

17. 気象データ調査地区別降雨量資料(1)

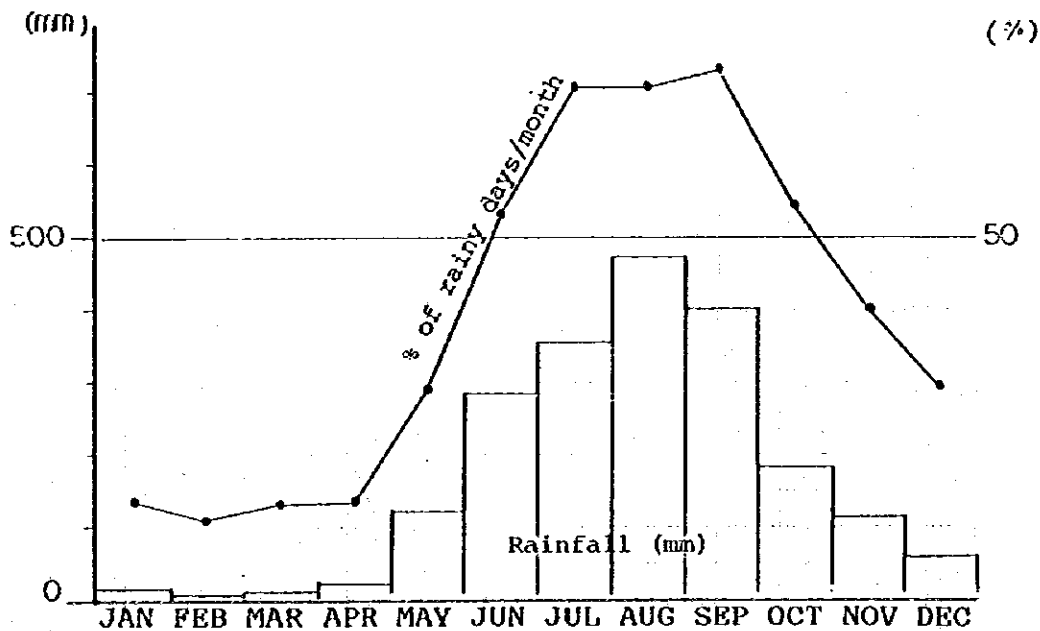
CLIMATOLOGICAL DATA

Station : MANILA

Period of Record : 1951 - 1970

Coordinates : 14° 35' N 120° 59' E

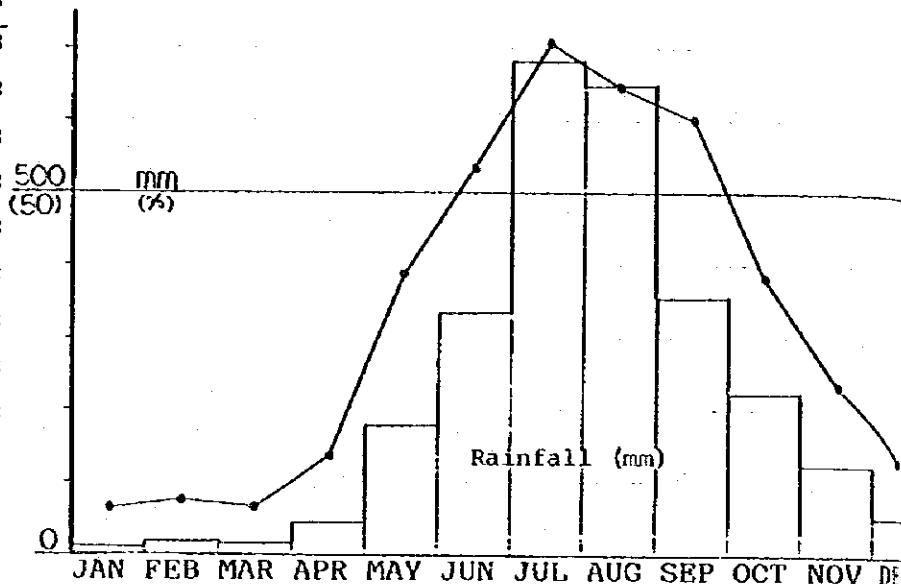
Month	Rainfall (mm.)	No. of Rainy Days	T E M P E R A T U R E (° C.)					
			Mean	Maxi- mum	Mini- mum	Dry : Bulb	Wet : Bulb	Dew Point
JAN	13.3	4	25.9	29.7	22.2	25.6	21.7	20
FEB	6.3	3	26.4	30.3	22.4	26.0	21.7	20
MAR	10.1	4	27.7	31.9	23.5	27.5	22.6	21
APR	21.3	4	29.1	33.2	24.9	29.0	23.7	22
MAY	122.9	9	29.6	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	31.1	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	31.2	24.0	27.3	23.6	22



17. 気象データ調査地区別降雨量資料(2)

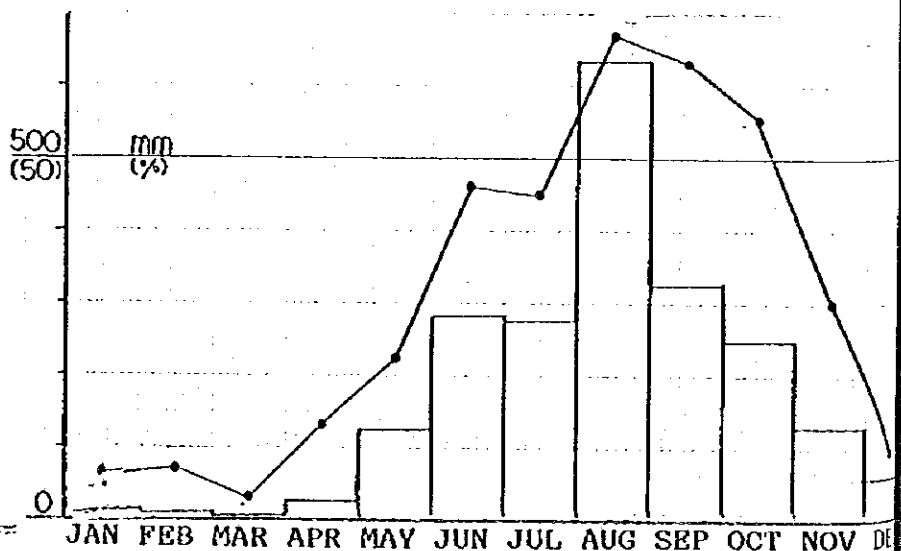
PABANLAG, FLORIDA--  
BLANCA, PAMPANGA  
14° 59' N 120° 28' E  
1923 - 1937

mm.	No. of Rainy Days
9.9	2
18.0	2
15.2	2
43.7	4
178.3	12
333.0	16
682.2	22
648.7	20
354.8	18
221.2	12
122.2	7
51.8	4
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

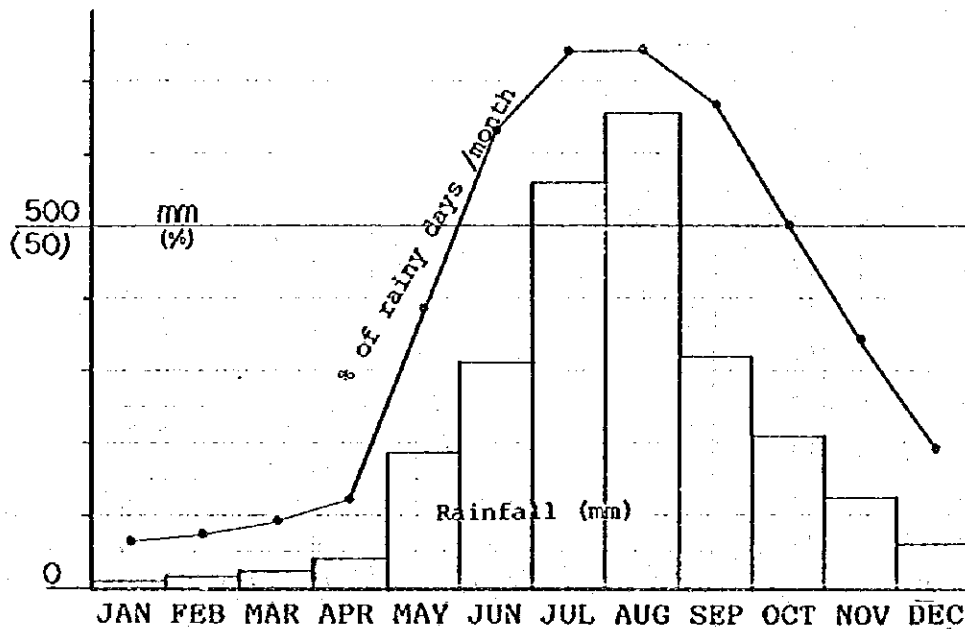


SMSP/71681

17. 気象データ調査地区別降雨量資料(3)

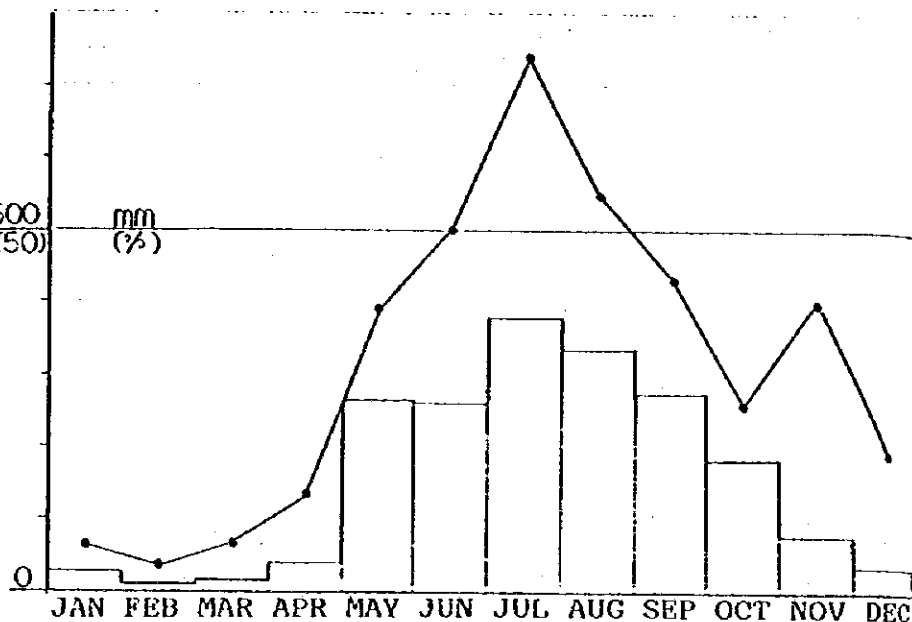
Station : PASUMIL, FLORIDABLANCA, PAMPANGA  
Coordinates : 15° 00' N 120° 32' E  
Period of Record : 1919 - 1943

Month	Rainfall (mm.)	No. of Rainy 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	29.4	34.8	23.8
JUN	310.1	19	29.5	33.3	23.6
JUL	559.8	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	31.6	22.5
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



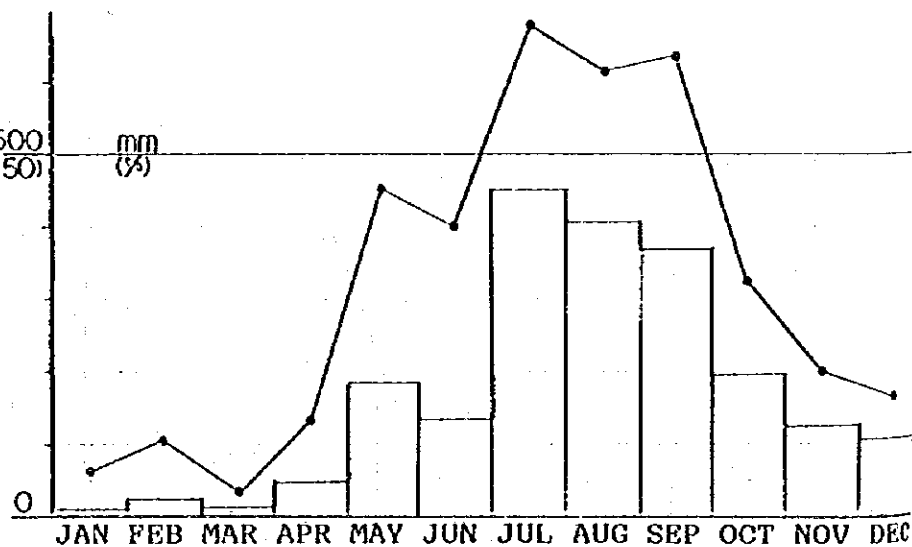
NITLA, PORAC,  
PAMPANGA  
15° 04' N 120° 34' E  
1921 - 1925

::	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

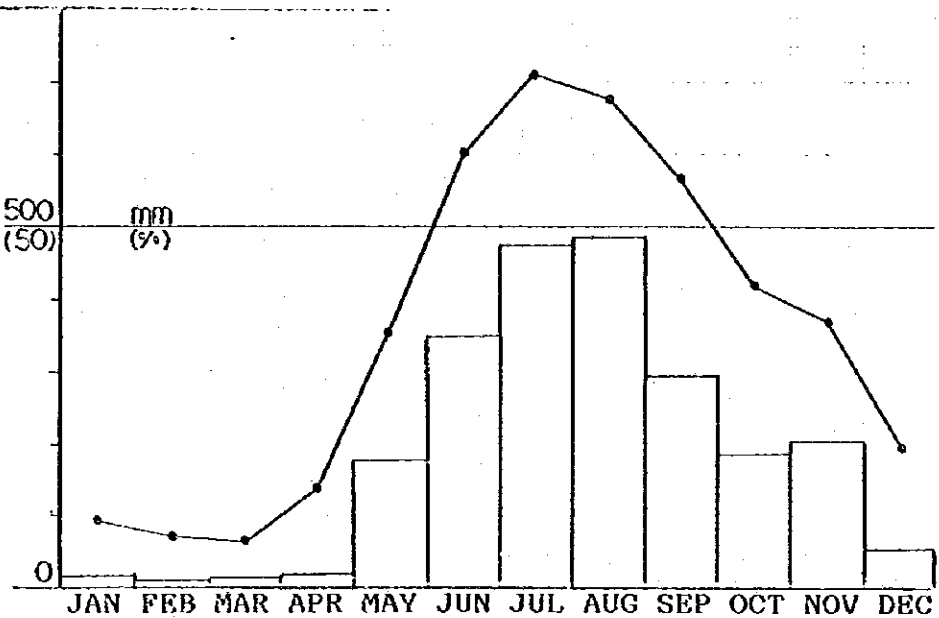
::	Rainfall (mm.)	:	no. of Rainy Days	::
::	10.7	:	2	::
::	25.6	:	3	::
::	14.7	:	1	::
::	48.0	:	4	::
::	185.4	:	14	::
::	135.1	:	12	::
::	450.6	:	21	::
::	406.9	:	19	::
::	369.1	:	19	::
::	197.6	:	10	::
::	126.7	:	6	::
::	107.4	:	5	::
::	2,077.8	:	116	::



