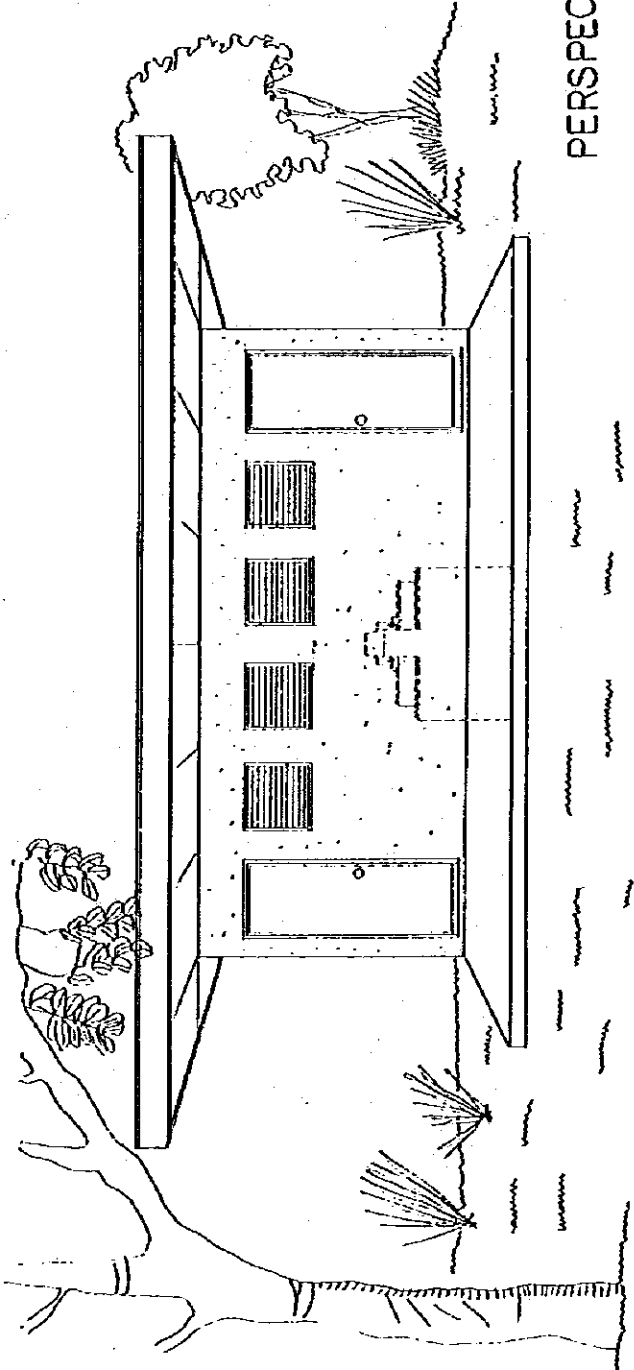


PERSPECTIVE

PROPOSED TOILET FACILITIES: TYPE C



FLOOR PLAN



PERSPECTIVE

**SEPTIC TANK CAPACITY DESIGN
CALUCULATION CHART**

Number of Persons served	Inside Dimensions of Chamber					
	D - DEPTH		W - WIDTH		L - LENGTH	
	Feet - Inches	Meters	Feet - Inches	Meters	Feet - Inches	Meters
5 - 10	4' - 0"	1.20	3' - 0"	0.90	6' - 0"	1.80
15	4' - 0"	1.20	3' - 6"	1.10	7' - 0"	2.10
20	4' - 0"	1.20	4' - 0"	1.25	8' - 0"	2.50
25	4' - 0"	1.20	4' - 6"	1.40	9' - 0"	2.80
30	4' - 3"	1.30	5' - 0"	1.50	10' - 0"	3.00
35	4' - 3"	1.30	5' - 3"	1.60	10' - 3"	3.20
40	4' - 6"	1.40	5' - 6"	1.65	11' - 0"	3.30
45	4' - 6"	1.40	5' - 9"	1.75	11' - 6"	3.50
50	5' - 0"	1.50	5' - 9"	1.80	11' - 6"	3.60

SUMMARY OF THE PROJECT FACILITIES

Name Province	Level of Water Supply System		Type of Pump			Type of School Toilet			
	I <u>1/</u>	II <u>2/</u>	H <u>3/</u>	S <u>4/</u>	SP <u>5/</u>	A	B	C	D
Pampanga	2	6	2	6	-	1	2	4	1
Bulacan	11	4	11	4	-	4	2	6	1
Cavite	10	5	10	5	-	4	4	4	1
Batangas	17	5	12	9	1	7	3	7	1
TOTAL	40	20	35	24	1	16	11	12	4
GRAND TOTAL	60		60			52			

