

# WATER LEVEL AND DISCHARGE RECORD

Station: Danugao

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ EL. \_\_\_\_\_ m

Station Site \_\_\_\_\_ Drainage Area \_\_\_\_\_ Km<sup>2</sup>

DATE	From <u>November 1979</u> to 19__											
Date	25		26		27		28		29		30	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	2.71		2.75		3.24		3.28		3.07		3.00	
2	2.70		2.75		3.28		3.27		3.00		3.00	
3	2.70		2.76		3.44		3.26		3.03		3.01	
4	2.69		2.76		3.49		3.25		3.02		3.01	
5	2.69		2.77		3.54		3.25		3.01		3.02	
6	2.68		2.78		3.57		3.24		3.00		3.02	
7	2.68		2.78		3.59		3.27		3.01		3.02	
8	2.68		2.79		3.59		3.26		3.00		3.02	
9	2.67		2.83		3.55		3.24		2.99		3.01	
10	2.67		2.87		3.55				2.98			
11	2.67		2.97		3.55		3.19		2.97		3.02	
12	2.66		3.01		3.54		3.17		2.97		3.03	
13	2.65		3.03		3.51		3.14		2.96		3.06	
14	2.65		3.22		3.47		3.11		2.95		3.08	
15	2.64		3.33		3.47		3.09		2.94		3.09	
16	2.64		3.34		3.47		3.09		2.94		3.10	
17	2.63		3.33		3.47		3.08		2.95		3.12	
18	2.64		3.35		3.55		3.06		2.95		3.14	
19	2.66		3.28		3.38		3.03		2.95		3.20	
20	2.68		3.25		3.37		3.01		2.94		3.23	
21	2.70		3.20		3.35		3.00		2.95		3.26	
22	2.73		3.15		3.33		2.99		2.96		3.28	
23	2.73		3.17		3.31		2.99		2.98		3.30	
24	2.74		3.20		3.29		3.00		2.98		3.31	
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

412

## WATER LEVEL AND DISCHARGE RECORD

Station: Banugao

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ E.L. \_\_\_\_\_ m \_\_\_\_\_

Station Site \_\_\_\_\_ Drainage Area \_\_\_\_\_ km<sup>2</sup> \_\_\_\_\_

DATE	From <i>December</i> 19 <i>79</i> to 19 _____											
Date	1		2		3		4		5			
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	3.32											
2	3.33											
3	3.34											
4	3.35											
5	3.35											
6	3.37											
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: E.L. _____											

WATER LEVEL AND DISCHARGE RECORD

Station: Kakamanshao

River Basin Kanan Basin # \_\_\_\_\_ Station # \_\_\_\_\_ EL. \_\_\_\_\_ m

Station Site JICA Temporary Cable-way Drainage Area \_\_\_\_\_ km<sup>2</sup>

DATE	From <u>Nov 19 79</u> to _____ 19 _____											
Date	1		2		3		4		5		6	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1												
2												
3												
4												
5												
6	5.60		5.56		5.75		5.90		5.79		5.64	
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18	5.60		5.57		5.90		5.95		5.77		5.67	
19												
20												
21												
22												
23												
24												
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

444

WATER LEVEL AND DISCHARGE RECORD

Station: Kakamansano

River Basin Kanan Basin # \_\_\_\_\_ Station # \_\_\_\_\_ EL. \_\_\_\_\_ m \_\_\_\_\_

Station Site \_\_\_\_\_ Drainage Area \_\_\_\_\_ km<sup>2</sup>

DATE	From <u>Nov 19 79</u> to _____ 19 _____												
Date	<u>7</u>		<u>8</u>		<u>9</u>		<u>10</u>		<u>11</u>		<u>12</u>		<u>13</u>
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q	
1													
2													
3													
4													
5													
6	<u>5.68</u>		<u>5.61</u>		<u>5.57</u>		<u>5.54</u>		<u>4.72</u>		<u>4.90</u>		<u>4.76</u>
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18	<u>5.64</u>		<u>5.62</u>		<u>5.55</u>		<u>5.54</u>		<u>4.71</u>		<u>4.71</u>		<u>4.72</u>
19													
20													
21													
22													
23													
24													
Mean													
Max													
Min													
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____												

WATER LEVEL AND DISCHARGE RECORD

Station: Kakamansao

River Basin Kanan Basin # \_\_\_\_\_ Station # \_\_\_\_\_ E.L. \_\_\_\_\_ m

Station Site JICA Temporary Cable-way Drainage Area \_\_\_\_\_ km<sup>2</sup>

DATE	From November 19 79						to 19					
Date	14		15		16		17		18		19	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	5.64		5.58		5.58		5.86		5.68		5.48	
2	5.65		5.58		5.57		5.84		5.67		5.47	
3	5.65		5.57		5.74		5.84		5.66		5.46	
4	5.67		5.56		5.74		5.82		5.65		5.48	
5	5.69		5.55		5.91		5.84		5.64		5.44	
6	5.59		5.55		5.91		5.84		5.71		5.42	
7	5.52		5.55		5.89		5.88		5.71		5.42	
8	5.60		5.55		5.90		5.82		5.71		5.42	
9	5.83		5.52		6.13		5.88		5.62		5.42	
10	6.21		5.48		6.33		5.92		5.67		5.58	
11	6.21		5.48		6.45		5.90		5.67		5.55	
12	6.04		5.47		6.46		5.90		5.67		5.58	
13	5.84		5.47		6.31		5.89		5.67		5.57	
14	5.83		5.47		6.30		5.91		5.66		5.55	
15	5.76		5.56		6.23		5.86		5.66		5.54	
16	5.74		5.49		6.16		5.85		5.60		5.54	
17	5.74		5.47		6.12		5.84		5.58		5.54	
18	5.76		5.52		6.12		5.81		5.57		5.53	
19	5.72		5.49		6.04		5.79		5.54		5.53	
20	5.71		5.50		5.89		5.76		5.54		5.50	
21	5.70		5.46		5.91		5.79		5.58		5.58	
22	5.67		5.48		5.89		5.73		5.52		5.57	
23	5.60		5.53		5.86		5.71		5.51		5.76	
24	5.77		5.55		5.86		5.68		5.50		5.59	
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

WATER LEVEL AND DISCHARGE RECORD

Station: Kakamanshao

River Basin Kanan Basin # \_\_\_\_\_ Station # \_\_\_\_\_ EL. \_\_\_\_\_ m

Station Site \_\_\_\_\_ Drainage Area km<sup>2</sup>

DATE	From <u>Nov</u> 19 <u>79</u> to 19 _____											
Date	20		21		22		23		24		25	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	5.50		5.74		5.70		5.71		5.62		5.45	
2	5.50		5.73		5.70		5.58		5.62		5.45	
3	5.48		5.78		5.69		5.57		5.64		5.44	
4	5.47		5.76		5.68		5.55		5.65		5.42	
5	5.52		5.76		5.67		5.54		5.64		5.40	
6	5.52		5.76		5.67		5.52		5.64		5.39	
7	5.72		5.77		5.66		5.52		5.60		5.38	
8	5.74		5.76		5.67		5.48		5.60		5.38	
9	5.76		5.82		5.67		5.47		5.59		5.34	
10	5.78		5.84		5.66		5.45		5.59			
11	5.80		5.84		5.65		5.45		5.82			
12	5.79		5.84		5.62		5.44		5.57			
13	5.80		5.83		5.60		5.42		5.55			
14	5.79		5.84		5.58		5.40		5.52			
15	5.78		5.84		5.57		5.40		5.52			
16	5.78		5.82		5.57		5.38		5.50			
17	5.79		5.78		5.60		5.38		5.47			
18	5.79		5.76		5.76		5.39		5.47		5.36	
19	5.79		5.76		5.76		5.39		5.47		5.36	
20	5.78		5.73		5.76		5.38		5.45		5.34	
21	5.77		5.74		5.77		5.53		5.45		5.37	
22	5.76		5.74		5.76		5.55		5.45		5.53	
23	5.75		5.72		5.76		5.57		5.46		5.52	
24	5.74		5.71		5.76		5.60		5.45		5.52	
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

WATER LEVEL AND DISCHARGE RECORD

Station: Kakamansao

River Basin Kunan Basin K Station K E.L. m

Station Site \_\_\_\_\_ Drainage Area km<sup>2</sup>

DATE	From <u>Nov</u> 19 <u>79</u> to 19											
Date	<u>26</u>		<u>27</u>		<u>28</u>		<u>29</u>		<u>30</u>			
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	6.24		6.04		5.78		6.07		5.77			
2	6.22		6.28		5.77		6.06		5.77			
3	6.25		6.28		5.74		6.03		5.79			
4	6.23		6.30		5.74		6.03		5.80			
5	6.23		6.32		5.74		6.01		5.80			
6	6.21		6.32		5.76		6.12		5.82			
7	5.76		6.30		5.76		6.21		5.82			
8	5.53		6.28		5.71		6.21		5.78			
9	5.62		6.26		5.71		5.98		5.82			
10	5.70		6.52		5.71		5.96		5.83			
11	5.77		6.30		5.69		5.91		5.84			
12	5.85		6.26		5.69		5.89		5.91			
13	6.02		6.23		5.68		5.86		5.92			
14	6.18		6.25		5.67		5.72		5.94			
15	6.18		6.25		5.67		5.82		5.96			
16	6.18		6.21		5.68		5.81		6.01			
17	6.17		6.20		5.71		5.79		6.04			
18	6.07		6.19		5.69		5.76		6.11			
19	6.04		6.17		5.72		5.76		6.18			
20	6.01		6.10		5.71		5.74		6.20			
21	6.00		6.09		5.72		5.72		6.20			
22	6.00		6.08		5.74		5.71		6.22			
23	6.00		6.08		5.25		5.82		6.21			
24	6.04		6.07		5.76		5.81		6.23			
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

WATER LEVEL AND DISCHARGE RECORD

Station: Kaliwa Confluence

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ E.L. \_\_\_\_\_ m \_\_\_\_\_