17. 気象データ調査地区別降雨量資料(5)

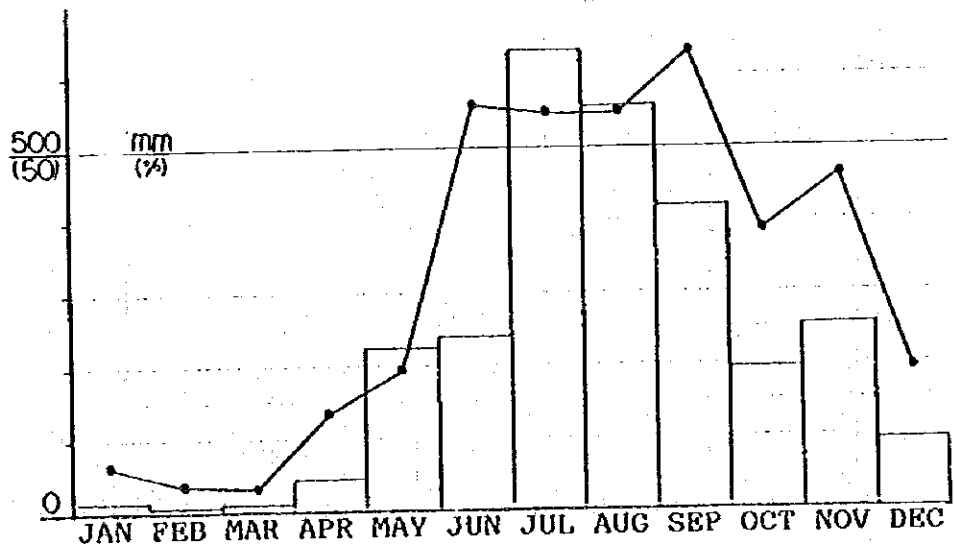
Station : MALOLOS, BULACAN  
Coordinates : 14° 51' N 120° 48' E  
Period of Record : 1920 - 1933

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	165.4	13
NOV	203.2	11
DEC	51.8	6
ANNUAL	2,277.0	130



SAN LORENZO, NORZAGA-  
GARAY, BULACAN  
14° 55' N 120° 46' E  
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	2,806.6	116

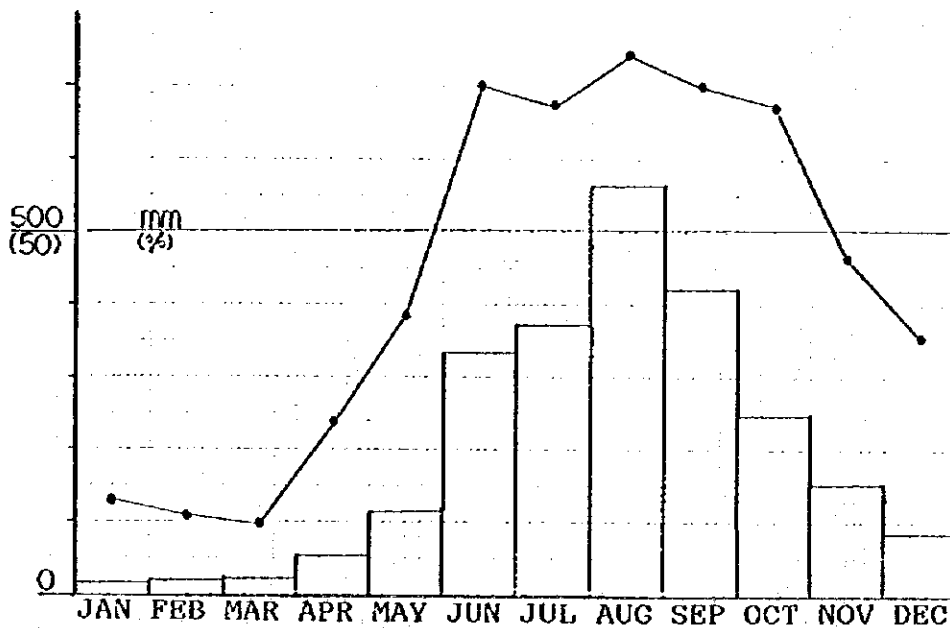


17. 気象データ調査地区別降雨量資料(6)

CALOCAN CITY

Period of Record: 1951-1970

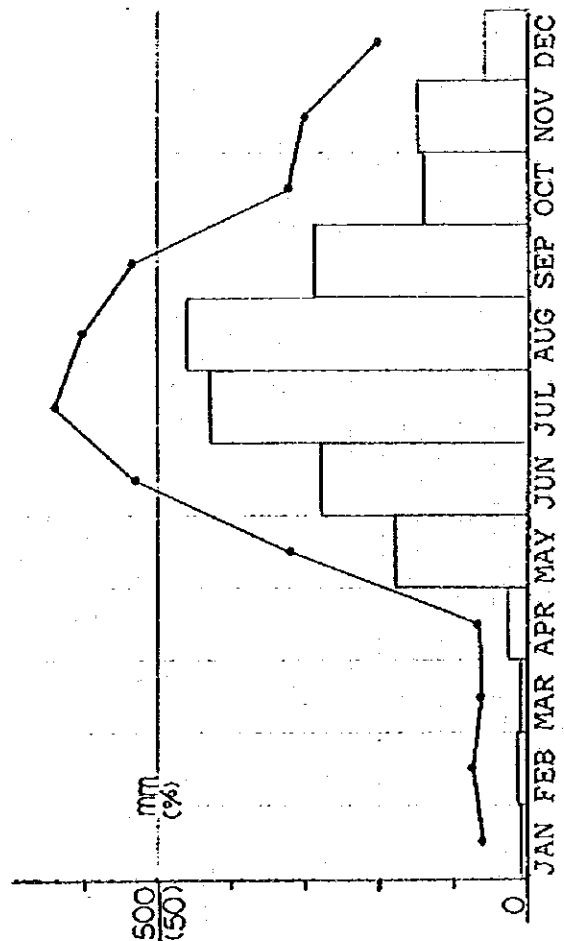
	Rainfall (mm.)	No. of Rainy Days	Relative Humidity (%)	Cloud- iness (0-8)	Prevailing Wind Direc- tion	& Speed (KPH)
JAN	15.0	4	70	5	NE	9
FEB	18.4	3	69	4	E	9
MAR	21.8	3	62	5	SE	10
APR	54.0	7	65	3	SE	10
MAY	116.6	12	69	5	E	10
JUNE	333.0	21	76	6	SW	9
JULY	371.7	21	79	6	SW	9
AUG	563.2	23	82	6	SW	9
SEP	420.6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



17. 気象予一夕調査地区別降雨量資料(7)

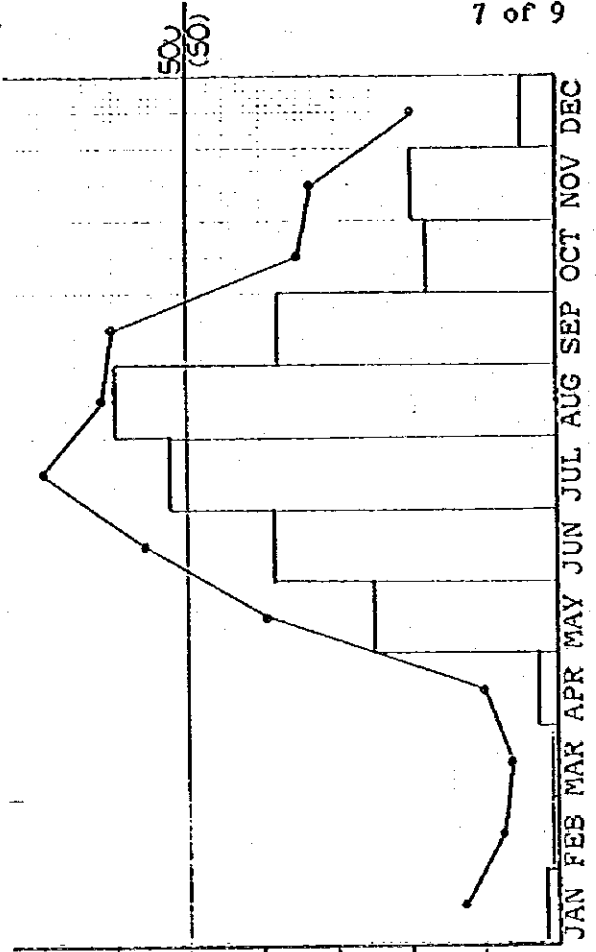
Station : GENERAL THIAS, CAVITE  
 Coordinates : 14° 25' N 120° 53' E  
 Period of Record : 1920 - 1932

Month	Rainfall (mm.)	Days	Mean Temp. (°C)	Max. Temp. (°C)	Min. Temp. (°C)
JAN	6.6	2	25.4	30.3	20.5
FEB	10.4	2	26.2	30.5	21.0
MAR	7.4	2	27.7	33.3	22.0
APR	24.4	2	29.2	35.8	23.2
MAY	163.6	10	28.6	33.7	23.9
JUN	282.2	16	27.5	31.2	23.5
JUL	427.0	20	26.9	30.4	23.5
AUG	452.2	18	26.8	30.2	23.5
SEP	283.5	16	27.0	30.6	23.5
OCT	139.7	10	26.9	30.7	23.0
NOV	147.6	9	26.2	30.1	22.5
DEC	52.1	6	25.6	29.8	21.2
ANNUAL	2,026.1	113	27.0	31.4	22.6



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

Month	Rainfall (mm.)	Days	Mean Temp. (°C)	Max. Temp. (°C)	Min. Temp. (°C)
JAN	17.3	4	25.2	30.2	20.5
FEB	6.9	2	25.6	31.4	19.8
MAR	6.4	2	26.7	32.4	20.9
APR	24.4	3	27.9	33.9	22.0
MAY	249.7	12	27.8	32.9	22.7
JUN	362.3	19	26.7	31.0	23.2
JUL	523.0	22	26.6	30.3	22.9
AUG	559.2	19	26.6	30.2	23.0
SEP	376.9	18	26.9	30.9	22.8
OCT	175.8	11	26.6	30.3	22.3
NOV	192.1	10	26.2	30.1	22.2
DEC	45.7	6	25.3	29.9	20.7
ANNUAL	2,605.7	128	26.5	31.2	21.9



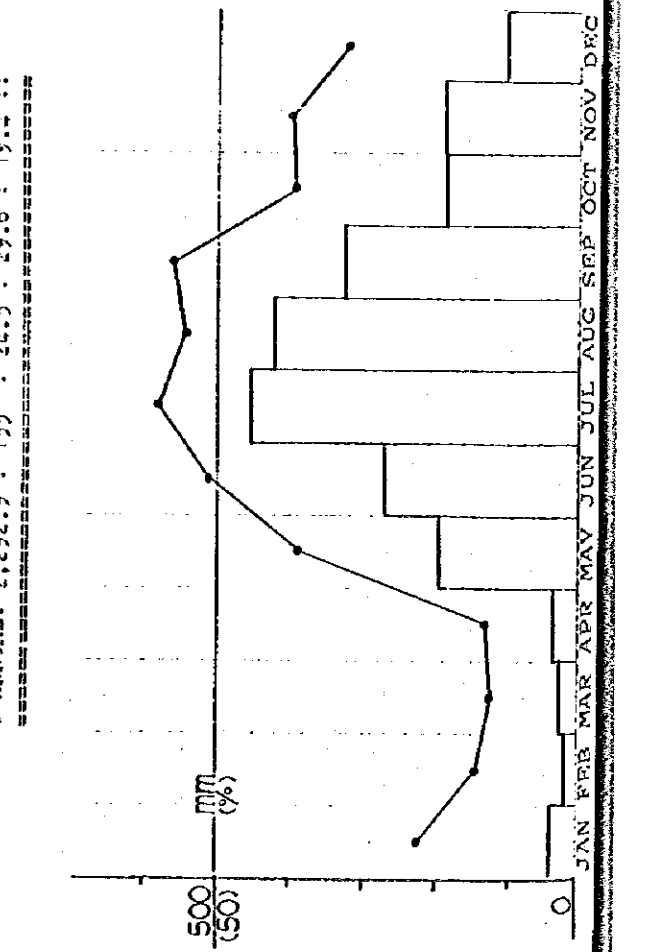
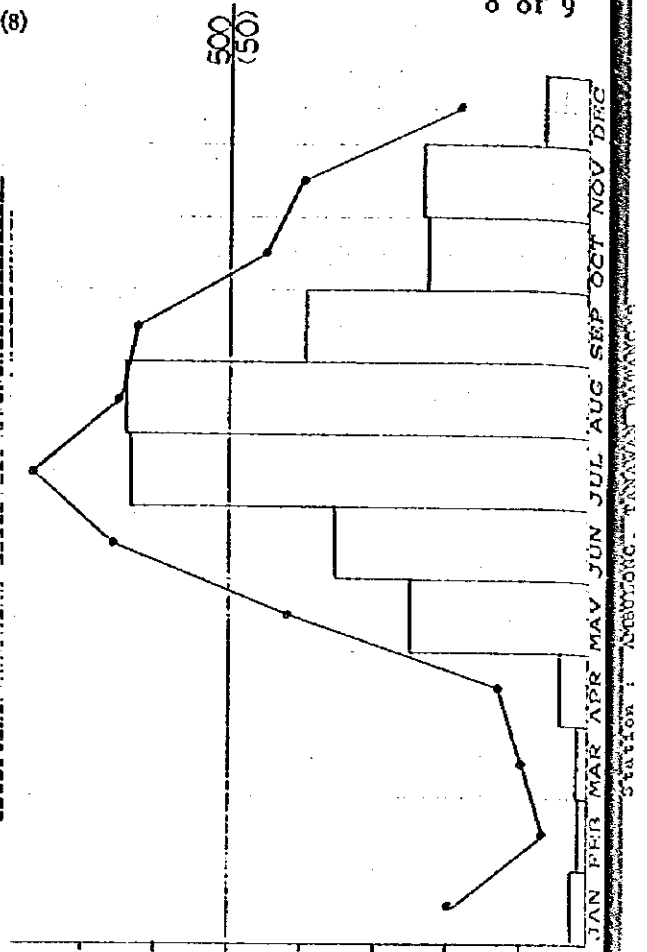
17. 気象データ調査地区別降雨量資料(8)

Station : INDANG, CAVITE  
Coordinates : 146 12' N 1200 53' E  
Period of Record : 1920 - 1932

Month	Rainfall (mm.)	No. of Rainy Days	Mean Temperature (°C)	Max. Temp (°C)	Min. Temp (°C)
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	395.5	19	25.5	29.0	22.0
OCT	223.6	14	25.3	28.9	21.8
NOV	236.0	12	24.7	28.0	21.4
DEC	68.6	8	23.9	27.1	20.6
ANNUAL	2,918.7	145	25.3	29.2	21.5