1/ Point source

2/ Distribution system including well, pump station, distribution pipeline and communal faucet

3/ Hand pump

4/ Submersible pump

5/ Spring (gravity flow)

TYPE OF SCHOOL TOILET

	Boys		Girls	Type
	Seats	Urinals	Seats	
A.	1	1	2	Water seal
B.	1	2	3	- do -
C.	2	3	5	- do -
D.	2	3	5	flush

PROVINCE: PAMPANGA

Municipality	Barangay	Level of Water Supply System	Type of Pump	Type of Toilet
LUBAO	1. Sta. Cruz	I	Hand	C
	2. Bancal Pugad	II	S	B
FLORIDA BLANCA	3. Bodega	II	S	C
	4. Camatchille	I	H	A
	5. Dampe	II	S	B
	6. Gutad	II	S	C
PORAC	7. Jalung	II	S	D (flush)
	8. Dolores	II	S (Spring)	C

PROVINCE: BULACAN

Municipality	Barangay	level of Water Supply System	Type of Pump	Type of Toilet
OBANDO	9. Binuangan	I	H	C
	10. Catangalan	I	H	C
	11. Hulo	II	S	A
	12. Lawa	II	S	C
	13. N.S.D. Salambao	I	H	-
PAOMBONG	14. Paco	I	H	C
	15. Pag-asa	I	H	-
	16. Bonakod	I	H	A
	17. Kapitangan	I	H	C
	18. Malomot	II	S	-
	19. Masukol	I	H	B
	20. Pinalagdan	I	H	B
	21. San Jose	II	S	A
	22. San Isidro I	I	H	C
	23. San Isidro II Poblacion	I -	H -	A D (flush)

PROVINCE: CAVITE

Municipality	Barangay	Level of Water Supply System	Type of Pump	Type of Toilet
AMEDEO	24. Maitim	I	H	B
GEN. TRIAS	25. Buenavista	II	S	D
	26. Manggahan	I	H	A
INDANG	27. Balagbag	II	S	A
	28. Pilipit	II	S	A
	29. Guyam, Malaki	I	H	B
	30. San. Pascual	I	H	-
	31. Agus-Os	II	S	-
MARAGONDON	32. Pantihan III	I	H	B
	33. Tulay	I	H	C
NAIC	34. Malainen Luma	I	H	C
	35. Malainen Bago	I	H	C
	36. Palangue I	I	H	C
	37. Palangue II	I	H	A
SILANG	38. Pasong Langka	II	S	B

PROVINCE: BATANGAS

Municipality	Barangay	Level of Water Supply System	Type of Pump	Type of Toilet
LEMERY	39. Arumahan	II	S	C
	40. Bagong Pook	II	S	-
	41. Gulod	I	S	B
	42. Mahabang Dahilig	I	S	B
	43. San Isidro	I	H	A
	44. Masalisi	I	S	A
	45. Tubuan	I	H	A
STA. TERESITA	46. Bihis	II	S	C
	47. Burol	II	S	A
	48. Irukan	I	H	B
	49. Kalayaan	I	H	-
	50. Cuta East	I	S	A
	51. Cuta West Poblacion	I	S	- D (flush)
TALISAY	52. Aya	I	H	C
	53. Balas	I	H	C
	54. Banga	I	H	A
	55. Caloocan	II	S	C
	56. Miranda	I	(Spring)	A
	57. Quiling	I	H	C
	58. Sampaloc	I	H	B
	59. Sta. Maria	I	H	-
	60. Tumaway	I	H	-

LIST OF EQUIPMENT

MPWH

1. Mobile Workshop	1 unit
2. Maintenance Tools	1 set
3. Portable Generator	1 set
4. Pumping Test Unit	2 sets
5. Water Level Indicator	2 units
6. Photocopier with Enlarger & Reducer	1 unit
7. Printing Machine (stencil)	1 unit
8. 16mm Projector	1 set
9. Video Set with Recorder, Camera and Accessories	1 set

MOH

1. Mobile Type Audio Visual Van	2 units
2. Photocopier with Enlarger & Reducer	2 units
3. Printing Machine (stencil)	2 units
4. 16mm Projector	2 sets
5. Video set with recorder, camera and accessories	2 sets
6. Portable generator	2 sets
7. Vaccum car	2 sets
8. Bulldozer	2 units
9. Vehicles for monitoring (smal 4WD)	4 units

JUSTIFICATION FOR EQUIPMENT BY MPWH

1 Unit Mobile Workshop

This will facilitate on the job training especially in localities where scarce transportation facilities is notable. Further, this will accelerate the conduct of training programs even in far flung areas where the Japanese grant project is located. In addition, the vehicle will doubly cater for the monitoring of projects, and maintenance and repair services.