Station Site Pagsangan Drainage Area \_\_\_\_\_ km<sup>2</sup> \_\_\_\_\_

DATE	From <u>November</u> 19 <u>79</u> to 19 _____											
Date	1		2		3		4		5		6	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	3.80		4.25		3.87		4.44		4.50			
2	3.92		4.12		3.86		4.31		4.57			
3	3.95		4.00		3.86		4.28		4.70			
4	4.04		3.95		3.86		4.28		4.78			
5	4.16		3.87		3.86		3.97		4.78			
6	4.25		3.75		3.86		3.90		4.85			
7	4.33		3.60		3.90		3.87		4.60			
8	4.11		3.60		4.00		3.70		4.50			
9	4.03		3.62		4.40		3.65		4.50			
10	3.96		3.64		4.45		3.65		4.50			
11	3.83		3.62		4.50		3.60		4.54			
12	3.70		3.66		4.30		3.56		4.37			
13	3.60		3.64		4.13		3.50		4.23			
14	3.62		3.62		4.13		3.40		4.13			
15	3.64		3.62		4.10		3.53		4.02			
16	3.62		3.60		4.03		3.60		3.93			
17	3.65		3.60		4.00		3.69		3.93			
18	3.66		3.58		4.02		4.00		3.93			
19	3.68		3.56		4.00		4.10		3.86			
20	3.70		3.60		3.90		4.19		3.74			
21	3.83		3.75		3.84				3.67			
22	3.96		3.80		3.76		4.23		3.55			
23	4.03		3.85		3.64		4.30		3.50			
24	4.11		3.87		3.55		4.47		3.85			
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											



WATER LEVEL AND DISCHARGE RECORD

Station: Kajiwa Confluence

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ EL. \_\_\_\_\_ m

Station Site Pagsangohan \_\_\_\_\_ Drainage Area \_\_\_\_\_ Km<sup>2</sup>

DATE	From 19						to 19					
Date	7		8		9		10		11		12	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

420

WATER LEVEL AND DISCHARGE RECORD

Station: Kaliwa Confluence

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ E.L. \_\_\_\_\_ m \_\_\_\_\_

Station Site Pagsangan Drainage Area \_\_\_\_\_ km<sup>2</sup> \_\_\_\_\_

DATE	From <u>November 19 79</u> to <u>19</u>											
Date	13		14		15		16		17		18	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1					3.70		4.10		4.12		3.78	
2							4.16		4.11		3.76	
3							4.21		4.10		3.75	
4					3.69		4.14		4.09		3.73	
5							4.80		4.07		3.72	
6					3.69		4.00		4.05		3.70	
7			3.65		3.67		3.49		4.03		3.75	
8			3.73		3.05		3.04		4.01		3.75	
9			3.85		3.63		4.20		4.00		3.75	
10			4.10		3.61		4.60		4.06		3.76	
11			4.20	(11:25)	3.59		4.75		4.05		3.78	
12			4.05		3.54	(12:10)	4.82				3.80	
13			3.90	(1:15)	3.65		4.73				3.81	
14			3.86	(2:50)	3.58		4.61		4.05		3.80	
15			3.83	(3:10)	3.60		4.50		4.00		3.88	
16			3.80	(4:18)	3.65	(4:50)	4.45		3.98		3.79	
17					3.67		4.41		3.97		3.77	
18			3.78	(6:30)			3.85		3.95		3.75	
19					3.68		4.36		3.93		3.74	
20			3.76	(8:20)	3.75		4.26		3.90		3.73	
21			3.73	(9:40)	3.83		4.20		3.87		3.70	
22			3.71	(10:35)	3.89		4.18		3.84		3.70	
23					3.02		4.15		3.81		3.68	
24			3.71		3.06		4.13		3.79		3.65	
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

WATER LEVEL AND DISCHARGE RECORD

Station: Kaliwa Confluence

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ E.L. \_\_\_\_\_ m \_\_\_\_\_

Station Site Pagsa ngahan Drainage Area \_\_\_\_\_ km<sup>2</sup>

DATE	From <u>November</u> 19 <u>79</u>						to 19 _____					
Date	19		20		21		22		23		24	
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1	3.63		3.68		3.85		3.80		3.79		3.60	
2	3.60		3.69		3.89		3.81		3.77		3.64	
3	3.58		3.69		3.93		3.84		3.75		3.69	
4	3.56		3.69		3.95		3.80		3.69		3.75	
5	3.55		3.72		3.89		3.79		3.66		3.76	
6	3.55		3.74		3.86		3.77		3.64		3.73	
7	3.54		3.76		3.83		3.77		3.61		3.71	
8	3.55		3.78		3.85		3.77		3.60		3.72	
9	3.56		3.78		3.89		3.76		3.58		3.75	
10	3.56		3.76		3.91		3.75		3.57		3.73	
11	3.57		3.75		3.94		3.75		3.56		3.70	
12	3.57		3.73		3.88		3.73		3.55		3.66	
13	3.58		3.72		3.85		3.67		3.54		3.63	
14	3.58		3.70		3.85		3.65		3.54		3.62	
15	3.60		3.72		3.87		3.65		3.53		3.61	
16	3.60		3.73		3.89		3.65		3.52		3.60	
17	3.63		3.75		3.87		3.66		3.50		3.58	
18	3.63		3.76		3.85		3.67		3.50		3.55	
19	3.65		3.77		3.82		3.70		3.49			
20	3.65		3.79		3.80		3.72		3.50			
21	3.66		3.83		3.83		3.74		3.50			
22	3.67		3.85		3.81		3.76		3.51			
23	3.68		3.87		3.79		3.76		3.53			
24	3.68		3.89		3.78		3.78		3.53			
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: El. _____											

422

### WATER LEVEL AND DISCHARGE RECORD

Station: Kaliwa Confluence

River Basin \_\_\_\_\_ Basin # \_\_\_\_\_ Station # \_\_\_\_\_ E.L. \_\_\_\_\_ m \_\_\_\_\_

Station Site Pagsangahan Drainage Area \_\_\_\_\_ km<sup>2</sup> \_\_\_\_\_

DATE	From <u>October</u> 19 <u>79</u> to 19 _____											
Date	<u>30</u>		<u>31</u>									
Time	H	Q	H	Q	H	Q	H	Q	H	Q	H	Q
1			4.45									
2			4.83									
3			4.20									
4			4.13									
5			4.03									
6			4.03									
7			3.90									
8			3.83									
9			3.68									
10			3.68									
11			4.50									
12			4.45									
13			4.39									
14			4.20									
15			4.13									
16			3.90									
17			3.83									
18			3.68									
19			3.90									
20			3.83									
21			3.68									
22			3.68									
23			3.68									
24	4.50		3.75									
Mean												
Max.												
Min												
Remarks	H: Gauge height in _____ Q: Discharge in _____ Zero Point of water gauge: EL. _____											

Chapter 4

FLOOD RECORDS



4.1 Unusual Flood in Philippines by 1969

No. /1	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				Km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
(1) <u>Basin in Luzon</u>							
15	Abulog	18	Nov. 19'57	1,432	5,120	3.58	
16	Bamurbur	18	Aug. 19'68	112	83.4	0.745	
17	Baua	15	Nov. 13'57	103	393.8	3.82	
18	Cagayan	11	Nov. 17'59	2,323	13,071	5.63	
19	Dabubu	6	Oct. 5'64	162	344	2.12	
20	Dibuluan	6	Nov. 5,'67	272	872	3.21	
21	Ddaiam	6	Oct. 5'64	721	1,420	1.97	
22	Cagayan	12	Nov. 17'59	4,244	17,550.5	4.14	
23	Diadi	15	Nov. 17'59	196	663	3.38	
24	Cagayan	9	Nov. 23'66	6,266	10,529.2	1.68	
25	Cruz	3	Nov. 4'67	162	151.25	0.934	
26	Cadaclan	2	Aug. 2'68	261	525.06	2.01	
27	Matuno	22	Nov. 4'67	558	861	1.54	
28	Magat	12	Oct. 14'60	1,784	1,540	0.863	
29	Ibulao	6	Nov. 21'66	606	555.2	0.916	
30	Alimit	3	Nov. 5'67	573	911.2	1.59	
31	Taotao	15	Oct. 28'58	430	531.22	1.24	
32	Disabungan	5	Dec. 30'66	198	138.45	0.699	
33	Disulap	5	Jul. 13'65	146	49.46	0.339	
34	Pinacanauan De Ilagan	6	Oct. 17'68	1,565	1,840.5	1.18	
35	Casile	21	Oct. 13'60	195	241.25	1.24	
36	Mallig	22	Dec. 10'48	563	1,000	1.78	
37	Siffu	22	Nov. 17'59	686	997.4	1.45	
38	Pinacanauan	6	Aug. 7'64	170	1,004	5.91	
39	Cagayan	12	Nov. 18'59	18,685	G.H.22.52m		
40	Pinacanauan	15	Nov. 16'64	655	2,775.8	4.24	
41	Cagayan	12	Nov. 23'66	19,445	G.H.22.00m		
42	Cagayan	12	Nov. 17'64	19,685	G.H.18.78m		
43	Cagayan	12	Aug. 20'68	19,785	G.H.19.10m		
44	Pangul	15	Oct. 13'60	312	4,014.1	12.9	

Note: 1; No. coincides with the page of "Water Supply Bulletin"  
as of 1969 published by B.P.W.

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	m
45	Cagayan	12	Nov. 19'59	20,310	G.H.17.90m		
46	Paret	2	Nov. 21'69	730	292	0.400	
47	Cagayan	12	Nov. 19'64	21,560	G.H.17.84m		
48	Cagayan	12	Oct. 18'67	21,610	G.H.14.40m		
49	Sabagan	5	July 26 '69	57	255.56	4.48	
50	Chico	3	Sep. 30'68	1,087	1,084.00	1.00	
51	Tanudan	5	Sep. 25'65	365	227.20	0.62	
52	Chico	7	Aug. 17'64	1,987	4,040.00	2.03	
53	Saltan	3	Jul. 27'69	255	320.20	1.26	
54	Saltan	5	Sep. 29'68	846	1,111.40	1.31	
55	Matalag	6	Aug. 7'64	655	1,195.20	1.82	
56	Dummon	6	Sep. 10'64	308	1,238.00	4.02	
57	Cagayan	12	Nov. 26'61	26,840	G.H.9.85m		
58	Sinundungan	11	Nov. 17'59	189	1,265.76	6.70	
59	Cagayan	12	Nov. 18'64	27,305	G.H.7.20m		
60	Cagayan	11	Nov. 16'64	27,510	G.H.4.89m		
61	Cagayan	12	Jul. 27'64	27,580	G.H.1.40m		
62	Bonga	24	Oct. 6'47	534	4,392.00	8.22	
63	Gasgas	24	Oct. 6'47	73	1,025.16	14.04	
64	Laoac	12	Aug. 30'62	1,355	11,345.00	8.37	
65	Tineg	11	Jun. 28'67	644	3,951.00	6.14	
66	Abra	12	Sep. 9'64	2,575	4,493.75	1.75	
67	Sinalang	12	Sep. 29'68	120	1,223.30	10.19	
68	Abra	12	Oct. 18'67	4,813	10,846.00	2.25	
69	Buaya	22	Aug. 29'56	195	1,950.00	10.00	
70	Bucong	20	Jul. 13'65	49	475.60	9.71	
71	Sta. Maria #1	13	Aug. 24'61	67	261.00	3.90	
72	Sta. Maria #2	13	Aug. 24'61	123	316.00	2.57	
73	Maragayap	24	Aug. 16'52	36	496.00	13.78	
74	Baroro	12	Jul. 27'69	129	1,321.00	10.24	
75	Naguilian	24	Jul. 16'46	304	3,632.00	11.95	
76	Aringay		Jul. 21'46	273	1,082.00	3.96	