Station : SILING, CAVITE  
Coordinates : 146 1' N 1200 50' E  
Period of Record : 1904 - 1915; 1919 - 1932

Month	Rainfall (mm.)	No. of Rainy Days	Mean Temperature (°C)	Max. Temp (°C)	Min. Temp (°C)
JAN	41.1	7	22.9	27.6	18.9
FEB	21.6	4	24.0	29.2	18.0
MAR	29.2	4	25.0	30.4	19.6
APR	38.5	4	26.4	32.3	20.6
MAY	190.9	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	133	24.5	29.6	19.4





17. 気象予一夕調査地区別降雨量資料(9)

Station : NEBOBORO, TANAWAN, BANGGANG

Period of Record : 1951 - 1970

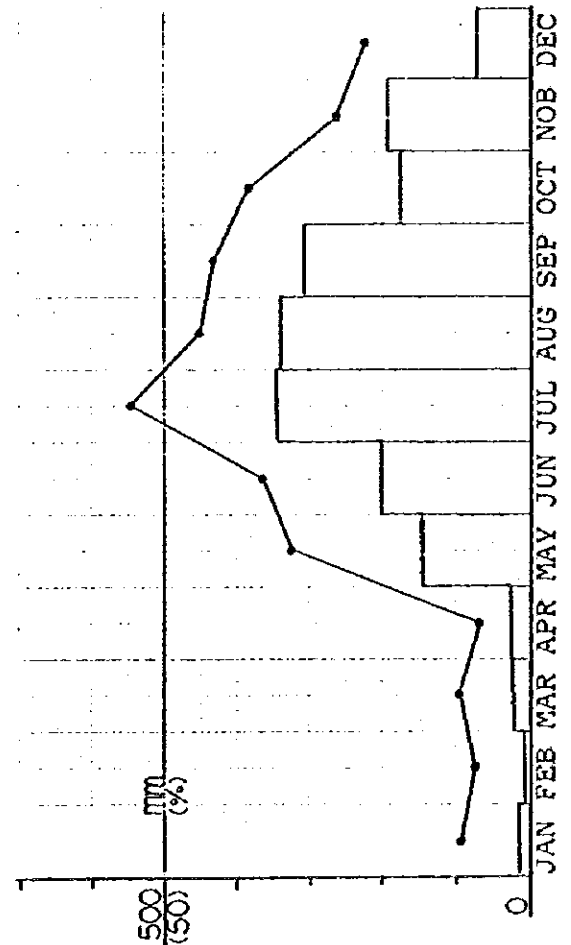
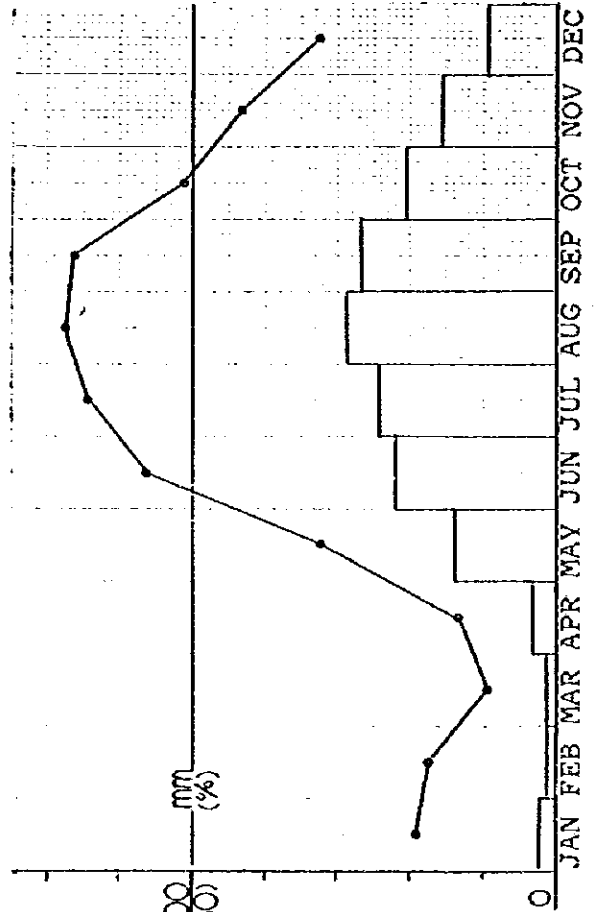
Coordinates : 14° 05' N 121° 04' E

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

Jan.	26.4	6	26.0	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	27.6	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, BATANGAS  
 Coordinates : 13° 37' N 121° 09' E  
 Period of Record : 1920 - 1932

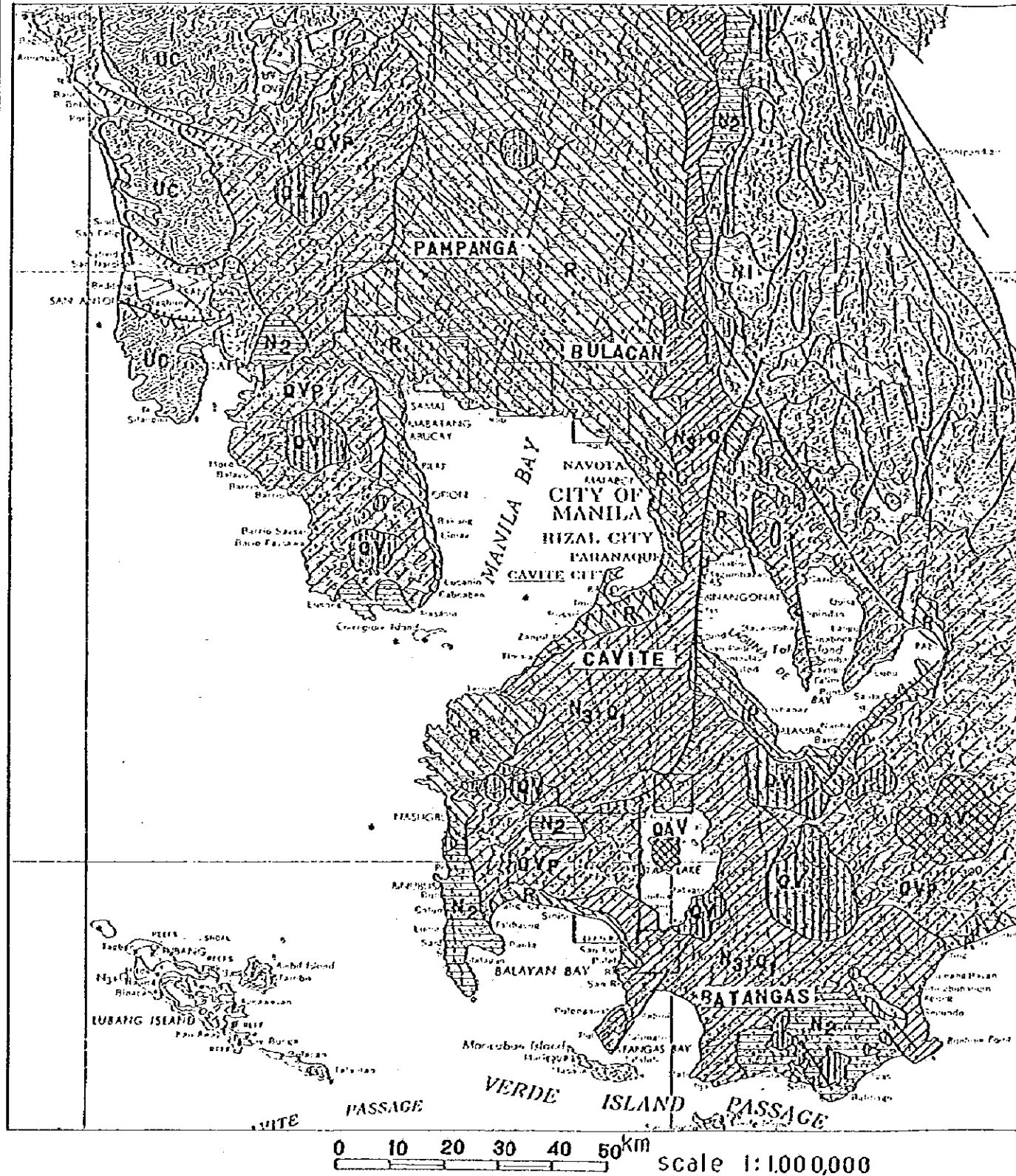
Month	Rainfall (mm)	No. of Rainy Days	Mean	Maxi-	Mini-
JAN	13.7	3	22.4	27.7	19.2
FEB	7.6	2	23.2	29.0	18.7
MAR	21.3	3	25.2	30.6	19.3
APR	23.1	2	26.4	32.4	20.4
MAY	146.5	10	26.6	32.0	21.2
JUN	201.4	11	25.6	29.9	21.2
JUL	346.5	17	25.1	29.9	21.3
AUG	340.6	14	25.2	29.1	21.2
SEP	307.1	13	25.4	29.7	21.1
OCT	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	1,944.8	102	25.0	29.6	20.4







18. 全調查地域地質圖  
Geological Map



LEGEND: Appendix B-D

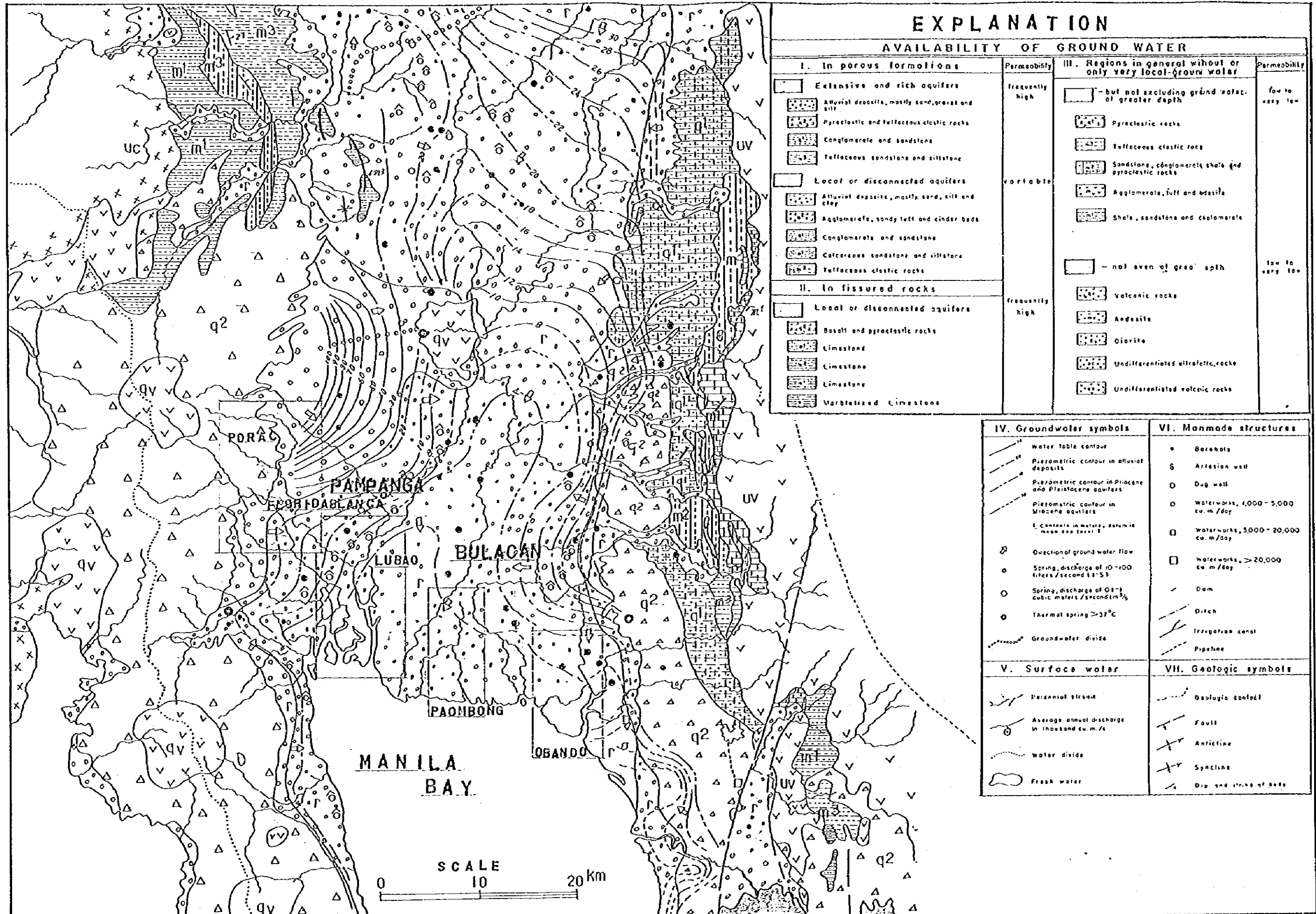
**GEOLOGIC SIGNS AND SYMBOLS**

	SEDIMENTARY & METAMORPHIC ROCKS		PgL - Paleogene
	R - Recent		UC - Cretaceous Paleogene
	N <sub>3</sub> + Q <sub>1</sub> - Pliocene Pleistocene (g-h)		PJ1 - Pre-Jurassic
	N <sub>2</sub> - Upper Miocene Pliocene (f <sub>3</sub> -g)		VOLCANIC ROCKS
	N <sub>1</sub> - Oligocene Miocene (e <sub>2</sub> -f <sub>2</sub> )		QAV - Quaternary
	Pg <sub>2</sub> - Oligocene (c-d)		N <sub>2</sub> - Upper Miocene Pliocene
	Pg <sub>1</sub> - Paleocene eocene (a-b)		N <sub>1</sub> - Oligocene Miocene
	KPg - Undifferentiated		Pg <sub>2</sub> - Oligocene
	K - Cretaceous		Pg <sub>1</sub> - Paleocene eocene
	J - Jurassic		QV - Pliocene Quaternary
	BC - Basement Complex (Pre-Jurassic)		UV - Undifferentiated
	IGNEOUS ROCKS		QVP - Pliocene Quaternary
	NI - Neogene		K - Cretaceous Paleocene