1 Set Maintenance Tools

These tools shall be part of the mobile workshop. These are the tools to be used in the training on repair and maintenance of the systems to be constructed in the pilot areas and other water supply systems which are subject for repair and/or rehabilitation.

1 Set Portable Generator

Some of the locations of the pilot projects are in the barangays without the services of electricity, hence, an alternative source of power is indispensable. It is along this premise that the operation of the mobile workshop and its parts will be impossible without the portable generator.

2 Sets Pumping Test Unit

It is a recognized fact that well development greatly contributes to the quality of well being constructed. Before the construction of a water system, determination of the capacity of the well is necessary, thus pumping test units are badly needed in this pilot project.

2 Unit Water Level Indicator

The need for water level indicators are brought about by the relativity and unpredictability of water tables in Batangas, Bulacan, Cavite and Pampanga.

1 Unit Photocopier with Enlarger and Reducer

The preparation of tables, charts and other visual materials to be used in the technical courses are enormous and these are usually done on a big sheet of paper. Reproduction of such materials are difficult, hence a need for a photocopier with reducer is needed. On the other hand, some visual aids are small that it is no longer visible, so, there is a need to reproduce it with the use of the enlarger machine.

Several copies of management reports should be reproduced in order that concerned offices will be provided with updated information about the project, therefore, the dire need for photocopies.

1 Unit Printing Machine

This machine will be utilized to reproduce the plans and designs to be used in the implementation of projects within the chosen four (4) provinces. Time element is involved in the implementation of these pilot projects, hence, dissemination of plans and designs should be done in the fastest way. This could be done by having 1 unit printing machine in the PMO-RWS.

1 Set 16mm Projector

The projector will help in the presentation of plans and designs to the technical personnel of the PMO-RWS as well as the field offices for the proper implementation of the project. Likewise, it will be used in showing the visual materials regarding the maintenance and sanitation of the system for the end-users to observe.

1 Video Set with Recorder, Camera and Accessories

The complete video set will be used in monitoring the physical progress of the project. It will also help in the preparation of the visual materials for technical and management training to be conducted relative to water supply projects.

JUSTIFICATION FOR EQUIPMENT



Republic of the Philippines
Ministry of Health
BUREAU OF HEALTH SERVICES
M a n i l a

June 15, 1984

The Team Leader
JICA Mission
Makati, Metro Manila

S i r :

This has reference with the proposed Pilot Environmental Project under JICA Grant where we have included two (2) Vacuum Trucks and two (2) Bulldozers in the list of equipment needed for the said project. I wish to justify the need for such equipment to implement the above project and to comply with your Team's request to clarify some points raised during the consultation-meeting with the MOH Staff as follows:

1. There are 60 schools covered under the project and 22 barangays are targetted for Pampanga and Bulacan, while a total of 38 schools are proposed for coverage for Batangas and Cavite provinces.

The Vacuum Trucks or Mechanical Excavators proposed will be used by the Barangay under the project area. Initially the septic tanks in the barangays covered by the project and elsewhere in the province which have never been de-sludged since its use can utilize the said equipment to make the existing septic tanks efficient as a preliminary treatment of wastewater. Eventually, the schools' sewage digester (packaged type wastewater treatment facility) can be de-sludged using the said equipment.

The operation and maintenance of the equipment will be handled by the MOH's Motor Pool and Engineering Services. After the termination of the Project, MOH will continue to operate and maintain these equipment and the local government can avail of their use on an agreement that they will provide fuel and allowance for the operator while servicing their area.

maintaining 5 years

2. There are two (2) possible sites for the Sanitary Landfill, one in Region 3 and one in Region 4. At least one (1) bulldozer each for the said Regions to be used for excavation where required, covering the solid waste materials and at the same time for compacting the solid waste and earth cover. The frequency of collection for the Solid Waste will be at least once a day for the concerned municipalities under this component and to be disposed off in the approved and selected sanitary landfill sites.