Table (Continued)

No. 1/1	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>
77	Bued	31	Oct. 6'47	141	1,075.00	7.62
78	Toboy	6	Sep. 29'68	74	167.00	2.26
79	Tagamusong	12	Oct. 17'67	53	216.60	4.09
80	Sinocalan	12	Jun. 28'61	180	179.55	1.00
81	Agno	11	Sep. 29'68	246	793.10	3.22
82	Bokod	11	Aug. 6'64	48	135.25	2.82
83	Twin	3	Oct. 17'67	87	46.00	0.53
84	Agno	6	Oct. 17'67	958	G.H.16.00m	
85	Agno	41	Sep. 29'68	1,225	4,350.00	3.55
86	Ambayoan	12	Aug. 7'64	281	951.90	3.39
87	Agno	25	Jul. 17'46	2,209	4,330.00	1.96
88						
89						
90	Agno	6	Jun. 30'64	240	243.60	1.02
91	Bulsa	10	Jul. 24'62	405	2,259.50	5.58
92	Poponto	16	Aug. 31'68		G.H.16.18m	
93	Agno	16	Aug. 31'68	4,196	G.H.15.38m	
94	Camiling	6	Jun. 7'67	142	1,262.40	8.89
95	Pila (Damsite)	5	Aug. 28'68	117	337.50	2.88
96	Agno	16	Aug. 31'68	5,134	3,856.00	0.75
97	Bayaoas	12	Jul. 30'69	64	193.98	3.03
98	Agno	6	Aug. 7'64	5,564	G.H.3.37m	
99	Agno	5	Aug. 31'68	5,646	G.H.3.36m	
100	Balincaguing	11	Aug. 30'68	145	1,626.00	11.21
101	Nayon	15	Jul. 14'57	128	1,896.88	14.82
102	Bagsit	10	Sep. 5'62	68	185.80	2.73
103	Bugao	15	Aug. 16'60	615	2,525.30	4.11
104	Sto. Tomas	23	Jul. 24'62	177	855.00	4.83
105	Colo	15	Sep. 24'65	76	147.80	1.94
106	Miray Creek	17	Jul. 24'62	3	69.76	23.25
107	Pilar	12	Sep. 5'62	14	270.08	19.29
108	Caulaman	16	May 23'66	72	959.52	13.33

Table (Continued)

No. /1	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
109	Gumain	29	Jun. 30'64	128	375.40	2.93	
110	Gumain	12	Aug. 6'69	370	878.60	2.37	
111	Porac	30	Sep. 11'46	111	508.00	4.58	
112	Porac	12	Jun. 28'63	118	333.24	2.82	
113	Pasig	4	Aug. 29'68	28	8.86	0.32	
114	Pasig-Potrebo	5	May 20'66	242	73.22	0.30	
115	Cabrangian	11	Nov. 18'59	258	1,210.00	4.69	
116	Pantabangan	11	Jul. 13'65	253	1,163.50	4.60	
117	Pampanga	11	Aug. 14'63	838	1,412.20	1.69	
118	Digmala	11	Aug. 14'60	52	131.70	2.53	
119	Santor	13	Nov. 4'67	89	294.00	3.30	
120	Santor	13	Nov. 4'67	544	577.56	1.06	
121	Coronel	11	Nov. 4'67	709	1,427.74	2.01	
122	Pampanga	15	Nov. 22'66	2,015	1,899.60	0.94	
123	Cabu	13	Sep. 9'63	143	271.15	1.90	
124	Pampanga	6	Jul. 11'65	2,441	2,524.00	1.03	
125	Tabuating	10	Oct. 13'60	81	351.00	4.33	
126	Pampanga	12	Jul. 22'62	2,851	1,674.60	0.59	
127	Chico	10	Nov. 4'67	149	805.50	5.41	
128	Sumacbao	10	Oct. 23'60	287	1,414.30	4.93	
129	Penaranda	25	Sep. 20'55	511	G.H.36.6m		
130	Penaranda		Oct. 11'46	512	1,265.00	2.47	
131	Penaranda	5	Nov. 4'67	575	781.10	1.36	
132	Balinag	14	Nov. 13'57	284	461.40	1.62	
133	Benituan	13	Aug. 15'61	208	886.60	4.26	
134	Talavera	14	Oct. 17'67	261	901.08	3.45	
135	Talavera	10	Nov. 19'59	431	1,179.00	2.74	
136	Rio Chico	10	Aug. 16'60	1,177	530.95	0.45	
137	Pampanga	12	Jun. 27'60	148	192.64	1.30	
138	Rio chico	5	Sep. 15'66	2,982	564.30	0.19	
139	Pampanga	26	Aug. 17'60	6,487	2,372.00	0.37	
140	Madlum	15	Sep. 23'55	102	462.30	4.53	

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge		
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	m <sup>3</sup> /sec/km <sup>2</sup>	
141	Balaong-Madlum	14	Sep. 2'61	204	850.33	4.17		
142	San Miguel	15	Oct. 13'60	256	1,051.00	4.11		
143	Bulo	6	Jun. 29'64	57	367.60	6.45		
144	Garlang	15	Jun. 27'61	85	46.20	0.54		
145	Candaba	17	Aug. 17'60	7,454	G.H.7.02m			
146	Pampanga	12	Aug. 17'60	7,468	1,392.80	0.19		
147	Maasim	28	Nov. 21'66	150	1,518.62	10.12		
148	Maasim	14	Jul. 21'62	174	618.00	3.55		
149	Pampanga	22	Aug. 11'69	7,756	G.H.16.85m			
150	Pampanga	24	Jul. 24'62	7,776	G.H. 9.52m			
151	Pampanga	24	Jul. 24'62	7,849	G.H.15.77m			
152	Sulipan cut-off channel	14	Jul. 24'62	7,874	G.H.15.58m			
153	Francis	24	Oct. 6'50	-	G.H.14.74m			
154	Angat	14	Jul. 21'62	629	3,128.00	4.97		
155	Bayabas	6	Jul. 30'69	74	321.50	4.34		
156	Angat		Jul. 21'62	959	1,702.60	1.78		
157	Angat	9	Jul. 21'62	963	G.H. 9.10m			
158	Angat	9	Jul. 22'62	1,014	G.H. 6.74m			
159	Pampanga	26	Oct. 12'46	7,910	G.H.16.20m			
160	Pampanga	24	Jul. 26'62	7,914	G.H.15.44m			
161	Bebe cut-off #1	14	May 29'66	-	G.H. 2.55m			
162	Bebe cut-off channel No.2	14	Jul. 29'69	-	G.H. 1.70m			
163	Pampanga	9	insufficient Data					
164	Labangan	24	Aug. 14'60	1,016	G.H.15.42m			
165	Labangan	9	May 23'66	Undefind	G.H. 6.11m			
166	Labangan	9	Jul. 24'62	Undefind	G.H. 3.51m			
167	Labangan	9	Aug. 6'67	-	G.H. 2.50m			
168	Sta. Maria	4	Nov. 21'66	187	244.10	1.31		

Table (Continued)

No. /1	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
169	Mayor	21	Jun. 30'64	45	139.50	3.10	
170	Balanac (upper)	12	Oct. '60	116	396.00	3.41	
171	Balanac (lower)	14	Dec. 10'56	-	175.50		
172	Sta. cruz	30	Oct. 28'53	103	298.00	2.89	
173	Mabacan	15	Jun. 27'60	46	380.70	8.28	
174	Paputok	15	Jun. 27'60	8.5	91.15	10.72	
175	Arangilan	14	Sep. 1'56	87	330.00	3.79	
176	Laguna Lake	5	Dec. 16'64	3,158	G.H. 2.92m		
177	Laguna Lake	26	Nov. 4'67	3,158	G.H. 14.26m		
178	Laguna Lake	11	Oct. 14'60	3,158	G.H. 13.19m		
179	Laguna Lake	11	Oct. 27'60	3,158	G.H. 14.09m		
180	Marikina	14	Nov. 20'66	282	1,017.5	3.61	
181	Nangka	11	Nov. 21'66	54	G.H. 21.06m		
182	Marikina	12	Nov. 21'66	499	3,420	6.85	
183	Marikina	11	Nov. 3'67	532	G.H. 18.85m		
184	Pasig	24	Oct. 15'60	3,159	G.H. 13.21m		
185	Pasig	24	Nov. 21'68	3,821	G.H. 14.68m		
186	Pasig	11	Aug. 14'60	3,807	G.H. 14.32m		
187	Pasig	24	Aug. 11'47	3,824	G.H. 14.00m		
188	Pasig	25	Nov. 4'67	3,923	G.H. 12.78m		
189	Pasig	9	Jul. 1'61	3,923	G.H. 1.49m		
190	Tiang-Tiang	18	Sep. 1'56	60	488.50	8.14	
191	Panaysayan	13	Sep. 4'62	29	227.66	7.85	
192	Balsahan	16	Sep. 4'62	22	187.06	8.50	
193	Maragondon	25	Nov. 5'	260	3,987.00	15.33	
194	Palico	14	Sep. 5'62	153	1,680.00	10.98	
195	Molifo	14	Jul. 12'57	51	224.60	4.40	
196	Dacanlao	12	Oct. 13'60	40	230.00	5.75	
197	Pansipit	12	Sep. 6'62	644	63.40	0.10	
198	Cabatangan	15	Nov. 12'57	242	618.00	2.55	
199	Disalit	14	Apr. 12'56	25	12.55	0.50	