**GEOLOGIC SYMBOLS**

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

Contour Line Drawing of Groundwater Level  
Pampanga, Bulacan



EXPLANATION

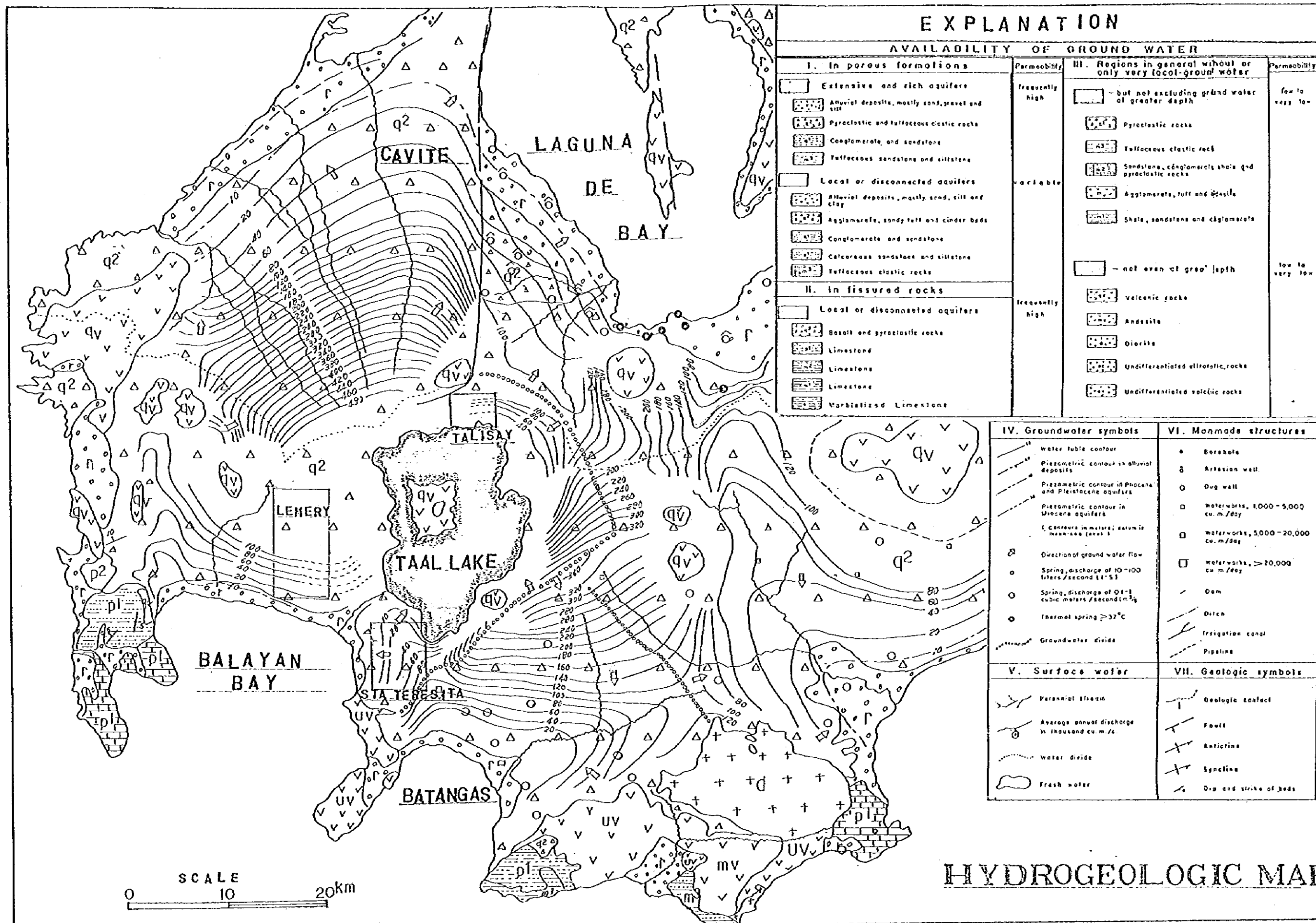
AVAILABILITY OF GROUND WATER

I. In porous formations		Permeability	III. Regions in general without or only very local ground water		Permeability
<b>Extensive and rich aquifers</b> 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 rocks Sandstone, conglomerate shale and pyroclastic rocks Agglomerate, tuff and andesite Shale, sandstone and conglomerate		low to very low
<b>Local or disconnected aquifers</b> 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
<b>II. In fissured rocks</b> Local or disconnected aquifers Basalt and pyroclastic rocks Limestone Limestone Limestone Marbleized Limestone		frequently high			

IV. Groundwater symbols	VI. Manmade structures
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	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
Direction of ground water flow Spring, discharge of 10-100 liters/second (1:5) Spring, discharge of 0.1-1 cubic meters/second (1:5) Thermal spring > 37°C Groundwater divide	VII. Geologic symbols Geologic contact Fault Anticline Syncline Dip and strike of beds
<b>V. Surface water</b> Perennial stream Average annual discharge in thousand cu. m./yr Water divide Fresh water	

SCALE  
0 10 20 km

Contour Line Drawing of Groundwater Level  
Cavite, Batangas



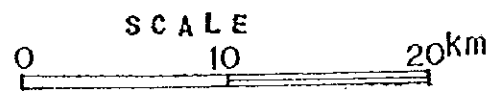
EXPLANATION

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		frequently high	- but not excluding ground water of greater depth		low to very low
Alluvial deposits, mostly sand, gravel and silt		Variable	Pyroclastic rocks		low to very low
Pyroclastic and tuffaceous clastic rocks			Tuffaceous clastic rock		
Conglomerate and sandstone			Sandstone, conglomerate, shale and pyroclastic rocks		
Tuffaceous sandstone and siltstone			Agglomerate, tuff and tuffite		
Local or disconnected aquifers		frequently high	Shale, sandstone and conglomerate		low to very low
Alluvial deposits, mostly sand, silt and clay			- not even of great depth		
Agglomerate, sandy tuff and cinder beds			Volcanic rocks		
Conglomerate and sandstone			Andesite		
Calcareous sandstone and siltstone			Diorite		
Tuffaceous clastic rocks			Undifferentiated ultrabasic rocks		
II. In fissured rocks		frequently high	Undifferentiated volcanic rocks		low to very low
Local or disconnected aquifers			Basalt and pyroclastic rocks		
Basalt and pyroclastic rocks			Limestone		
Limestone			Limestone		
Limestone			Metamorphosed limestone		

IV. Groundwater symbols	VI. Manmade structures
Water table contour	Borehole
Piezometric contour in alluvial deposits	Artesian well
Piezometric contour in Pliocene and Pleistocene aquifers	Dug well
Piezometric contour in Miocene aquifers	Waterworks, 1,000-5,000 cu. m./day
(Contours in meters; datum is mean sea level)	Waterworks, 5,000-20,000 cu. m./day
Direction of ground water flow	Waterworks, >20,000 cu. m./day
Spring, discharge of 10-100 liters/second (l/s)	Dam
Spring, discharge of 0.1-1 cubic meters/second (m <sup>3</sup> /s)	Ditch
Thermal spring >37°C	Irrigation canal
Groundwater divide	Pipeline
V. Surface water	VII. Geologic symbols
Perennial stream	Geologic contact
Average annual discharge in thousand cu. m./yr.	Fault
Water divide	Anticline
Fresh water	Syncline
	Dip and strike of beds

HYDROGEOLOGIC MAP





20. パンパンガ県地下水調査データ  
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
Porac	6. Gurad	"	"	R	"
	7. Jalung	"	"	R	Some localized discontinuity of groundwater table
	8. Dolores	alluvial delta	50.0±	R	"

R: Recent

QVR: Pliocene to Quaternary



21. ブラカン県地下水調査データ  
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

22. キャビテ泉地下水調査データ  
GROUNDWATER CONDITIONS IN CAVITE SITE

Municipality	Barangay	Topography Geology	Elevation (m)	Geological Type	Groundwater Conditions
Amadeo	24. Maitim	plateau	510-530	N <sub>3</sub> +Q <sub>1</sub>	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	"	"
	34. Malainen Luma	"	50-60	"	"
	35. Malainen Bago	alluvial plain	2.0 ±	R	"
	36. Palanque I	plateau	60-70	N <sub>3</sub> +Q <sub>1</sub>	"
	37. Palanque II	"	60-70	"	"
	38. Pasong Langka	"	420 ±	"	"

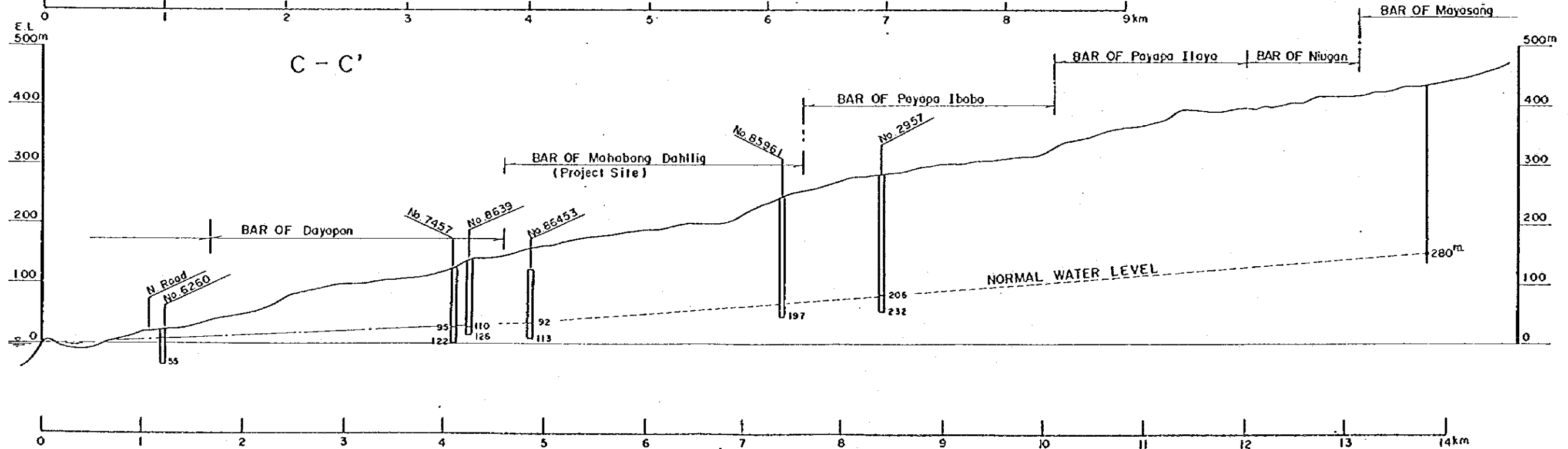
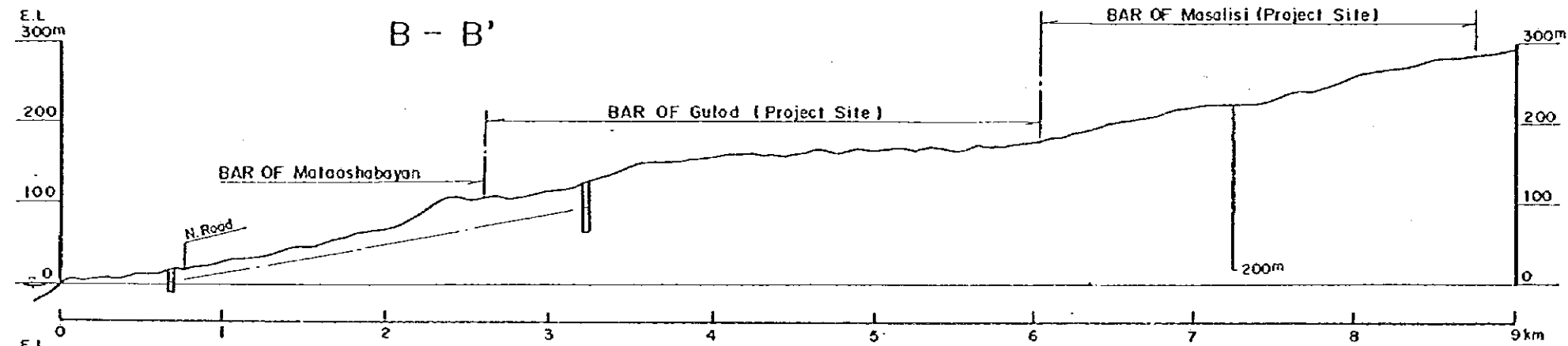
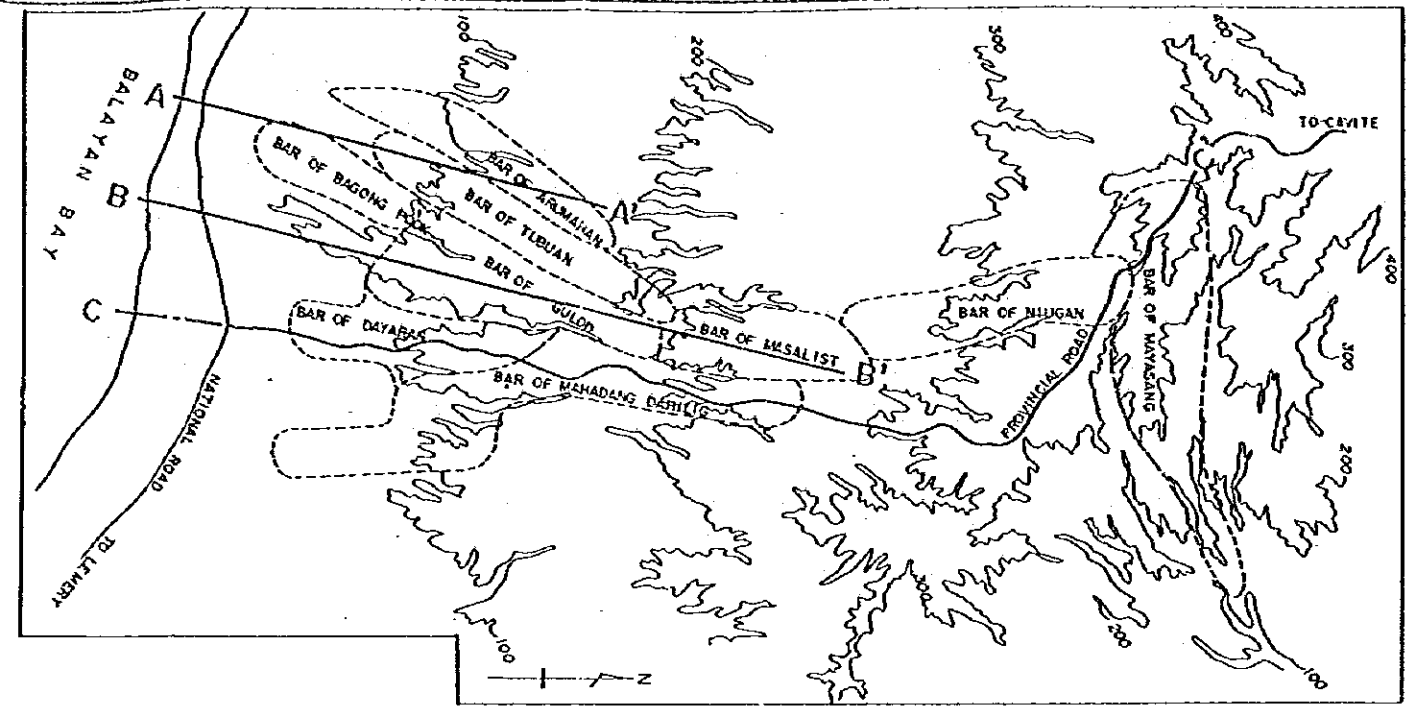
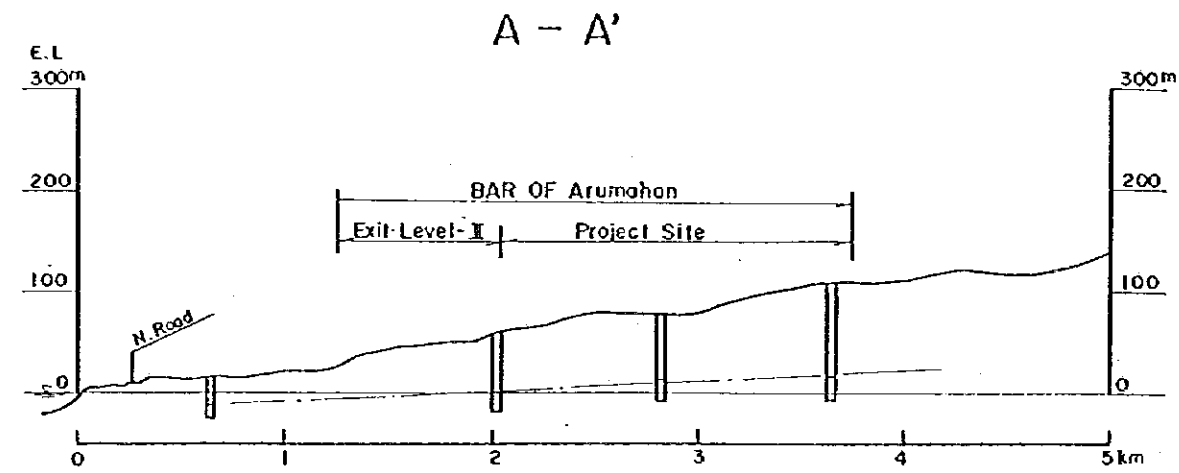
N<sub>3</sub>+Q<sub>1</sub>: Pliocene to Pleistocene  
R: Recent