Operation and maintenance will be handled by the municipal government where the Sanitary Landfill will be undertaken based on existing policies.

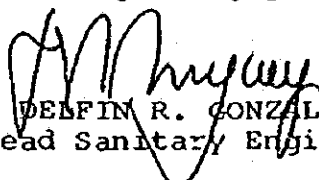
Under the Presidential Decree 856, better known as the "Code on Sanitation of the Philippines", the Local Government are responsible for the collection and disposal of solid waste.

3. With regards to the Urban Disposal of Human Waste, majority of the urban areas are using septic tanks. However, in the urban slum, people can not afford to construct septic tanks and more often, toilet facilities are not available. Sometimes people share with their neighbors who have toilets.

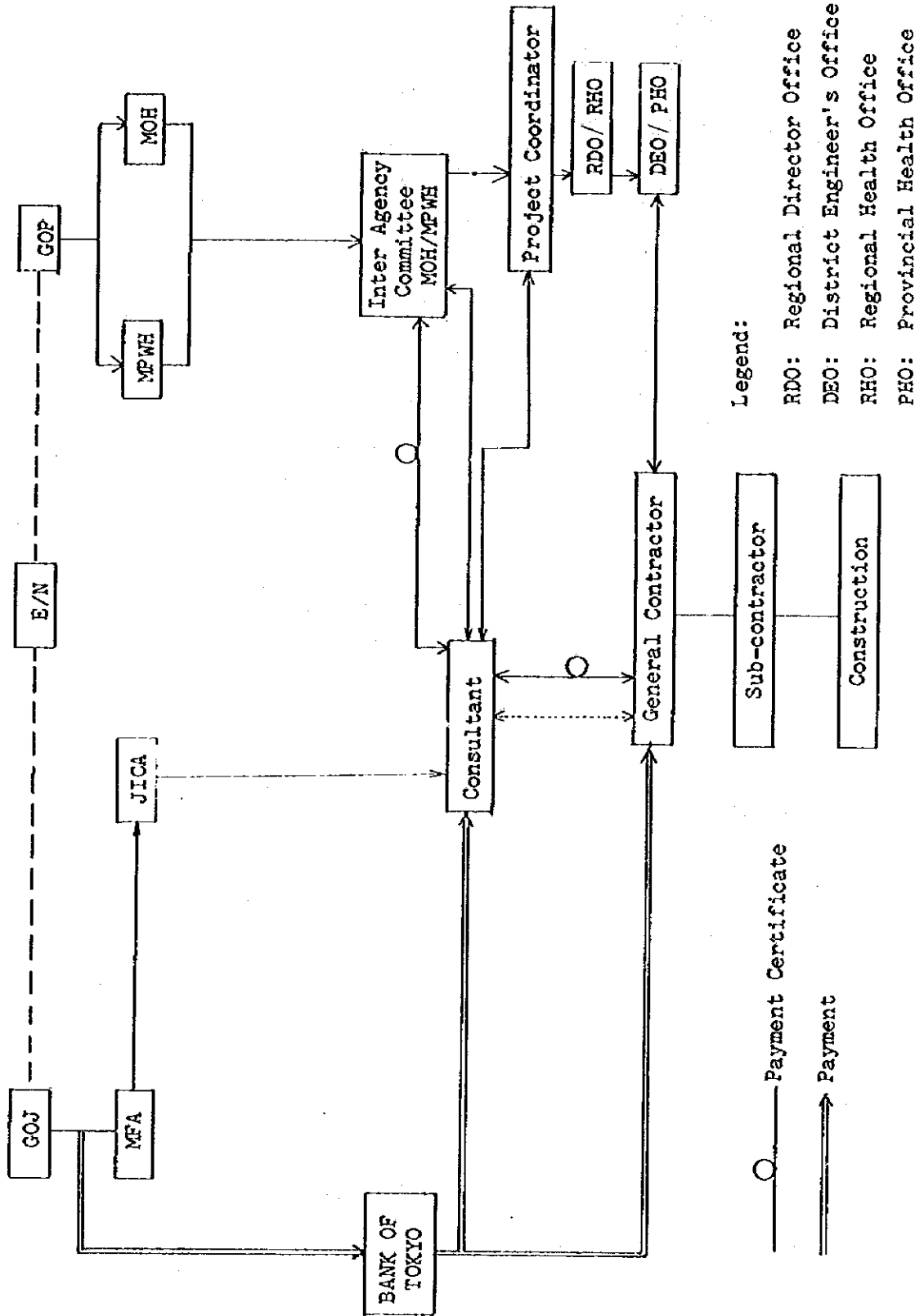
As of now, Manila, Baguio and Zamboanga Cities are still partially sewerred.