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
200	Agus	21	Dec. 31'50	879	3,622.00	4.12	
201	Maapon	12	Nov. 4'67	88	328.20	3.73	
202	Dumacaa	25	Nov. 18'59	54	425.00	7.87	
203	Ibia	21	Sep. 24'62	15	154.75	10.32	
204	Dumacaa	25	Oct. 3'56	74	574.00	7.76	
205	Hibanga	14	Nov. 4'67	5	44.70	8.94	
206	Morong	14	Nov. 19'59	12	97.50	8.13	
207	Sariya	14	Jun. 27'60	6	28.35	4.73	
208	Bulakin	11	Jun. 27'60	10.5	57.00	5.43	
209	Lagnas	18	Nov. 12'61	54	154.85	2.87	
210	Daet	16	Nov. 29'55	80	466.80	5.84	
211	Matogdon	20	Nov. 28'64	28	232.98	8.32	
212	Talisay	14	Nov. 28'64	22	218.30	9.92	
213	San Francisco	14	Dec. 31'59	131	177.60	1.36	
214	Cabilogan	14	Oct. 28'58	164	257.00	1.57	
215	Ugsong	16	Jun. 25'60	11	159.20	14.47	
216	Nasisi	18	Nov. 21'51	39	133.00	3.41	
217	Bicol	10	Aug. 13'63	217	554.94	2.56	
218	Talisay	6	Jul. 23'65	90	125.10	1.39	
219	Quinali	16	Nov. 4'67	232	201.80	0.87	
220	San Agustin	10	Nov. 17'59	262	234.88	0.90	
221	Lallo	6	Nov. 4'67	22	39.90	1.81	
222	Lake Bato	10	Nov. 5'67	874	G.H. 9.37m		
223	Bicol	23	Oct. 27'52	905	433.60	0.48	
224	Barit	18	Dec. 9'56	142	859.00	6.05	
225	Pawilt	18	Dec. 9'56	112	1,044.54	9.33	
226	Pawilt	10	Sep. 29'64	240	688.40	2.87	
227	Bicol	10	Sep. 29'64	1,680	546.65	0.33	
228	Amayan	16	Sep. 29'64	17	318.96	18.76	
229	Bicol	10	Aug. 18'63	1,720	296.86	0.17	
230	Bicol	10	Jan. 16'67	1,930	G.H. 5.81m		
231	Yabu	16	Dec. 9'56	20	90.28	4.51	

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
232	Pulantuna	6	Nov. 4'67	172	534.80	3.11	
233	Culacling	6	Nov. 4'67	64	61.00	0.95	
234	Yabo	6	Sep. 29'64	85	272.00	3.20	
235	Sipoot	19	Dec. 28'69	447	3,301.20	7.39	
236	Aslong	16	Nov. 17'59	12	221.80	18.48	
237	Libmaman	10	Nov. 4'67	596	G.H. 3.80m		
238	Bicol	10	Jan. 29'64	2,717	G.H. 3.98 m		
239	Hinaciahan	13	Nov. 11'57	23	101.160	4.40	
240	Laconoy	18	Dec. 31'59	45	358.00	7.96	
241	Tigman	13	Dec. 9'56	34	292.00	8.59	
242	Cumadcad	13	Jun. 26'60	13	233.60	17.97	
243	Pili	16	Nov. 14'56	18	65.64	3.65	
244	Cawayan	16	Jun. 26'60	15	77.50	5.17	
245	Namuat	16	Oct. 6'60	10	215.70	21.57	
246	San Francisco	17	Nov. 20'64	36	302.40	8.40	
247	San Ramon	18	Jan. 14'67	69	810.00	11.74	
<u>(2) Basins in Mindoro</u>							
248	Tuay	19	Oct. 8'60	24	289.80	12.08	
249	Mamburao	11	Oct. 8'60	189	302.00	1.60	
250	Pagbahan	9	Jun. 27'62	263	1,378.00	5.24	
251	Bugsuanca	13	Sep. 3'56	434	1,269.00	2.92	
252	Caguray	13	Oct. 3'56	136	1,450.00	10.66	
253	Bucayao	18	Sep. 8'56	339	2,288.00	6.75	
254	Pangaiaan	18	Sep. 5'62	28	871.70	31.13	
255	Mag-Asawang	18	Apr. 10'56	435	928.40	2.13	
256	Pola	17	Jan. 1'60	148	1,500.00	10.14	
257	Mambang	16	Aug. 13'63	4	160.56	40.14	
<u>(3) Basins in Catanduanes</u>							
258	Payo	16	Dec. 10'61	29	120.00	4.14	
259	Oco	16	Dec. 9'61	57	345.00	6.05	

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>
260	Alibuag	16	Dec. 9'56	11	115.20	10.47
261	Patorok	16	Nov. 16'59	10	188.30	18.83
262	Cawayan	16	Nov. 17'54	13	186.00	14.31
263	Sibanjan	16	Oct. 29'58	4	80.30	20.08
264	Libjo	16	Nov. 16'59	4	91.50	22.88
265	Mangaman	10	Nov. 20'66	39	483.60	12.40
266	Boac	10	Jan. 1'60	218	2,482.00	11.39
267	Malabon	10	Jan. 1'60	48	603.80	12.58
268	Batongan	11	Nov. 20'64	72	582.00	8.08
269	Sagawsawan	11	May 16'66	8	79.16	9.90
270	Pinangapugan	18	Jun. 4'65	43	495.92	11.53
(4) <u>Basins in Romblon</u>						
271	Balogo	12	Aug. 24'67	4	149.38	37.35
272	Banadelo	11	Jan. 1'60	6	56.90	9.48
273	Dobduban	13	Oct. 7'60	1.1	14.28	12.98
274	Binonga-an	10	Oct. 7'60	0.83	28.99	34.93
275	Hinugusan	12	Oct. 22'58	3	25.87	8.62
276	Lusong	14	Jan. 1'60	4.38	94.04	21.47
277	Cantingas	13	Nov. 22'61	48	336.00	7.00
(5) <u>Basins in Panay</u>						
278	Aklan	20	Oct. 27'52	705	4,104.00	5.82
279	Tangaian	11	Oct. 6'60	38	510.40	13.43
280	Mambusao	20	Nov. 30'55	307	779.00	2.54
281	Maayon	16	Dec. 30'56	265	170.70	0.64
282	Pamay	14	Jan. 7'57	880	1,668.00	1.90
283	Bacong	11	Aug. 3'60	54	142.00	2.63
284	Paliuan	14	Aug. 6'64	176	1,143.20	6.50
285	Sibalon	11	May 17'66	635	921.00	1.45
286	Sibajao	10	Nov. 20'64	12	26.75	2.23

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				Km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	m <sup>3</sup> /sec/km <sup>2</sup>
287	Barotac	14	Jan. 6'57	90	141.02	1.57	
288	Jalaur	14	Apr. 22'60	120	601.50	5.01	
289	Jalaur	14	Jan. 7'57	169	1,003.04	5.94	
290	Jalaur	13	Jan. 7'57	534	1,937.40	3.63	
291	Ulian	14	Jul. 29'62	247	702.40	2.84	
292	Jalaur	13	Sep. 20'64	1,065	1,880.00	1.77	
293	Suague	20	May 17'66	186	319.50	1.72	
294	Jalaur	13	Jan. 7'57	1,499	1,425.00	0.95	
295	Jalaur	13	Aug. 27'65	1,549	G.H. 3.36 m		
296	Inabasan	20	Oct. 13'52	97	217.25	2.24	
297	Sibalon		Jun. 30'64	117	651.50	5.57	
(6) <u>Basins in Negros</u>							
298	Malogo	10	Nov. 19'64	129	1,801.40	13.96	
299	Baco	4	Nov. 29'68	445	499.00	1.12	
300	Baco	21	Jul. 3'52	683	3,425.00	5.01	
301	Picuyan	5	Nov. 24'68	12.5	39.00	3.12	
302	Bimaibagan	11	Jan. 6'67	350	471.50	1.35	
303	Imbang	20	Nov. 24'68	33	482.10	14.61	
304	Ilog	5	Oct. 1'67	1,245	878.00	0.71	
305	Ilog	11	Dec. 31'56	1,390	2,480.00	1.78	
306	Ilog	14	Dec. 31'56	1,453	2,510.00	1.73	
307	Ilog	14	Dec. 31'56	1,493	G.H. 11.00m		
308	Hilabangan	14	Dec. 9'65	392	490.00	1.25	
309	Hilabangan	15	Nov. 28'56	431	1,391.00	3.23	
310	Ilog	15	Nov. 18'68	1,947	1,901.00	0.98	
311	Ilog	15	Jun 30'64	1,959	1,775.20	0.91	
312	Ilog	6	Nov. 25'68	1,995	G.H. 7.26m		
313	Ilog	15	Nov. 28'55	2,009	G.H. 6.65m		
314	Ilog	15	Nov. 8'67	2,010	G.H. 4.50m		
315	Ilog	13	Jun. 30'69	2,059	G.H. 2.80m		



Table (Continued)

No. /1	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
316	Bais	5	Nov. 27'62	52	187.00	3.60	
317	Nagsala	9	Mar. 6'67	23	65.50	2.85	
318	Tanjay	11	Jul. 12'65	138	860.00	6.23	
319	Okoy	11	Mar. 9'62	60	31.00	0.52	
320	Dumaguete	11	Oct. 26'66	2.6	40.43	15.55	
(7) <u>Basins in Cebu</u>							
321	Balamban	13	Nov. 19'64	49	497.00	10.14	
322	Carcar	15	Jul. 5'56	31	335.40	10.82	
323	Pitoco	15	Jul. 6'64	40	37.26	0.93	
324	Pamacsalan	14	Dec. 28'56	71	114.00	1.61	
325	Wahig	15	Nov. 18'64	25	109.78	4.39	
326	Silar	11	Nov. 19'64	92	159.77	1.74	
327	Loboc	16	Nov. 19'64	618	571.00	0.92	
(8) <u>Basins in Leyte</u>							
328	Baleon	14	Jan. 5'57	19	53.20	2.80	
329	Mas-in	14	Oct. 2'60	22	59.40	2.70	
330	Bao	19	Nov. 21'61	65	167.50	2.58	
331	Calingcaguig	21	Nov. 2'59	128	542.50	4.24	
332	Mainit	21	Nov. 2'49	98	425.00	4.34	
333	Dapdap	18	May 16'66	30	116.56	3.89	
334	Lingayon	22	Mar. 1'64	10	112.56	11.26	
335	Daguitan	13	Nov. 21'61	135	718.92	5.33	
336	Das-ay	12	Jan. 16'65	62	159.20	2.57	
337	Lawigan	12	Nov. 13'67	85	165.72	1.95	
(9) <u>Basins in Samar</u>							
338	Mayo	2	Nov. 24'68	138	84.37	0.61	
339	Bobon	12	Nov. 20'64	91	184.64	2.03	
340	Catarman	11	Aug. 13'63	472	1,642.30	3.48	