23. バタンガス県地下水想定断面図

Estimated Groundwater Level  
Batangas-Lemery





24. バタンガス県地下水調査データ  
GROUNDWATER CONDITIONS IN BATANGAS SITE

Municipality	Barangay	Topography Geology	Elevation (m)	Geological Type	Groundwater Conditions
Lemery	39. Arumahan	plateau	80-140	N <sub>3</sub> +Q <sub>1</sub>	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 <sub>3</sub> +Q <sub>1</sub>	"
	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	"	"

N<sub>3</sub>+Q<sub>1</sub>: 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 <sup>3</sup> /day)	Proposed Well		
		Topographical	Geological	Depth (m)	Groundwater Level (m)	Capacity (l/min)	Survey		Plan	Depth (m)	Dia (m/m)
LUBAO	1 Sta Cruz	A * P (EL 5.0m)	Alluvium	106.7 (150.0)	-	-	II	I (100)	100	100	696 (27.8)
	2 Bancal Pugad	A * L (EL 0-2.0m)	"	146.3 (125.0)	9.1	94.0	II	II (118)	150	150	821 (65.7)
FLORIDABLANCA	3 Bodega	A * P (EL 15.0m)	"	36.5 (75)	6.1	-	III	II (250)	50	200	1,740 (174.0)
	4 Camatohille	Mountainous (EL 100-250m)	Pyroclastic	20.0 (-)	-	-	I	I (70)	60	100	482 (19.3)
ROBAC	5 Dampe	A * P (EL 15.0m)	Alluvium	36.5 (-)	-	-	III	II (219)	50	200	1,524 (152.4)
	6 Cutad	"	"	36.5 (-)	-	-	III	II (200)	50	200	1,392 (139.2)
ROBAC	7 Jalung	A * P (EL 70-80m)	"	30.5 (200)	-	-	III	II (300)	100	200	2,088 (208.8)
	8 Dolores	Fan (EL 130-160m)	"	Spring	-	(180)	III	II (479)	Spring	Spring	3,480 (348.0)

A \* P: Alluvial Plain  
A \* L: Alluvial Lowland



25. 各県別基本設計井戸の集計表(2)

BASIC DESIGN DATA OF WELL

Bulacan

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m <sup>3</sup> /day)	Proposed Well Depth (m)	Proposed Well Dia (m/m)	
		Topographical	Geological	Depth (m)	Groundwater Level (m)	Capacity (l/min)	Survey				Plan
OBANDO	9 Binuangan	A * L (EL 1.0m)	Alluvium	289.6 (300-200)	-	-	I (70)	487 (19.5)	200	150	
	10 Catangalan	" (EL 1.0-2.0m)	"	121.9 (70-50)	18.3	-	I (70)	487 (19.5)	120	100	
	11 Kulo	"	"	30.5 (50)	-	-	II (70)	2,993 (300.0)	150	200	
	12 Lava	"	"	121.9-152.4 (70-50)	5.5	-	II (100)	696 (55.7)	150	150	
PAMBONG	13 N.S.D. Salambao	A * L (D) (EL 1.0m)	"	182.9 (70)	12.2	-	I (30)	209 (8.4)	200	100	
	14 Paoo	A * L (EL 1.0-2.0m)	"	60.9 (70-50)	-	-	I (100)	696 (27.8)	150	100	
	15 Pag-Asa	"	"	121.9 (70)	23.0	-	I (50)	348 (13.9)	120	100	
	16 Binakod	A * L (EL 1.0m)	"	121.9 (50)	2.4	-	I (30)	209 (8.4)	130	100	
	17 Kapitangan	A * L (EL 2.0-4.0m)	"	137.2 (100)	6.1	-	I (40)	278 (11.1)	150	100	
	18 Malumot	A * L (EL 1.0-2.0m)	"	121.9 (-)	6.1	-	II (222)	1,545 (123.6)	120	150	
	19 Masukol	A * L (EL 1.0m)	"	61.0 (75-50)	24.4	-	I (35)	244 (9.8)	130	100	
	20 Pinalagdan	A * L (EL 2.0-3.0m)	"	137.2 (-)	-	-	I (20)	139 (5.6)	150	100	
	21 San Jose	A * L (EL 2.0-4.0m)	"	121.9 (200)	6.1	-	I (180)	1,253 (125.3)	120	150	
	22 San Isidro I	A * L (EL 2.0-4.0m)	"	120 (-)	-	-	I (20)	139 (5.6)	120	100	
	23 San Isidro II	A * L (EL 2.0-4.0m)	"	121.9 (125)	5.5 7.6	-	I (20)	139 (5.6)	120	100	
		Poblacion	School Toilet	-	-	-	-	-	-	-	-

A \* L: Alluvial Lowland

25. 各県別基本設計井戸の集計表(3)

BASIC DESIGN DATA OF WELL

Cavite

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m <sup>3</sup> /day)	Proposed Well Depth (m) Dia (m/m)
		Topographical	Geological	Depth (m) Dia (m/m)	Groundwater Level (m)	Capacity (ℓ/min)	Survey		
AMADEO	24 Matim	Mountain (EL 510-530m)	"	45.7 ( - )	19.8	7.58	I	I (250)	100 150
	25 Buenavista	" (EL 100m)	"	61.0 ( - )	-	-	II	II (360)	150 200
GEN. TRIAS	26 Mangahan	" (EL 115-120m)	"	61.0 (125)	13.1	-	I	I (100)	100 150
	27 Balagbag	" (EL 430-450m)	"	91.4 (125)	-	-	II	II (132)	100 150
INDANG	28 Pilipit	" (EL 450-470m)	"	61.0	54.9	-	II	II (70)	100 200
	29 Oyam, Malaki	" (EL 390-400m)	"	76.2 (100)	30.5	-	II	I (50)	100 150
MARANGONDON	30 San. Pasual	" (EL 390-400m)	"	45.1 ( - )	12.2	18.95	II	I (40)	100 150
	31 Ague-Os	" (EL 150-170m)	"	109.7-79.2 (50)	30.5	-	II	II (150)	100 200
MARANGONDON	32 Pantihan III	" (EL 160-180m)	"	45.7 ( - )	-	-	I	I (50)	100 150
	33 Tulay	" (EL 30-40m)	"	91.4 (50)	45.7	-	I	I (30)	100 150
NAIC	34 Malainin Luma	" (EL 50-60m)	"	30.5 (50)	15.2	-	I	I (50)	100 150
	35 Malainin Bago	" (EL 20m)	"	15.2 (50)	9.1	-	I	I (60)	100 100
MARANGONDON	36 Palangue I	" (EL 60-70m)	"	45.7 ( - )	-	-	I	I (40)	100 100
	37 Palangue II	" (EL 60-70m)	"	-	-	-	I	I (40)	100 100
SILANG	38 Paang nangka	" (EL 420m)	"	61.0 ( - )	36.6	-	II	II (150)	150 150

25. 各県別基本設計井戸の集計表(4)

APPENDIX 25  
4 of 4

BASIC DESIGN DATA OF WELL

Batangas

MUNICIPALITY	BARANGAY	Site Condition		Existing Well		System Level		Total Population to be Served Demand (m <sup>3</sup> /day)	Proposed Well		
		Topographical	Geological	Depth (m) Dia (m/a)	Groundwater Level (m)	Capacity (l/min)	Survey		Plan	Depth (m)	Dia (m/a)
LEMBAY	39 Arumahan	Mountainous (EL 80-140m)	Tuffaceous	152.4 (125)	112.8	11.37	II	II (130)	905 (72.4)	150	150
	40 Bagong Pook	" (EL 40-80m)	"	73.2 (75)	30.5	18.95	II	II (100)	696 (55.7)	150	150
	41 Gulod	" (EL 60-100m)	"	132.6 (5)	-	15.16	II	II (150)	1,044 (83.5)	150	100
	42 Mahabang Dahilig	" (EL 100-140m)	"	-	-	-	I	I (115)	800 (32.0)	200	200
	43 San Isidro	" (EL 100-200m)	"	-	-	-	I	I (100)	696 (27.8)	200	100
	44 Masalasi	" (EL 200-240m)	"	-	-	-	I	I (114)	793 (31.7)	200	200
STA. TERESITA	45 Tubuan	" (EL 100-200m)	"	125.0 (-)	-	-	-	I (104)	724 (29.0)	200	150
	46 Binis	" (EL 130m)	"	115.8 (-)	-	-	II	III (94)	654 (65.4)	150	150
	47 Burot	" (EL 120m)	"	92.3 (100)	58.0	18.95	II	II (70)	487 (39.0)	100	150
	48 Irukan	" (EL 90-100m)	"	36.6 (75)	7.6	22.7	I	I (30)	209 (8.4)	100	150
	49 Kalayaan	" (EL 100-120m)	"	106.7 (150)	-	18.95	I	I (70)	487 (19.5)	150	150
	50 Cuta East	" (EL 180-190m)	"	167.7 (200)	-	-	II	I (100)	696 (27.8)	200	200
	51 Cuta West	" (EL 160-170m)	"	-	-	-	II	I (60)	418 (16.7)	150	200
	52 Aya	Population School Toilet Fan (EL 10-20m)	"	85.3 (125)	54.9	18.95	I	I (100)	696 (27.8)	100	150
	53 Balas	" (EL 5-15m)	"	36.6 (-)	1.50	-	I	I (50)	348 (13.9)	60	150
	54 Banga	" (EL 10-15m)	"	21.3 (50)	-	-	I	I (60)	418 (16.7)	60	150
TALISAY	55 Calocan	" (EL 5-10m)	"	21.3 (-)	-	-	II	III (150)	1,044 (104.4)	100	150
	56 Miranda	Mountainous (EL 190-200m)	"	-	-	-	I	I (150)	1,044 (41.8)	Spring	-
	57 Quiling	Fan (EL 15-20m)	"	54.9 (75)	30.5	18.95	I	I (150)	1,044 (41.8)	60	150
	58 Sampaloo	" (EL 10-15m)	"	9.1 (50)	3.1	-	I	I (100)	696 (27.8)	60	150
	59 Sta. Maria	" (EL 5-15m)	"	60.0 (50)	-	-	I	I (30)	209 (8.4)	60	150
	60 Tumaway	" (EL 20-30m)	"	9.1 (-)	4.5	-	I	I (20)	139 (5.6)	60	150

26. 水質試驗結果(1)

RESULTS OF GROUNDWATER QUALITY SURVEY

Province	Municipality	Barangay	Well	pH	NH <sub>4</sub>		NO <sub>2</sub>		Electric Conductivity	
					NH <sub>4</sub>	NH <sub>4</sub> -N	NO <sub>2</sub>	NO <sub>2</sub> -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									
Pago										

Note: Hydrogen ion exponent, (pH); Ammoniacal nitrogen (NH<sub>4</sub>); Nitrous acid (NO<sub>2</sub>)

26. 水質試驗結果(2)