Should you need additional informations please don't hesitate to let us know.

Very truly yours,


DELFIN R. GONZALEZ
Head Sanitary Engineer

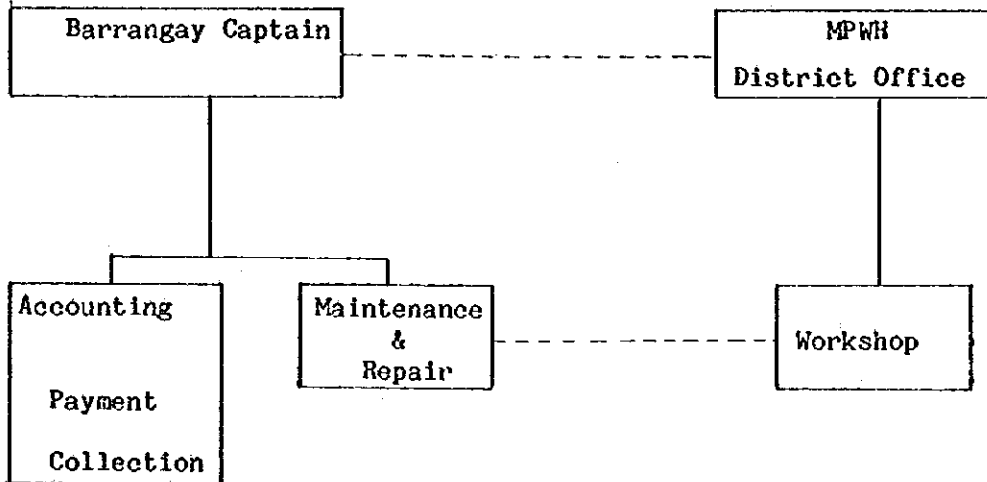
WORK AND FUNDING FLOW



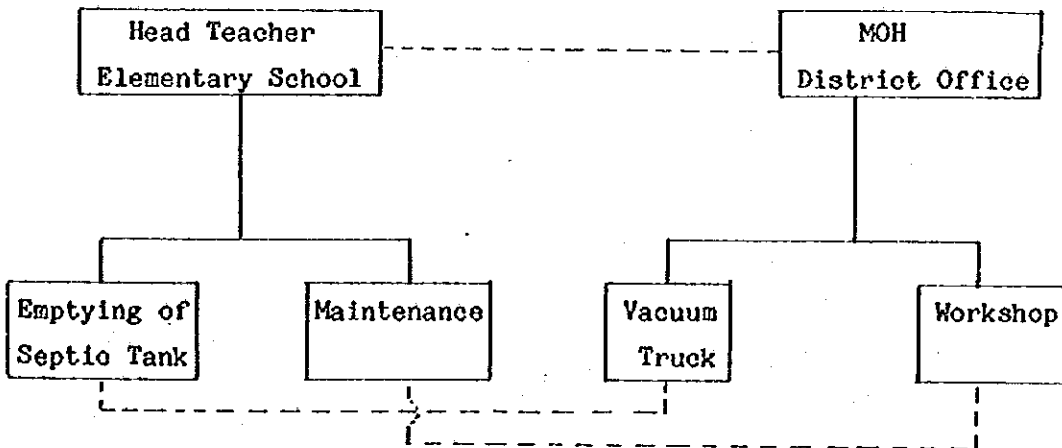
PROPOSED IMPLEMENTATION SCHEDULE FOR CONSTRUCTION WORKS

Work Item	No. of Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
E/N						▽																
Detailed Design (Field Study)							█															
Preparation of Tender Documents								█														
Procurement								█														
Overseas Shipment, Customs Clearance, Overland Shipment								█														
On-site Construction Works									█													
- wells									█													
- waterworks										█												
- toilet facilities											█											
Trial Operation																						
transfer																						

ORGANIZATION CHART FOR WATER SUPPLY SYSTEM



ORGANIZATION CHART FOR SCHOOL TOILET



JICA