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge	
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>	
341	Catubig	15	Jan. 15'65	252	385.10	1.53	
342	Hibahawan	13	Oct. 28'58	19	297.20	15.64	
343	Jicontol	11	Oct. 6'60	95	<b>375.20</b>	<b>3.95</b>	
344	Tenane	11	Dec. 17'59	392	1,305.90	3.33	
(10)	<u>Basins in Mindanao</u>						
345	Tago	9	Feb. 6'62	676	626.4	0.93	
346	Carac-an	20	Dec. 25'56	240	2,152.00	8.97	
347	Boya-an	14	Mar. 20'59	33	325.5	9.86	
348	Baguag	18	Mar. 20'59	64	313.76	4.90	
349	Surigao	12	Nov. 27'62	101	889.00	8.80	
350	Mayag	15	Jul. 11'59	41	468.20	11.42	
351	Sokkoy Creek	5	Apr. 25'69	2	1.30	0.65	
352	Kalimawan	8	Dec. 31'68	482	201.90	0.42	
353	Agusan	3	Jan. 13'68	343	144.00	0.42	
354	Agusan	12	Feb. 14'63	1,355	2,114.00	1.56	
355	Agusan	12	Dec. 25'56	1,599	2,189.00	1.37	
356	Kayawan	3	Jan. 14'68	348	1,093.76	3.14	
357	Adgaoan	3	Oct. 18'67	820	793.00	0.97	
358	Gibong	5	Jan. 14'68	427	420.00	0.98	
359	Agusan	15	Dec. 28'56	7,390	G.H. 15.36 m		
360	Kasilayan	12	Dec. 27 & 31'68	209	100.00	0.48	
361	Andanan	3	Dec. 29'69	210	<b>180.00</b>	<b>0.86</b>	
362	Wawa	12	Feb. 15'63	396	841.20	2.12	
363	Busilao	3	Mar. 4'68	316	265.00	0.84	
364	Balatukan	2	Nov. 19'68	114	176.00	1.54	
365	Tacoloan	6	Feb 26'63	1,656	551.50	0.33	
366	Cagayan	12	Dec. 25'56	1,331	1,504.50	1.13	
367	Iponan	13	Dec. 8'58	351	357.02	1.02	
368	Alubijid	18	Dec. 23'56	94	190.00	2.02	
369	Mandulog	11	Feb. 28'62	576	415.00	0.72	
370	Maigo	19	Apr. 4'57	74	278.96	3.77	

Table (Continued)

No. <sup>/1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>
371	Maranding	18	Oct 25'52	345	282.00	0.82
372	Langaran	11	Dec. 25'62	83	294.50	3.55
373	Layawan	21	Feb. 27'62	115	151.50	1.32
374	Pinis	11	Jan. 16'67	27	73.15	2.71
375	Jimenez	14	Sep. 15'56	97	187.20	1.93
376						
377						
378	Labo	18	Nov. 29'65	55	92.80	1.69
379	Layawan	11	Dec. 27'61	152	173.44	1.14
380	Disacan	11	Apr. 9'61	113	543.30	4.81
381	Dipolo	13	Jun. 9'53	313	247.50	0.79
382	Salug-Dacu	20	Dec. 19'54	375	227.00	0.61
383	Labangan	20		430	G.H. 4.10m	
384	Mercedes	9	Jun. 8'61	39	26.34	0.68
385	Manupali	2	Oct. 5'69	487	67.36	0.14
386	Pulangi	5	Jan. 1'69	2,730	1,165.00	0.43
387	Taganibong	2	Jul. 8'68	27	0.65	0.02
388	Sacomata	3	Jul. 8'67	10	0.86	0.09
389	Kulaman	2	Aug. 18'69	144	85.11	0.59
390	Muleta	3	Oct. 17'67	736	188.00	0.26
391	Pulangui	11	Feb. 16'64	6,752	1,464.00	0.22
392	Kabacan	15	Jan. 29'62	698	692.10	0.99
393	Maridagao	11	Sep. 6'60	1,333	778.00	0.58
394	Marbel	20	Mar. 10'51	290	166.86	0.58
395	Alip	11	Mar. 7'62	380	400.00	1.05
396	Malasila	18	Sep. 18'59	145	258.96	1.79
397	M'Langa	16	Sep. 8'65	164	133.74	0.82
398	Saguing	12	Jan 1'63	9	152.00	16.89
399	Rio Grande de Mindanao	15	Aug. 27'62	12,999	1,023.40	0.08
400	Lonon	5	Jun. 19'66	125	15.39	0.12
401	Allah	19	Jul 7'69	936	330.00	0.35

Table (Continued)

No. <sup>1</sup>	River	Observed Year	Date of Max. Discharge	Drainage Area		Max. Discharge
				km <sup>2</sup>	m <sup>3</sup> /sec	m <sup>3</sup> /sec/km <sup>2</sup>
402	Allah	11	Feb 19'63	1,496	255.06	0.17
403	Banga	11	Jan. 24'64	324	86.56	0.27
404	Kapingkong	2	Jul. 11'69	559	35.50	0.06
405	Dansalan	14	Jun. 28'69	3,749	613.00	0.16
406	Mindanao	11	Nov. 29'69	17,744	1,228.00	0.07
407	Libungan	20	Jul. 26'62	534	1,631.40	3.06
408	Mindanao	5	Aug. 28'65	19,406	G.H. 3.07m	
409	Simuay	1	Sep. 7'69	664	292.00	0.44
410	Tamontaka	1	Jul. 31'69		G.H. 2.20m	
411	Tamontaka	1	Nov. 11'69	583	G.H. 2.54m	
412	Buayan	10	Mar. 1'61	208	20.60	0.10
413	Clinan	17	Sep. 29'53	89	18.80	0.21
414	Siluyay	14	Oct. 7'65	65	198.72	3.06
415	Caraga	5	Jan. 14'69	468	G.H. 3.03m	
416	Hijo	17	Feb. 14'64	617	679.00	1.10
417	Tagum	21	Dec. 27'56	2,326	837.00	0.36
418	Siluyay	14	Oct. 7'65	65	198.72	3.06
419	Caraga	5	Jan. 14'69	468	G.H. 3.03m	
420	Matina	11	Jan. 29'62	48	146.89	3.06
421	Sibulan	15	Dec. 3'61	128	203.85	1.59
422	Mal	14	Feb. 13'65	188	287.20	1.53
423	Padana	21	Aug. 3'60	821	148.70	0.18

#### 4.2 Typhoon Records at Infanta

Republic of the Philippines  
Department of Commerce and Industry  
Weather Bureau  
Infanta, Quezon

To whom it may Concern:

The following are typhoons that passed near Infanta, Quezon from 1964 to 1970:

Typhoon DADING - June 26 - 30, 1964

This typhoon passed south of Infanta at a considerable distance, then passed over Manila at 1:00 a.m., on June 30, 1964 with maximum center winds of 90 knots, 166 kph.

Typhoon UDING - November 19 - 20, 1966

This typhoon passed north of Infanta by way of east maximum winds of 72 knots hit Infanta from the west at 2,330 hours, Nov. 20. Heavy rains fell over Infanta from 1,000 hours to 1,900 hours. The whole town was flooded. Total rainfall measured from 0800 hours, November 20 to 0800 hours Nov. 21 - 314.6 millimeters. Lowest sea level pressure registered - 975.2 millibars at 1,710 hours, Nov. 20. Winds subsided about 0200 hours.

Typhoon Welming - Nov. 3 - 4, 1967

This typhoon passed south Infanta from the south east continuous moderate to heavy rains fell over Infanta from 0800 hours, November 3 to 4 to 0400 hours, Nov. 5. Maximum winds of 68 knots or 79 mph from the north-east was registered at 1,000 hours, November 4. Lowest sea level pressure observed at 0900 hours, November 4 at 985.9 millibars.

Typhoon Sering - October 12 - 14, 1970 11-15-275

This typhoon passed south of Infanta and was located at 10 kms east of Mauban, Quezon of 2,345 hours, October 13, moderate to heavy rains occurred at Infanta 1,000 hours 0800 hours, October 13 to 0800 hours, October 14. Total rainfall from 0800 hours, October 13 to 0800 hours, October 14 - 136.5 millimeters. Maximum winds observed at 0138 hours, October 14, was 42 knots from the northeast. Lowest sea level pressure observed at 0200 hours, October 14 at 985.1 millibars.

Typhoon Yoling - November 18 - 19, 1970 7-20 22 kph

This typhoon was the worst typhoon on record that ever affected Infanta. Yoling passed about 15 kilometers southeast of Infanta about 1,500 hours, Nov. 19. Highest wind speed recorded was 102 knots of 189 kph at 0945 hours, November 19, from the north quadrant. Moderate to heavy rains fell over Infanta from 0800 hours to 1554 hours, November 19. Total rainfall measured from 0800 hours, November 19 to 0800 hours, Nov. 20, was 48.1 millimeters. This typhoon caused heavy losses to crops and properties. Coconut trees were uprooted. Big buildings in the poblacion were heavily damaged.

Certified true as per records of Infanta weather station.