RESULTS OF GROUNDWATER QUALITY SURVEY

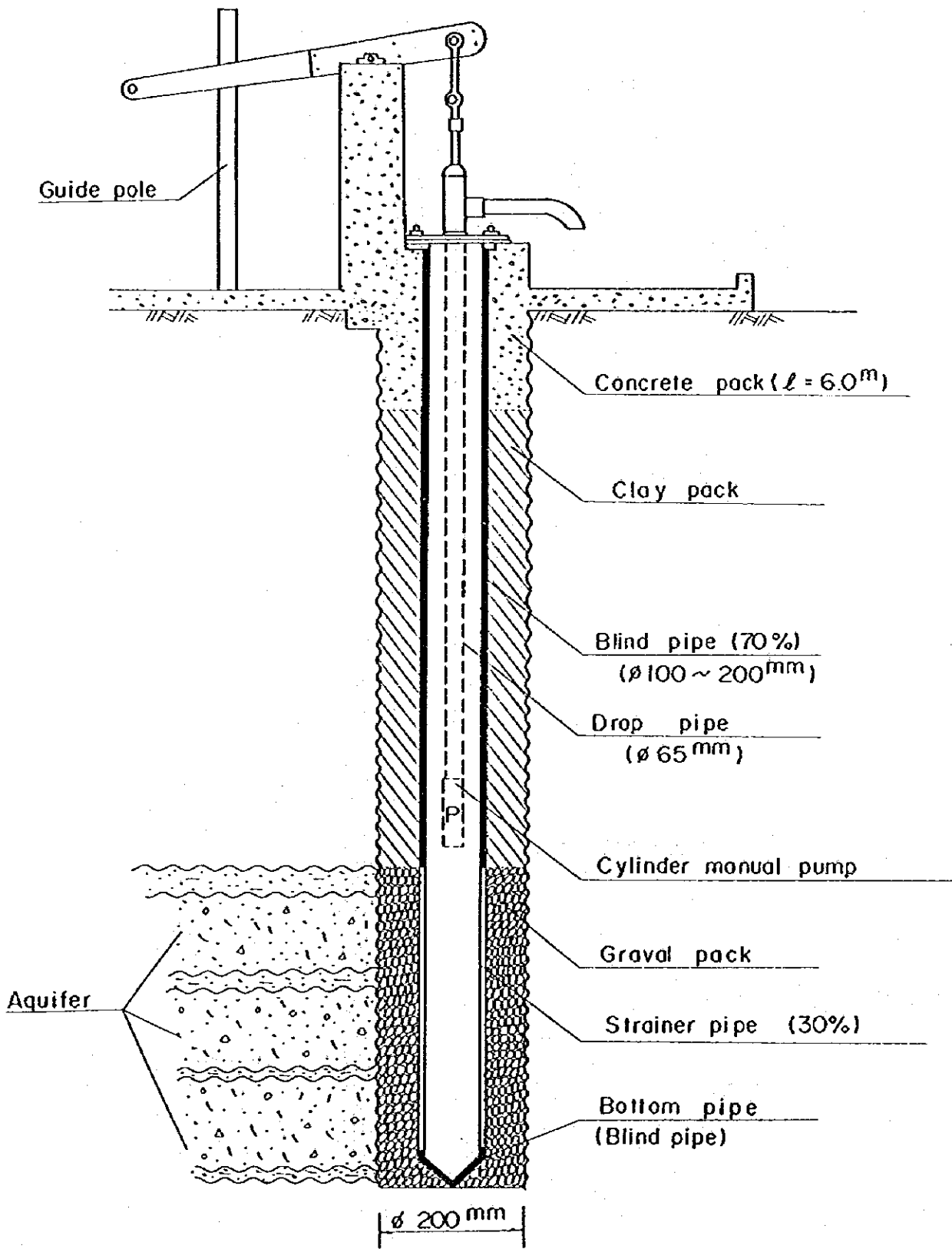
Province	Municipality	Barangay	Well	pH	NH <sub>4</sub>		NO <sub>2</sub>		Electric Conduc- tivity
					NH <sub>4</sub>	NH <sub>4</sub> -N	NO <sub>2</sub>	NO <sub>2</sub> -N	
Cavite	Gen Trias	Buenavista							
		Manggahan							
	Naic	Malainen							
		Bago	Shallow	7.4	0.5	0.4	0.02	0.006	-
		Pulangue I		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								

26. 水質試驗結果(3)

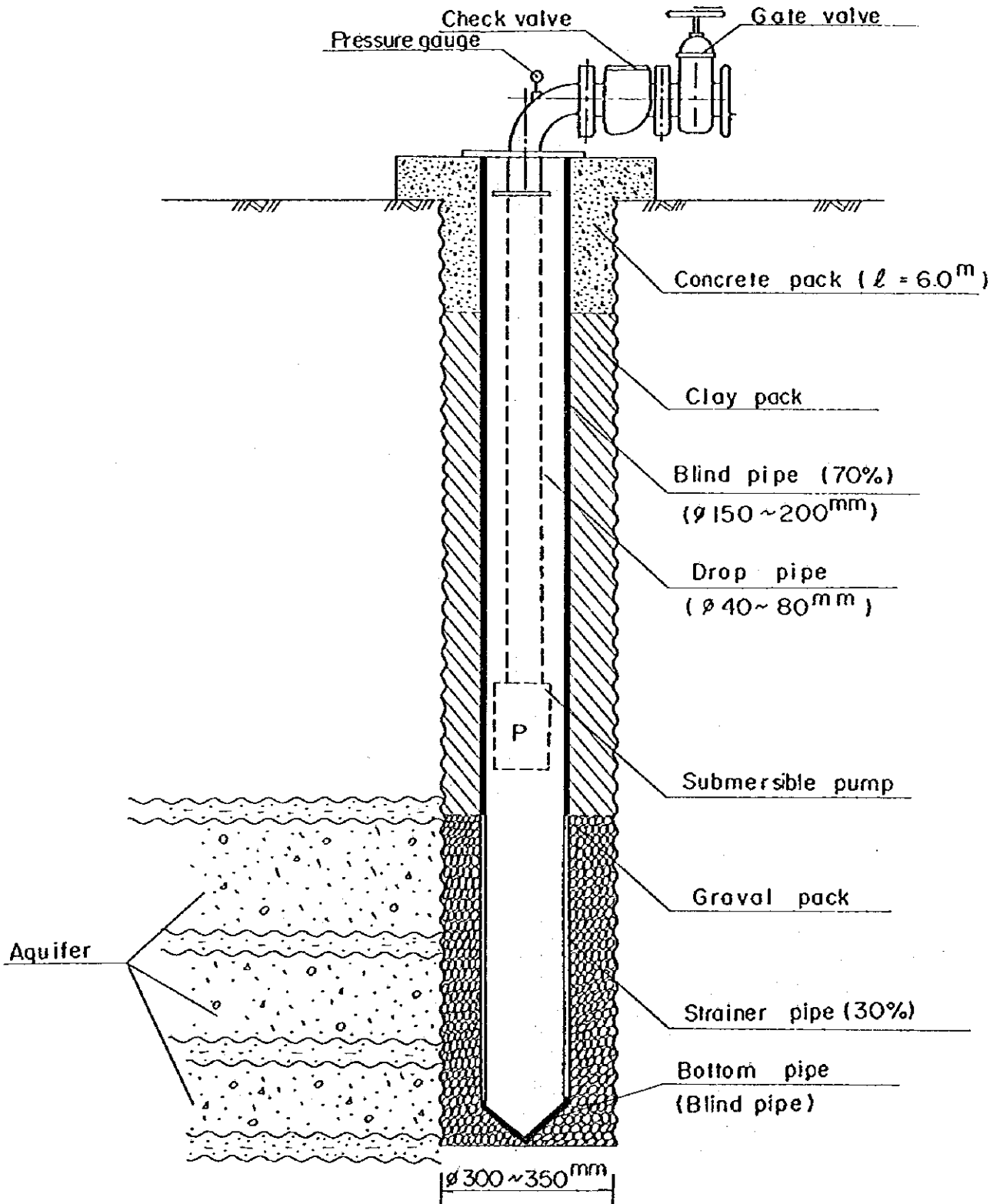
RESULTS OF GROUNDWATER QUALITY SURVEY

Province	Municipality	Barangay	Well	PH	NH <sub>4</sub>		NO <sub>2</sub>		Electric Conduc- tivity	
					NH <sub>4</sub>	NH <sub>4</sub> -N	NO <sub>2</sub>	NO <sub>2</sub> -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										