Bosilio A Formla  
Officer in Charge

4.3 Flood on Oct 4 to 5, 1979  
at Mahabang Lalim G.S.

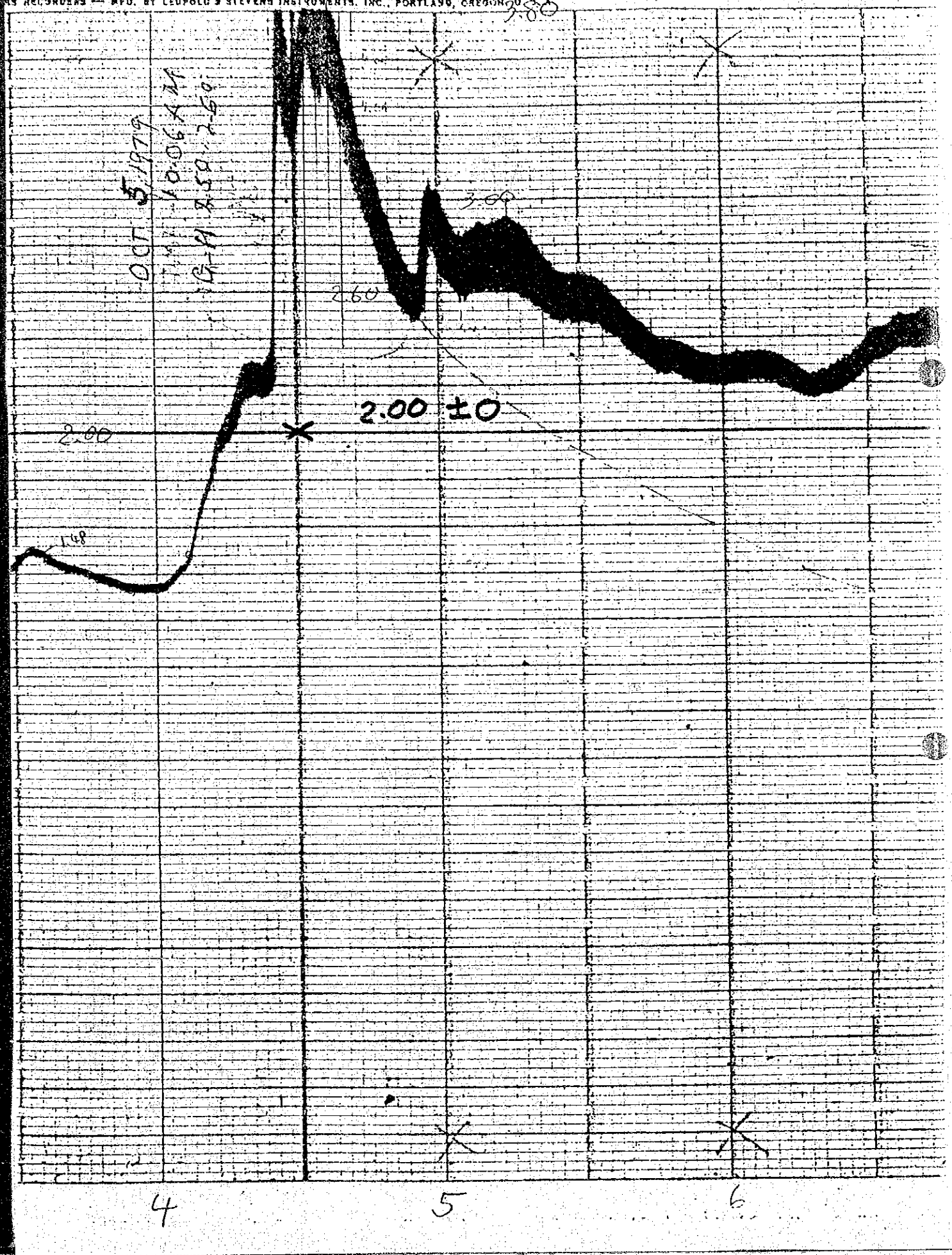
Date Time	Oct. 4		Oct. 5		Oct. 6	
	H	Q	H	Q	H	Q
0			4.24	1.500	2.56	632
1			3.92	1.320		
2	1.48	197	3.68	1.190	2.52	615
3			3.64	1,170		
4			3.48	1,090		
5			3.28	980		
6					2.34	533
7						
8			2.74	718		
9						
10	1.34	165	2.60	652		
11			2.92	802		
12	1.34	165	2.86	775	2.26	497
13	1.36	170				
14			2.72	708		
15	1.48	197				
16						
17	1.84	320				
18			2.76	727		
19						
20	2.22	480				
21	2.22	480	2.62	660		
22	2.36	542				
23	4.08	1.410				

1 E 4<sup>cm</sup>  
440

Oct 4-5, 1979

Mahabang Lalim G. S.  
on Agos river

RECORDERS — MFD. BY LEUPOLD & STEVENS INSTRUMENTS, INC., PORTLAND, OREGON





# Rainfall during the Storm on Oct. 4 to 5, 1979

## HOURLY RAINFALL RECORD

Station : \_\_\_\_\_ Basin of \_\_\_\_\_ EL. \_\_\_\_\_ m

Accum. total \_\_\_\_\_ from \_\_\_\_\_ h on \_\_\_\_\_ to \_\_\_\_\_ h on \_\_\_\_\_ : \_\_\_\_\_ mm

Type of Rain gauge \_\_\_\_\_

Year		1979						
Month		October 4						
Time	Date	Infanta	Longoy	Lagmac	Upper Matatia	Sta. Ines	Lumutan	Mean
1		0	0	0	1.0	0	3.50	0.8
2		0	0	0	0.5	0.75	3.25	0.8
3		0	0.5	0	0.5	0.75	0.50	0.4
4		0	0	0	0	1.25	0.75	0.3
5		0	0	0	0.5	2.25	1.00	0.6
6		0	0	0	0.5	3.25	2.00	1.0
7		0.5	0.5	0	0.5	0.75	1.00	0.5
8		0	0	0	0.5	1.00	1.25	0.5
9		0	0.5	0.5	1.0	28.00	1.00	5.2
10		1.0	1.5	0	11.0	11.50	16.75	7.0
11		3.0	9.0	3.5	2.0	2.00	16.00	5.9
12		7.5	4.0	7.0	2.0	1.50	2.25	4.0
13		6.5	3.0	3.0	1.5	18.50	0.50	5.5
14		2.5	3.5	13.5	5.0	9.50	14.75	8.1
15		1.0	10.0	16.0	3.0	4.50	5.00	6.6
16		3.0	4.0	10.0	13.5	1.75	7.50	6.6
17		3.0	0	3.5	4.0	0.50	1.00	2.0
18		2.0	5.0	3.5	1.5	0	1.00	2.2
19		1.5	6.5	26.0	0	0	0	5.6
20		0.5	22.5	42.5	2.0	2.25	5.00	12.5
21		0.5	62.0	45.5	8.0	24.00	10.00	25.0
22		8.0	71.0	57.0	21.5	25.50	41.00	37.3
23		3.0	10.5	22.5	21.5	5.50	16.00	13.2
24		2.0	8.5	12.0	7.0	4.50	7.00	6.8
Total								
Accum.								

- to be continued -

442

### HOURLY RAINFALL RECORD

Station : \_\_\_\_\_ Basin of \_\_\_\_\_ EL. \_\_\_\_\_ m

Accum. total from \_\_\_\_\_ h on \_\_\_\_\_ to \_\_\_\_\_ h on \_\_\_\_\_ : \_\_\_\_\_ mm

Type of Rain gauge \_\_\_\_\_

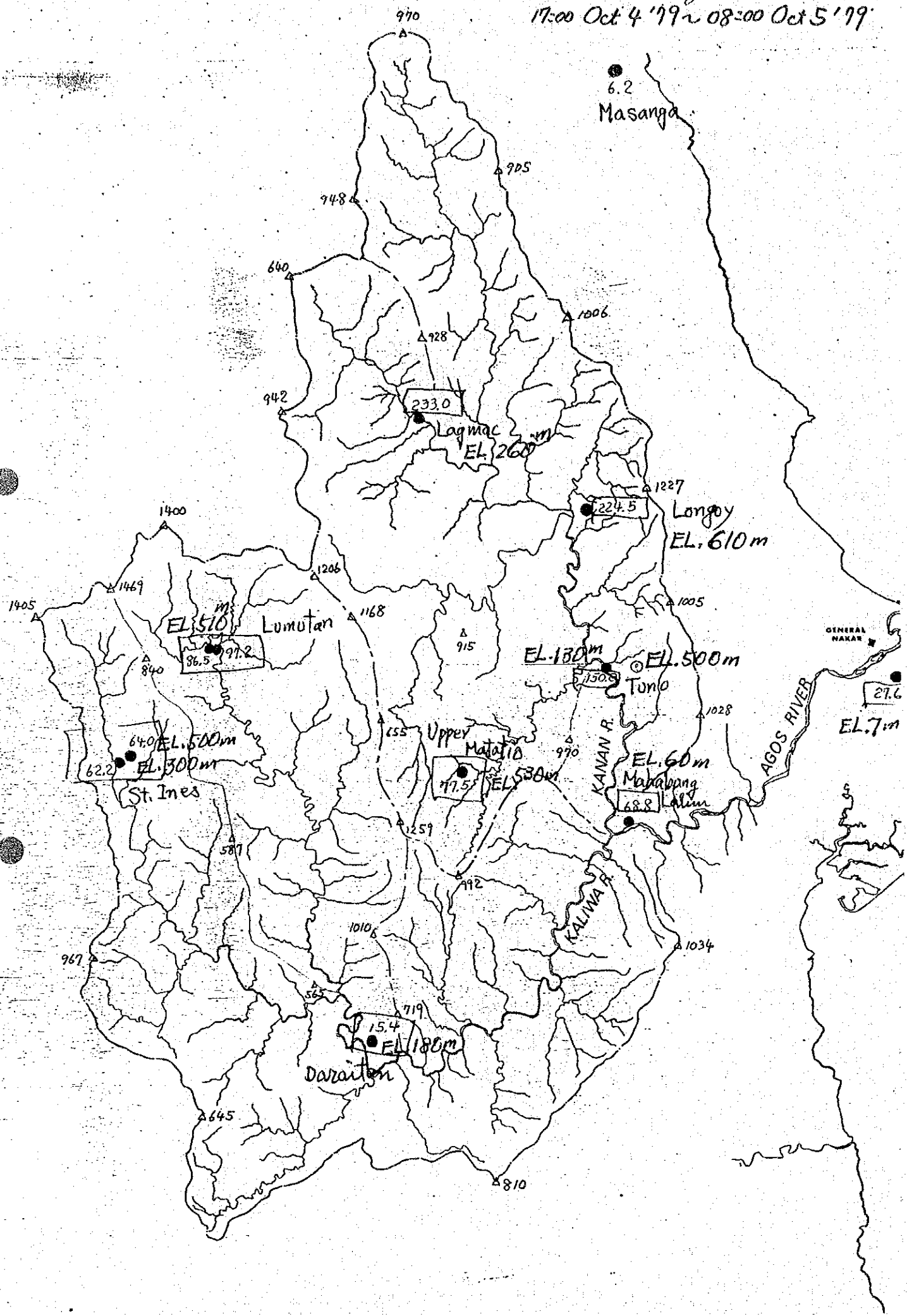
Year		1979						
Month		October 5						
Time	Date	Infanta	Longoy	Lagmac	Upper Matatig	Sta. Ines	Lunatan	Mean
1		0.5	5.0	5.5	4.0	0.25	3.50	3.1
2		0.5	6.0	4.5	1.5	0	1.25	2.3
3		1.0	6.5	5.5	2.5	0	0.25	2.6
4		0	9.5	3.0	3.5	0	0.25	2.7
5		3.0	7.5	3.5	1.5	0	0.50	2.7
6		0	0.5	1.5	0.5	0	0.50	0.5
7		0.5	1.0	0.5	2.5	0.25	0.25	0.8
8		0	2.5	0	0	1.75	0	0.7
9								
10		50.5	260.0	290.0	120.5	141.75	151.25	
11								
12								
13								
14		27.5	35.5	57.0	43.0	77.75	64.75	
15								
16		23.0	224.5	233.0	77.5	64.00	86.50	
17								
18								
19								
20								
21								
22								
23								
24								
Total								
Accum.								