27. 基本設計図面 井戸構造図 (1)  
 PROPOSED DESIGN: TYPICAL DEEP WELL



SOURCE FOR LEVEL - II SYSTEM

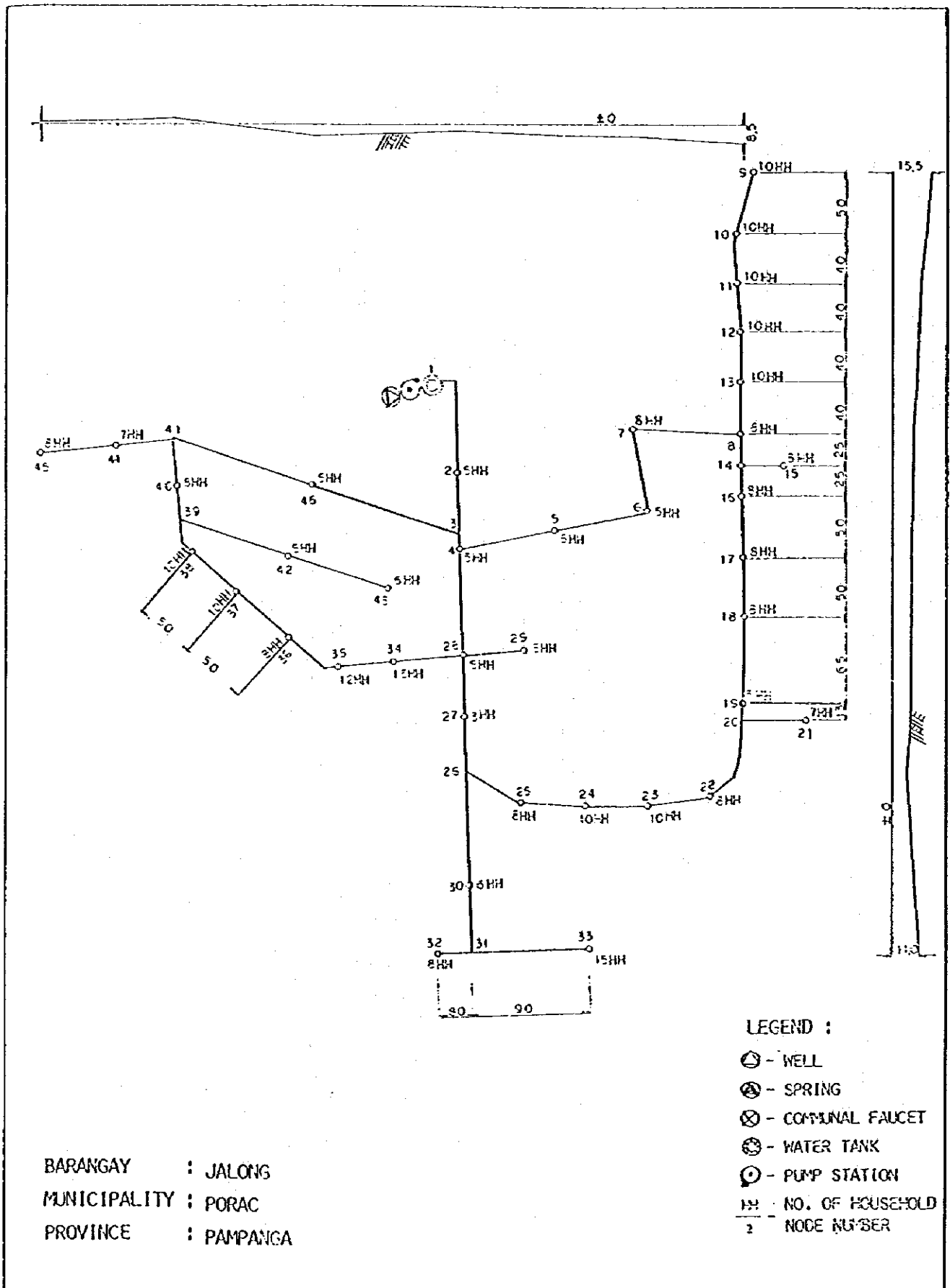




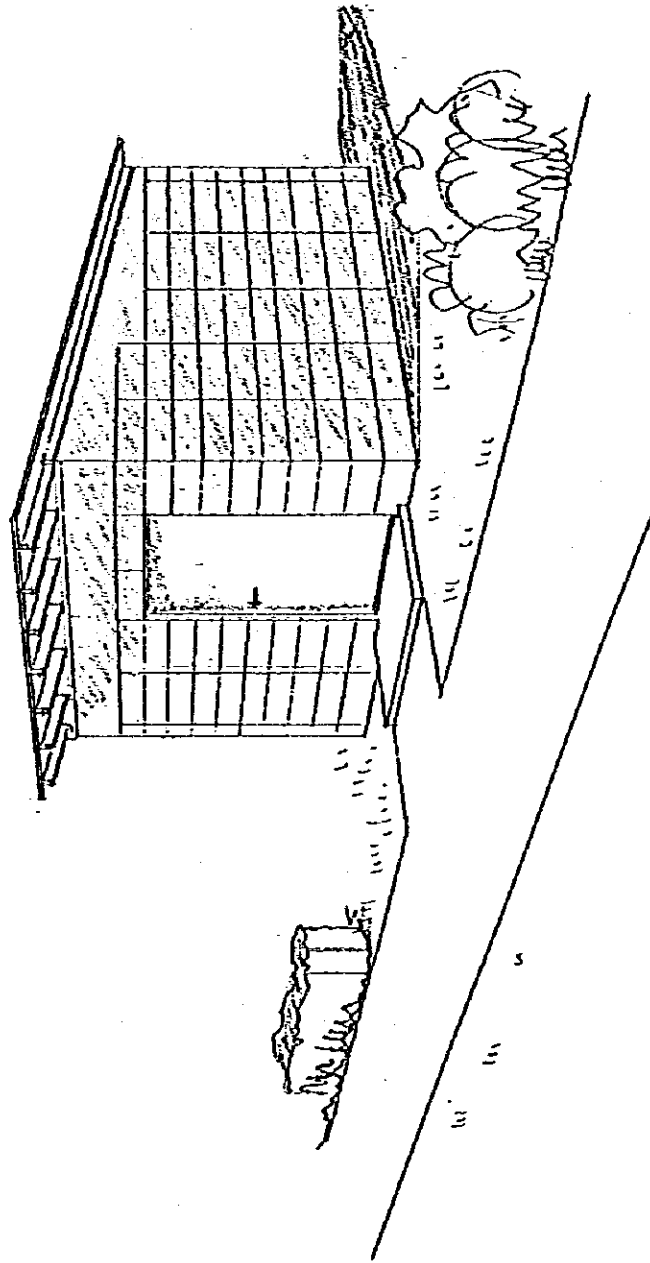
29. 基本設計図面 簡易水道給水管配置図

APPENDIX 29

TYPICAL SCHEMATIC OF THE SYSTEM



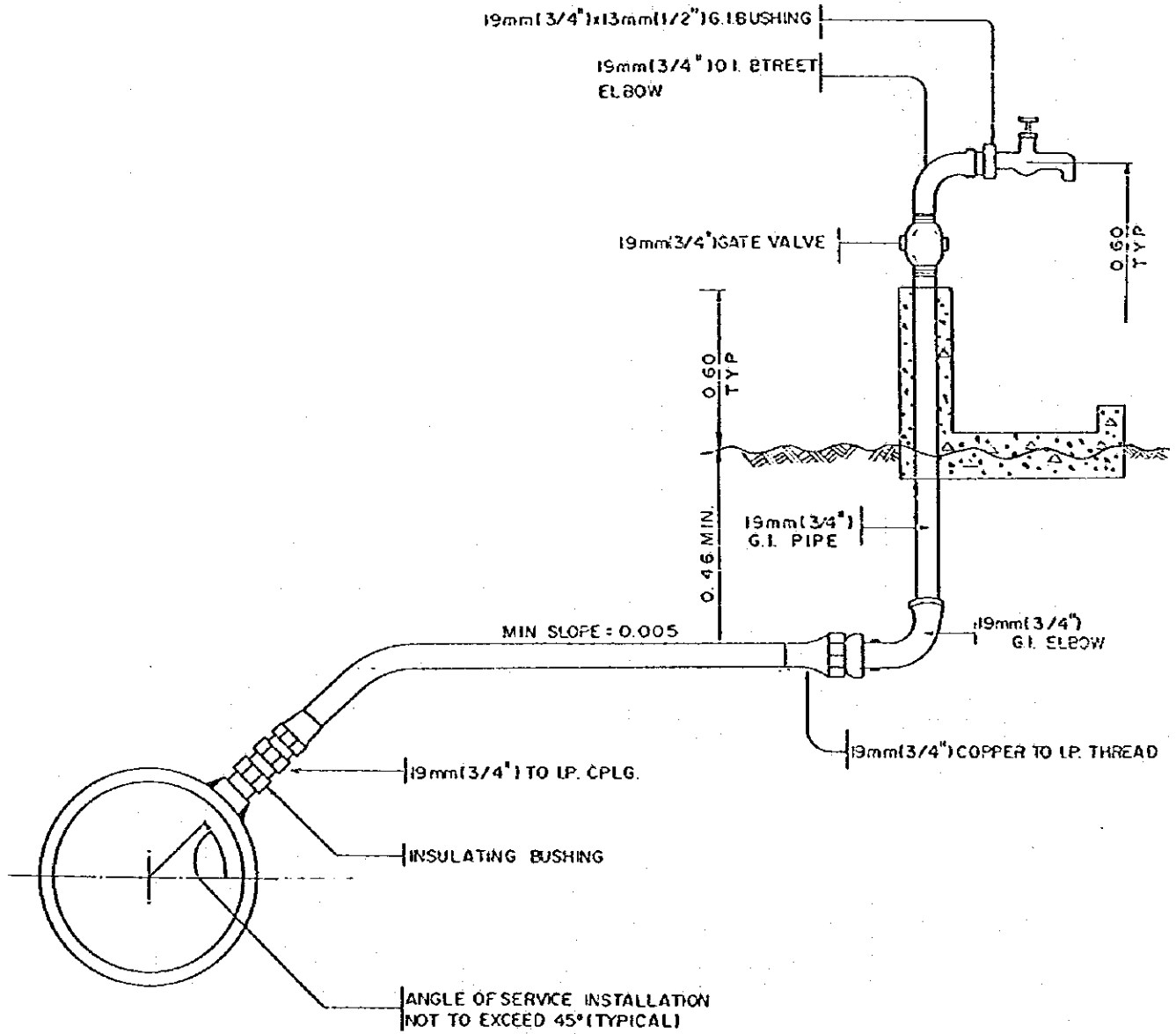
DRWG FOR PUMP HOUSE



PERSPECTIVE

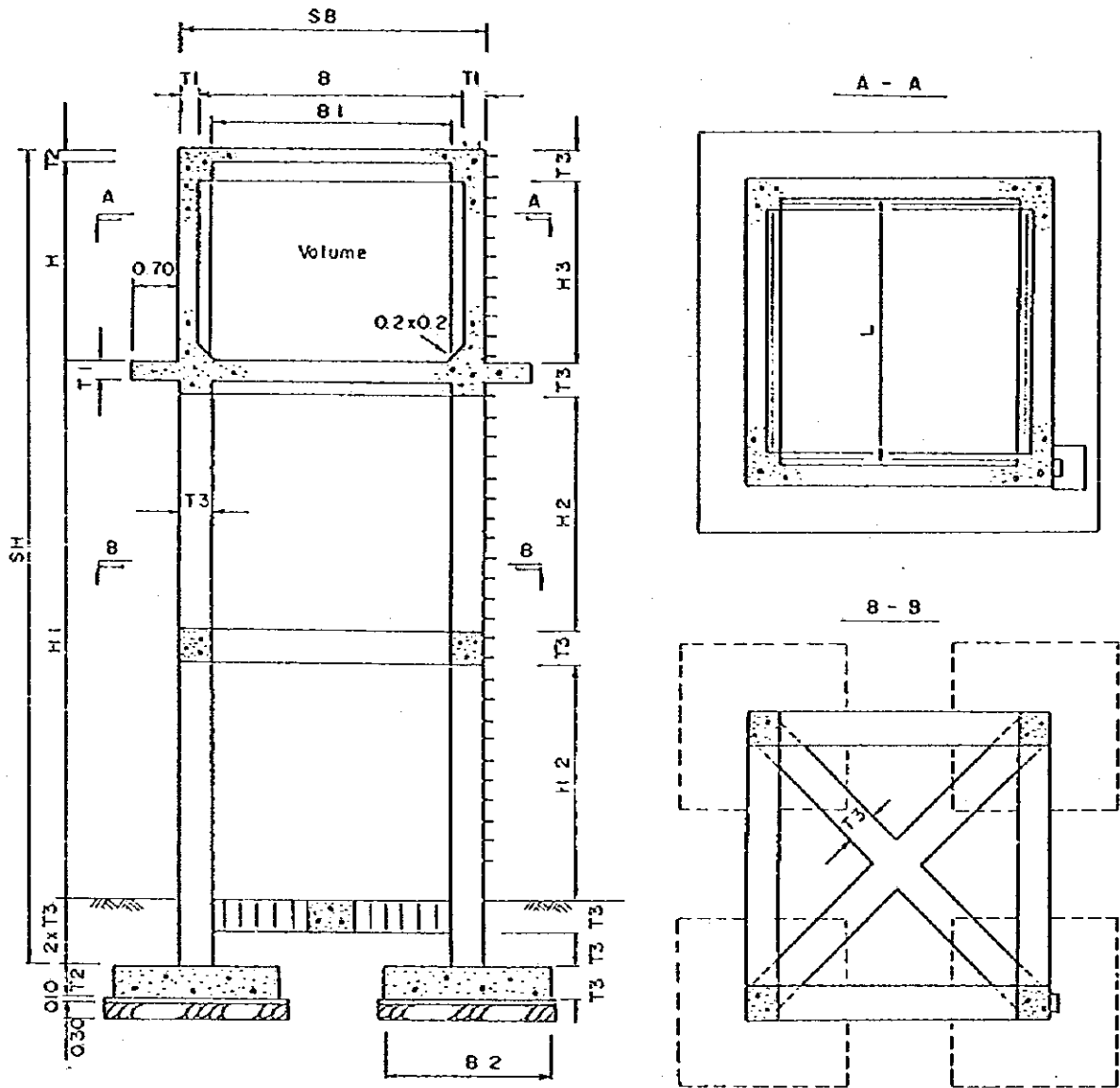
31. 基本設計図面 共同水栓布設図

TYPICAL COMMUNAL FAUCETS



32. 基本設計図面 高架水槽見取図  
 PROPOSED BASIC DESIGN OF STORAGE TANK

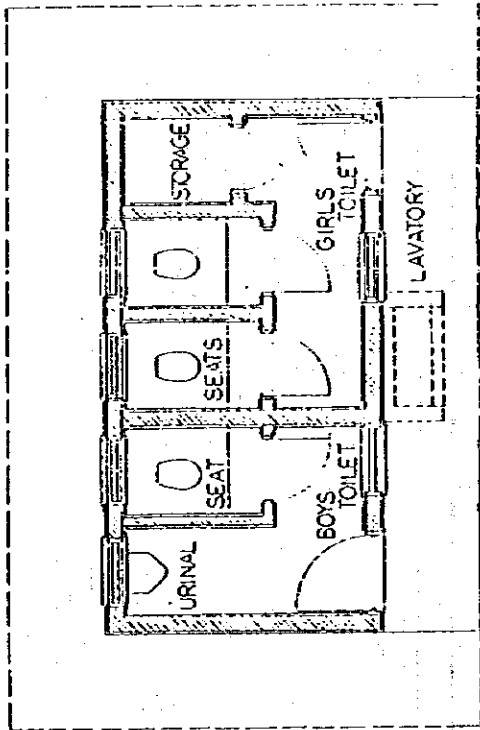
APPENDIX 3



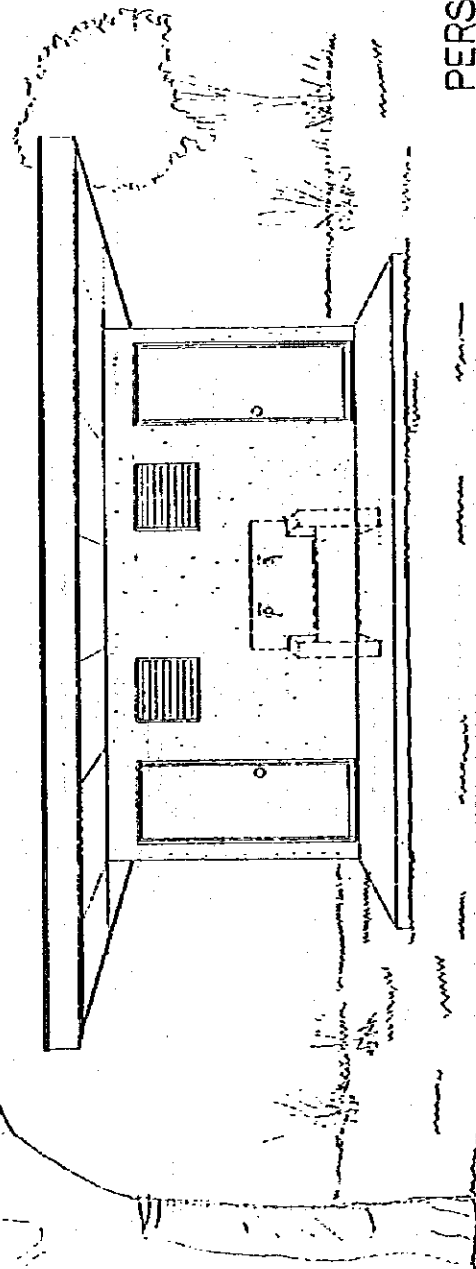
		I	II	III	IV	V
Volume (m <sup>3</sup> )		10	20	40	70	
B (m)		2	3	4	5	
L "		2	3	4	5	
H "		2.5	2.5	3	3	
H1 "		5	6	7	9	
H2 "		2.1	2.5	2.9	3.7	
H3 "		23	22.5	2.65	2.5	

		I	II	III	IV
Volume (m <sup>3</sup> )		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

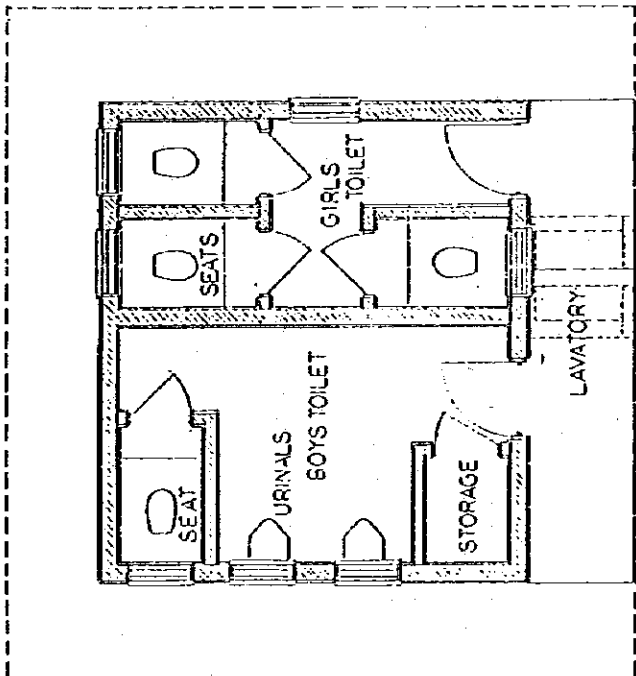


FLOOR PLAN

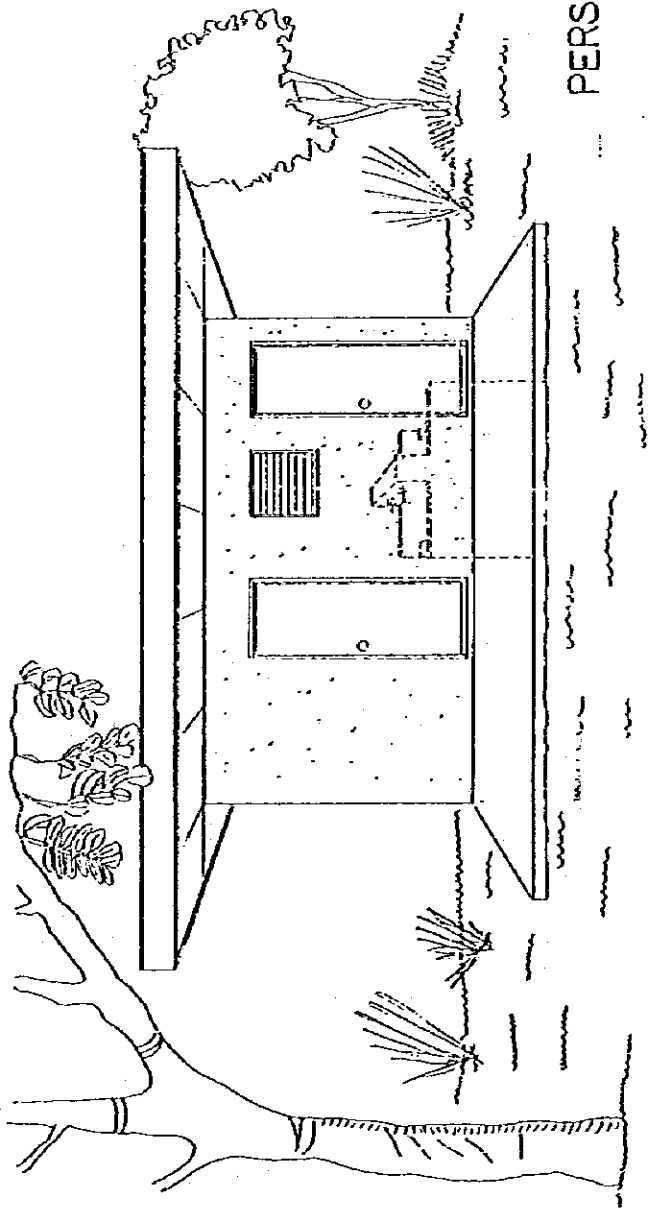


PERSPECTIVE

PROPOSED TOILET FACILITIES: TYPE B



FLOOR PLAN

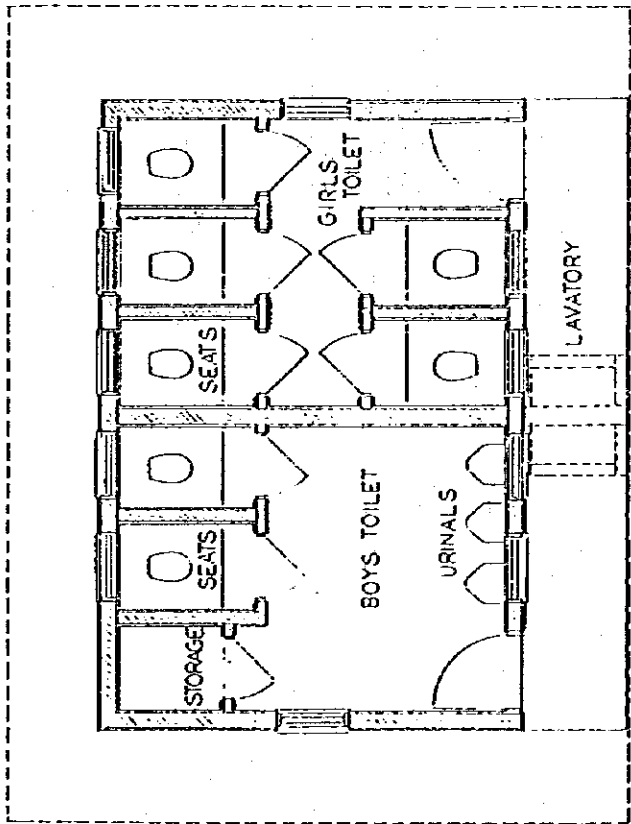


PERSPECTIVE

33. 基本設計図面 小学校トイレ (Cタイプ)

APPENDIX 33  
3 of 3

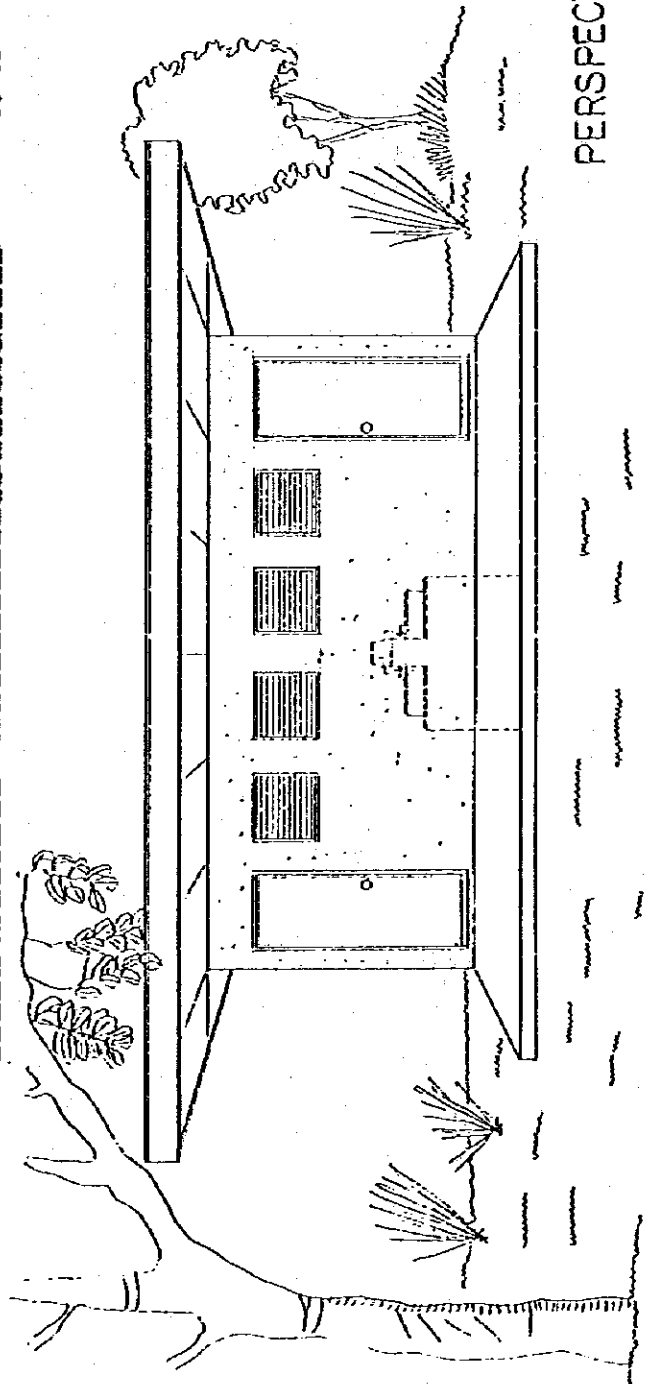
PROPOSED TOILET FACILITIES: TYPE C



FLOOR PLAN



SCALE



PERSPECTIVE

34. 淨化槽設計基準  
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



35. 計画概要表(1)

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
<b>TOTAL</b>	<b>40</b>	<b>20</b>	<b>35</b>	<b>24</b>	<b>1</b>	<b>16</b>	<b>11</b>	<b>12</b>	<b>4</b>
<b>GRAND TOTAL</b>	<b>60</b>		<b>60</b>			<b>52</b>			

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

## 35. 計函概要表(2)

APPENDIX 35  
2 of 5PROVINCE: 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
PORAC	6. Gutad	II	S	C
	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)

## 35. 計圖概要表(3)

APPENDIX 35  
3 of 5PROVINCE: 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
SILANG	37. Palangue II	I	H	A
	38. Pasong Langka	II	S	B

35. 計画概要表(4)

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
STA. TERESITA	44. Masalisi	I	S	A
	45. Tubuan	I	H	A
	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	I	S	-
	Poblacion	—	—	D (flush)
	TALISAY	52. Aya	I	H
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	-

35. 計畫概要表(5)

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. Vacuum car	2 sets
8. Bulldozer	2 units
9. Vehicles for monitoring (small 4WD)	4 units

36. 比国政府からの資器材要請書（公共事業省）  
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) Buldozers 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.

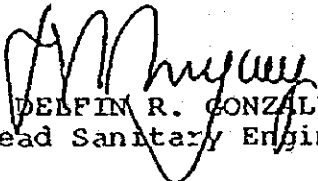
Under the Presidential Decree 856, better known as the "Code on Sanitation of the Philippines", the Local Government are responsible for the collection and disposal of solid waste.

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.

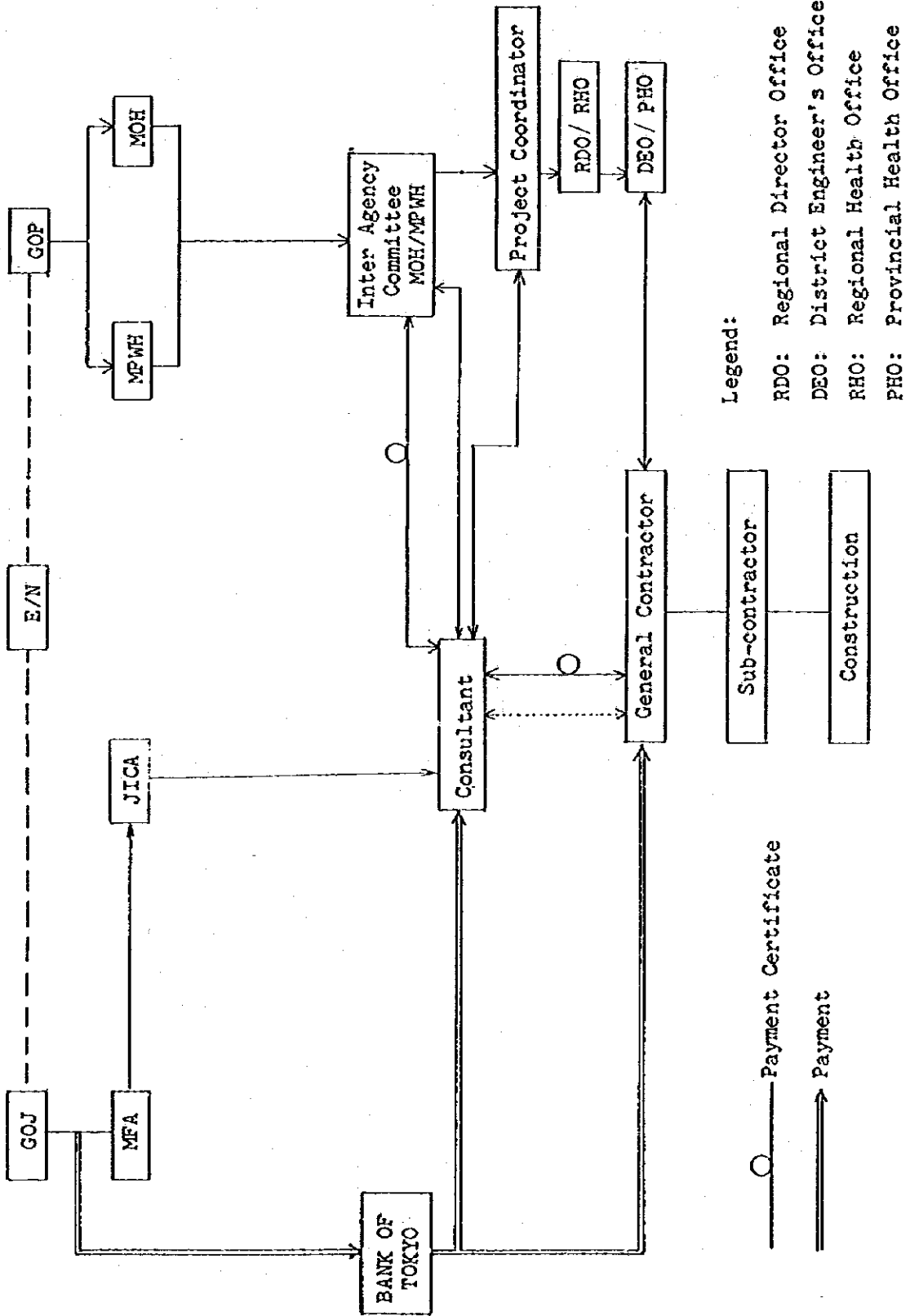
Should you need additional informations please don't hesitate to let us know.

Very truly yours,

  
DELFIN R. GONZALEZ  
Head Sanitary Engineer

38. 事業実施組織図

WORK AND FUNDING FLOW



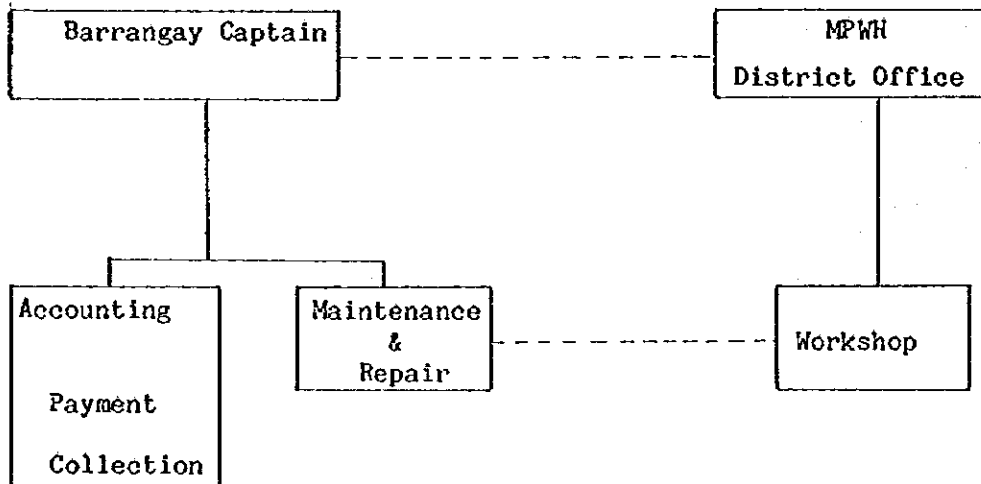
39. 实施工程表  
PROPOSED IMPLEMENTATION SCHEDULE FOR CONSTRUCTION WORKS

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																						

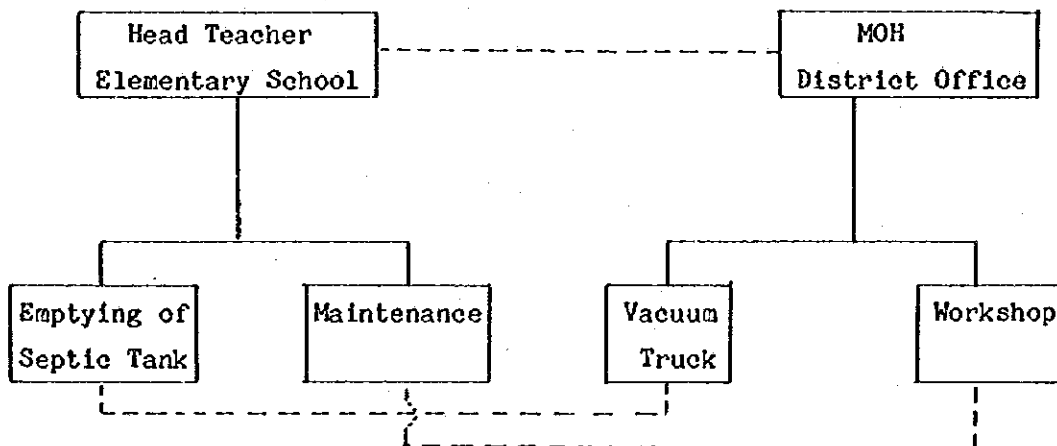
40. モニタリング例  
MAJOR MONITORING COMPONENTS

Description	Organization
<p>1. <u>General Items</u></p> <p>Family Structure, sex, age, occupation, income, type of toilet facility if any, frequency of bathing, hand washing (before meals, after using the toilet), etc.</p>	MOH
<p>2. <u>Waterworks</u> (Bench Mark Survey and survey immediately after completion only)</p> <ul style="list-style-type: none"> <li>- water hauling distance from nearby spring to house</li> <li>- amount of water used per household/day (number of containers)</li> <li>- person responsible in each household for drawing water (detailed of person, day, etc.)</li> <li>- hours expended in hauling water</li> <li>- water rates</li> <li>- other</li> </ul>	Average household (MOH)
<ul style="list-style-type: none"> <li>- operation and maintenance conditions</li> <li>- cost and content of repairs</li> <li>- percentage of payment for water rates</li> </ul>	RWSA
<ul style="list-style-type: none"> <li>- lift test (once a year)</li> </ul>	MPWH
<ul style="list-style-type: none"> <li>- water quality test</li> </ul>	MOH
<p>3. <u>Toilet Facilities</u> (Elementary school)</p> <ul style="list-style-type: none"> <li>- operation and maintenance conditions</li> <li>- propagation of hand washing habits</li> <li>- propagation of cleaning of toilet facilities</li> </ul>	MOH
<p>4. <u>Disease</u> (average household)</p> <p>Survey to commence immediately after establishment of RWSA</p> <ul style="list-style-type: none"> <li>- incidence and type of disease contracted in 1-year period</li> <li>- who contracted the disease</li> <li>- how many resultant days absence from work, school</li> <li>- skin diseases, etc., which are related to unsanitary conditions</li> <li>- formulation of a method for simple categorization of symptoms such as fever, type of stool, etc., in order to facilitate identification of diseases</li> </ul>	MOH

41. 給水システム維持管理体制組織図  
ORGANIZATION CHART FOR WATER SUPPLY SYSTEM



42. 小学校トイレ維持管理体制組織図  
ORGANIZATION CHART FOR SCHOOL TOILET













JICA