8:00 on Oct 4  
5  
8:00 on Oct 5

8:00  
17:00

17:00  
8:00

Rainfall during the Storm 443  
 17:00 Oct 4 '99 ~ 08:00 Oct 5 '99



6.2  
 Masanga

970

948

640

925

1006

928

942

233.0

Lagmac  
 EL 260m

1227

224.5  
 Longoy  
 EL 610m

1400

1206

1168

EL 510m  
 Lumutan  
 97.2  
 36.5

1405

1469

840

915

EL 180m

EL 500m

750.8

Tunlo

GENERAL NAKAR

27.6

EL 7m

62.2  
 EL 500m  
 EL 300m  
 St. Ines

155

Upper  
 Matatid  
 17.5  
 EL 530m

EL 60m

Mahabang  
 68.8  
 Kalim

AGOS RIVER

KANAN R.

KALINA R.

1259

992

967

1010

1034

15.4  
 EL 180m  
 Daraiton

645

810



Chapter 5

DISCHARGE MEASUREMENT RECORDS



# 5.1 DISCHARGE MEASUREMENT RECORDS

STATION; Banugao

Drainage area 911 km<sup>2</sup> River system Agoz River

No.	Date			Water Level <i>m</i>		Width <i>m</i>	Flow Area <i>m</i> <sup>2</sup>	Mean Velocity <i>m</i> /sec	Discharge <i>m</i> <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
1	20	10	30	1.89					130			
2	"	"	31	1.89					131			
3	"	"	"	1.86					124			
4	"	11	1	1.87					124			
5	"	"	2	1.84					123			
6	"	"	4	3.85					1,870			
7	"	"	"	3.82					1,720			
8	"	"	"	3.36					806			
9	"	"	5	2.91					572			
10	"	"	6	2.44					334			
11	"	"	7	2.68					438			
12	"	"	8	2.56					381			
13	"	"	9	2.11					235			
14	"	"	10	1.95					175			
15	"	"	11	1.80					122			
16	21	4	2	1.18					39.6			
17	"	"	3	1.18					35.2			
18	"	"	5	1.15					33.5			
19	"	"	8	1.17					39.0			
20	"	12	4	3.40					904			
21	"	"	5	2.94					555			
22	"	"	5	2.82					469			
23	"	"	6	2.71					472			

Elevation of zero point of water gauge; - m

made by Bureau of Public Works, Republic of Philippines





# DISCHARGE MEASUREMENT

STATION; Banugao

Drainage area 911 km<sup>2</sup> River system Agos River Agos

No.	Date			Water Level <i>m</i>		Width <i>m</i>	Flow Area <i>m</i> <sup>2</sup>	Mean Velocity <i>m</i> /sec	Discharge <i>m</i> <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
1	49	4	28	1.95	0	134.60	106.46	0.21	22.3			
2	"	8	22	1.935	.01	133.80	102.84	0.20	20.5			
3	"	11	29	3.375	.01	138.00	289.63	1.39	403			
4	50	3	30	2.19	0	134.50	125.65	0.44	55.6			
5	"	6	13	1.995	.01	134.50	105.67	0.27	28.0			
6	"	7	22	2.08	0	135.50	112.05	0.42	47.0			
7	"	8	30	1.99	0	134.00	95.64	0.27	25.5			
8	52	1	13	2.395	.01	136.50	159.50	0.80	128			
9	"	2	25	2.435	.01	136.50	179.38	0.76	137			
10	"	3	21	1.95	0	134.00	109.97	0.31	33.9			
11	"	4	24	1.97	0	134.00	111.05	0.33	36.4			
12	"	5	23	2.01	0	134.20	117.38	0.38	44.9			
13	"	5	23	2.01	0	134.20	117.38	0.38	44.9			
14	"	6	26	2.07	0	135.00	124.35	0.43	53.8			
15	53	8	28	2.30	0	135.70	153.01	0.69	105			
16	"	10	30	2.935	.01	138.50	241.42	0.87	209			
17	"	12	13	2.77	0	138.90	206.73	0.87	179			
18	54	2	13	2.23	.01	135.00	142.38	0.61	87.0			
19	"	4	26	1.99	0	136.00	112.98	0.31	35.4			
20	"	7	17	2.04	0	136.05	119.93	0.32	38.5			
21	"	9	16	2.035	.01	134.99	120.65	0.32	38.4			
22	55	1	12	2.93	0	140.65	259.14	1.12	289			
23	"	3	18	2.08	0	135.39	120.92	0.39	47.7			

Elevation of zero point of water gauge; 5.043 m

made by Bureau of Public Works, Republic of Philippines

## DISCHARGE MEASUREMENT

STATION; BanugaoDrainage area 911 km<sup>2</sup> River system Agos River Agos

No.	Date			Water Level		Width m	Flow Area m <sup>2</sup>	Mean Velocity m/sec	Discharge m <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
24	55	4	27	1.97	0	133.00	107.15	0.23	25.0			
25	"	8	19	1.99	0	133.73	107.82	0.26	28.8			
26	"	12	17	2.515	.01	135.50	187.84	0.81	152			
27	56	1	19	2.435	.01	159.00	141.81	0.87	123			
28	"	5	16	2.34	.04	181.00	140.44	0.84	118			
29	"	7	6	3.415	.05	165.78	345.32	1.74	601			
30	"	10	12	3.565	.01	163.00	308.03	1.68	579			
31	57	1	17	2.32	0	152.50	138.25	0.98	135			
32	"	7	31	1.925	0	171.50	72.18	0.49	35.2			
33	58	2	17	2.42	0	162.54	135.00	0.96	130			
34	"	7	27	2.08	0	146.50	82.31	0.84	69.0			
35	"	9	22	2.43	.01	163.92	127.93	1.21	155			
36	59	4	27	1.93	0	118.50	49.48	0.30	29.0			
37	"	7	22	2.03	0	144.25	67.865	0.708	48.1			
38	"	11	18	3.59	.07	173.00	311.26	1.753	546			
39	60	3	31	2.095	.01	140.20	80.55	0.56	45.0			
40	"	7	26	2.09	0	138	90.05	0.516	46.5			
41	"	10	27	2.69	0	153	185.125	1.05	194			
42	61	4	27	1.96	0	138	88.66	0.448	39.7			
43	"	9	5	2.40	0	145	128.26	0.761	97.6			
44	62	6	19	1.95	0	130	71.103	0.384	27.3			
45	"	11	16	2.13	0	163.10	104.66	0.65	68.4			
46	63	2	21	2.60	.03	168.50	171.41	0.981	169			

Elevation of zero point of water gauge; 5.043 m

made by Bureau of Public Works, Republic of Philippines

# DISCHARGE MEASUREMENT

STATION; Banugao

Drainage area 911 km<sup>2</sup> River system Agos River Agos

No.	Date			Water Level <i>m</i>		Width <i>m</i>	Flow Area <i>m</i> <sup>2</sup>	Mean Velocity <i>m</i> /sec	Discharge <i>m</i> <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
47	63	5	9	1.95	0	136.40	64.76	0.325	21.1			
48	"	7	19	2.09	0	164.90	85.82	0.45	39.0			
49	"	9	10	2.75	0	173.00	186.79	1.16	216			
50	"	11	21	2.28		167.80	121.74	0.64	78.3			
51	64	7	8	2.25	0	167.40	118.73	0.669	79.4			
52	"	10	9	2.23	0	167.50	120.518	0.659	79.5			
53	"	12	4	2.64	.02	169.00	185.020	1.014	193			
54	65	1	21	2.74	.04	169.00	200.41	1.129	226			
55	"	3	4	2.14	0	166.00	106.32	0.596	63.3			
56	"	5	20	1.94	0	139.50	61.48	0.31	19.1			
57	"	9	2	2.30	0	144.00	114.55	0.73	83.7			
58	"	12	9	2.57	0	171.00	185.86	1.02	190			
59	66	3	23	1.93	0	146.00	72.01	0.295	21.2			
60	"	9	24	2.05	0	166.50	100.21	0.47	47.2			
61	69	5	21	1.76		62.70	25.69	0.52	13.4			
62	"	6	25	1.87	-	62.00	24.32	0.49	11.9			
63	70	5			-	64.00	30.16	0.58	17.5			
64	"	7	15	1.85	-	81.00	39.80	0.77	30.8			
65	"	9	3	1.83	-	76.00	32.52	0.56	18.4			
66	76	10		2.15		225.00	86.35	0.80	69.5			

Elevation of zero point of water gauge; 5.043 m

made by Bureau of Public Works, Republic of Philippines



Table 4-2

## DISCHARGE MEASUREMENT

STATION; Mahabang Lalim

No.	Date			Water Level $m$		Width m	Flow Area $m^2$	Mean Velocity m/sec	Discharge $m^3/sec$	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
1	79	1	30	0.56			137	0.355	48.7			by SIAP
2	"	3	23	0.12			123	0.164	20.1			"
3	"	6	8	0.20			132	0.208	27.4			"
4	"	7	16	0.49		88	156	0.319	49.8			"
5	"	9	2	0.45			138	0.287	39.5			"
6	"	"	6	0.31			129	0.269	34.6			"
7	"	"	12	0.31			147	0.235	34.5			"
8	"	"	17	1.10			201	0.655	132			"
9	"	"	18	0.79			143	0.539	76.8			"
10	"	"	18	0.80			146	0.352	51.4			" , wrong
11	"	"	20	1.67								by TAMAYA, wrong
12	"	"	24	0.81			136	0.553	75.2			by SIAP
13	"	"	24	0.80			141	0.350	49.3			" , wrong
14	"	"	25	0.85			160	0.465	74.5			"
15	"	"	25	0.76			153	0.456	69.8			"
16	"	"	26	0.85			161	0.491	78.9			"
17	"	"	26	0.78			154	0.541	83.2			"
18	"	10	21	1.55		115	251	0.903	226			" G.H. 1.61 - 1.49
19	"	"	21	1.205		103.5	203	0.721	147			"
20	"	11	12	0.895		96	183	0.496	90.9			"
21	"	"	21	1.795		115	280	1.42	396			by TAMAYA
22	"	"	24	1.52		110	248	0.938	232			" , G.H. 1.54 - 1.50
23	"	"	27	2.03		120	310	1.74	538			"

Elevation of zero point of water gauge; 38.073 m

made by joint survey team between NAPOCOR and JICA

451

## DISCHARGE MEASUREMENT

STATION; Mahabang Lalim

Drainage  
area

km:

River  
system Agos

River Agos

No.	Date			Water Level $m$		Width m	Flow Area $m^2$	Mean Velocity $m/sec$	Discharge $m^3/sec$	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
24	79	11	28	1.925		115	295	1.48	438			by TAMAYA
25	"	"	30	1.76		114	276	1.17	323			"
26	"	12	4	1.36		102	228	0.802	183			"
27	"	"	5	1.235		105	216	0.661	143			"
28	"	"	5	0.995		105	193	0.685	132			"
29	"	"	5	0.99		105	192	0.692	133			"
30	"	"	7	1.04		100						"
31	"	"	7	1.04		100						"
32	80	1	12	0.70		95	171	0.396	69.0			TAMAYA
33	"	1	20	1.06		90	193	0.629	124			"
34	80	2	26	0.43		87.6	140	0.324	45.4			
35	"	2	27	0.395		87.5	138	0.322	44.4			
36	"	"	27	0.385		87.5	137	0.396	54.2			
37	"	"	28	0.375		85.5	126	0.265	33.3			
38	"	"	28	0.365		87.5	131	0.225	29.4			
39	"	"	28	0.355		87.5	132	0.243	31.9			
40	"	"	28	0.345		87.6	136	0.191	25.9			
41	"	"	24	1.54		95	233	0.869	206			TAMAYA
42	"	4	20	0.79			164	0.388	63.7			AOTT 1-62360
43	"	5	3	0.18			133	0.177	23.6			"
44	"	"	7	0.105			134	0.143	19.1			SIAP 4001 #600699
45	"	"	19	0.10			134	0.146	19.6			AOTT 1-62360
46	"	6	8	0.71			201	0.365	73.2			A-OTT 1-62360

Elevation of zero point of water gauge; 38.073 m

made by joint survey team between NAPOCOR and JICA

## DISCHARGE MEASUREMENT

STATION; Mahabang LalimDrainage  
areakm<sup>2</sup>River  
systemAgos

River

Agos

No.	Date			Water Level		Width m	Flow Area m <sup>2</sup>	Mean Velocity m/sec	Discharge m <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
47	80	6	17	0.39			179	0.209	37.4			SIAP 600699
48	"	"	21	0.75			184	0.301	55.6			TAMAYA 1306D
49	"	"	23	1.75			322	0.325	105			"
50	"	"	24	1.64			304	0.334	101			"
51	"	"	28	0.995			188	0.491	92.3			SIAP 600699
52	"	9	14	1.56			212.75	0.990	210.535			TAMAYA
53	"	9	14	1.33			190.6	1.180	229.510			AOTT
54	"	9	21	0.70			126.05	0.571	71.983			TAMAYA
55	"	10	6	1.53			213.1	1.075	233.402			SIOP
56	"	"	"	1.44			201.4	1.004	202.274			"
57	"	"	8	1.10			141.75	0.740	105.050			"
58	"	"	17	1.075			167.35	0.813	136.047			TAMAYA
59	"	"	19	1.155			173.75	0.828	143.785			"
60	"	"	20	1.145			168.725	0.882	148.736			"
61	"	"	21	1.555			172.325	1.259	216.975			"
62	"	"	22	2.085			282.450	1.604	453.076			"

Elevation of zero point of water gauge; 38.073 m

made by joint survey team between NAPOCOR and JICA





Table 4-3

DISCHARGE MEASUREMENT

STATION; Nio

Drainage area \_\_\_\_\_ km<sup>2</sup> River system Agos River Kaliwa

No.	Date			Water Level <sup>m</sup>		Width m	Flow Area m <sup>2</sup>	Mean Velocity m/sec	Discharge m <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
1	79	10	26	4.55		37	46.3	0.319	14.8			
2	"	11	17	5.015		58	75.5	0.790	59.6			
3	"	"	22	4.795		53	64.2	0.616	39.5			
4	"	12	4	4.745		48.0	62.4	0.622	39.6			TAMAYA
5	"	"	12	4.55		35						
6	"	"	12	4.54		35						
7	80	1	22	2.80		34.5	44.2	0.22	9.72			OTT 62544
8	"	2	28	2.64		32.5	40.5	0.09	3.65			"
9	"	"	"	2.64		32.5	42.9	0.124	5.33			"
10	"	"	"	2.64		32.5	44.1	0.127	5.59			"
11	"	3	11	2.67		32.5	40.0	0.098	3.91			TAMAYA
12	"	"	23	2.65		33.0	43.2	0.116	5.11			"
13	"	4	18	2.74			34.6	0.173	5.98			A-OTT1-62360
14	"	"	29	2.68			30.8	0.147	4.53			"
15	"	5	8	2.64			33.6	0.104	3.48			SIAP 4001 #600699
16	"	"	27	3.59			171	0.404	69.3			A-OTT 1-62360
17	"	6	5	3.335			61.0	0.207	12.6			"
18	"	"	6	3.50			57.8	0.387	22.4			"
19	"	"	9	3.335			50.2	0.230	11.5			"
20	"	"	9	3.515			63.3	0.449	28.4			"
21	"	"	10	3.40			57.3	0.291	16.7			SIAP 600699
22	"	"	14	3.29			49.1	0.111	5.43			A-OTT 1-62360
23	"	"	27	3.53			65.8	0.467	30.7			SIAP 600699

Elevation of zero point of water gauge; \_\_\_\_\_ m

made by joint survey team between NAPOCOR and JICA

455

## DISCHARGE MEASUREMENT

STATION; NiO

Drainage area

km<sup>2</sup>

River system

Agos

River Kaliwa

No.	Date			Water Level		Width m	Flow Area m <sup>2</sup>	Mean Velocity m/sec	Discharge m <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
24	50	5	27	3.75			44.55	0.627	27.911			AOTT
25	"	"	28	2.96		52.50	65.00	0.301	19.551			SIAP
26	"	"	29	3.12		23.70	30.25	0.459	13.886			"
27	"	9	1	3.05		34.0	40.300	0.452	18.234			"
28	"	"	4	3.20		35.9	45.200	0.537	24.350			"
29	"	"	7	3.19		37.1	47.500	0.533	25.458			"
30	"	"	16	3.775			76.150	1.274	97.045			AOTT
31	"	"	19	3.40			48.500	0.971	47.116			"
32	"	"	22	3.27			69.450	0.501	55.633			"
33	"	"	24	3.19			42.450	0.687	29.247			"
34	"	"	28	3.12			41.750	0.486	20.292			SIAP
35	"	"	28	3.10			40.550	0.452	18.327			"
36	"	"	30	3.335			52.100	0.757	39.454			"
37	"	"	30	3.305			49.050	0.716	35.127			"
38	"	10	1	3.37			55.300	0.868	48.007			"
39	"	"	7	3.375			49.800	0.851	42.367			"
40	"	"	10	3.20			38.850	0.643	24.967			"
41	"	"	"	3.18			36.850	0.645	23.778			"
42	"	"	13	3.13			40.550	0.513	20.783			"
43	"	"	"	3.12			38.450	0.525	20.176			"
44	"	"	16	3.185			39.660	0.649	25.751			"

Elevation of zero point of water gauge; \_\_\_\_\_ m \_\_\_\_\_

Table-4-4 DISCHARGE MEASUREMENT

STATION; Kakamasasaw  
(Temporary)

No.	Date			Water Level <i>m</i>		Width m	Flow Area m <sup>2</sup>	Mean Velocity m/sec	Discharge m <sup>3</sup> /sec	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
1	79	7	23	-		72	77.1	0.460	35.5			by SIAP
2	"	10	24	4.985		75	123	0.664	81.7			"
3	"	11	12	4.83		75	112	0.630	70.5			"
4	"	12	6	5.05								by TAMAYA
5	"	"	"	5.05								"
6	"	"	"	5.04		79.0	131	0.736	98.7			"
7	"	"	"	5.04								"
8	"	"	"	5.04								"
9	80	1	20	5.09		80.0	127	0.859	112			"
10	"	"	"	4.96		80.0	127	0.896	114			"
11	"	2	27	4.53		77.5	91.5	0.432	39.5			"
12	"	"	"	4.53		77.5	90.5	0.450	40.8			"
13	"	"	"	4.53		77.5	90.2	0.426	38.4			"
14	"	"	28	4.51		77.5	91.5	0.428	39.1			"
15	"	4	17	4.48			87.9	0.393	34.5			A-OTT 1-62360
16	"	5	6	4.67			75.3	0.223	16.8			SIAP 4001 #600699
17	"	"	18	4.65			55.9	0.228	12.7			A-OTT 1-62360
18	"	6	5	4.74			89.9	0.467	42.0			"
19	"	"	7	4.785			98.2	0.557	54.6			SIAP 600699
20	"	"	9	4.80			99.1	0.558	55.3			"

Elevation of zero point of water gauge; - m

made by joint survey team between NAPOCOR and JICA

Table 4-5

## DISCHARGE MEASUREMENT

STATION; Binugawan

No.	Date			Water Level $m$		Width $m$	Flow Area $m^2$	Mean Velocity $m/sec$	Discharge $m^3/sec$	Temp		Remarks
	Year	Month	Day	Reading	Change					Water	Air	
1	80	6	15	3.11			81.3	0.386	31.4			
2	"	"	"	3.11			82.8	0.365	30.2			
3	"	"	26	4.15			152	0.856	130			
4	"	"	"	4.065			145	0.914	132			
5	"	8	23	3.29		62.50	82.150	0.444	36.48			SIAP
6	"	9	2	3.11		57.50	71.550	0.371	26.58			"
7	"	"	5	3.25		62.50	12.250	0.409	33.781			"
8	"	"	8	3.12		66.4	78.200	0.385	30.114			"
9	"	"	9	3.04		57.5	72.550	0.299	21.686			"
10	"	"	12	3.15			72.450	0.464	33.609			AOTT
11	"	"	17	3.215			78.000	0.415	32.332			"
12	"	"	20	3.06			63.550	0.427	27.120			"
13	"	"	23	3.44			92.500	0.575	53.211			"
14	"	"	27	3.27			82.700	0.513	42.441			"
15	"	"	27	3.26			72.200	0.488	35.239			"
16	"	"	29	3.18			75.800	0.380	28.814			SIAP
17	"	"	29	3.16			75.750	0.377	30.059			"
18	"	10	3	3.215			79.100	0.384	30.371			"
19	"	"	"	3.24			76.000	0.447	33.956			"
20	"	"	9	3.75			101.150	0.638	64.517			"
21	"	"	"	3.74			108.050	0.586	63.303			"
22	"	"	11	3.515			94.250	0.502	47.314			"
23	"	"	14	3.38			92.800	0.440	40.828			"

Elevation of zero point of water gauge; - m

made by joint survey team between NAPOCOR and JICA

