

**DATA-E**  
**HYDROLOGICAL DATA**

### HIDROLOGICAL DATA

Title	Organization	Note
<b>1. Daily Water Level &amp; Discharge Data:</b>		
- Bolango (03 12 01)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1993 - Rating curve available
-Topudu (03 13 01)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1994 to 1997 - Rating curve available
- Bionga Lingkubulan (03 13 16)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1995 - Rating curve available
- Bionga Kayubulan (03 13 17)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level not published <u>Existing data:</u> - Daily discharge for year 1995 to 1997 with rating curve - Daily water level for year 2000, no rating curve
- Alo Puhu - Ilomanga (03 13 21)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1995 and 1996 - Rating curve available
- Alo Puhu - weir (03 13 22)	PU - PDSA	<u>Source:</u> PDSA <u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1995 and 1996 - Rating curve available
- Bulota Hepuhulawa (03 13 24)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level in hard copy not published <u>Existing data:</u> - Daily discharge for year 1995 to 1996 with rating curve - Daily water level for year 1998 to 2000
- Meluupo Pone (03 13 25)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level in hard copy not published <u>Existing data:</u> - Daily discharge for year 1995 to 1996 with rating curve - Daily water level for year 1999 to 2000

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Title	Organization	Note
- Pohnu Pilolalenga (03 13 26)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level in hard copy not published <u>Existing data:</u> - Daily discharge for year 1995 to 1997 with rating curve - Daily water level for year 2000
- Molalahu Datahu (03 13 28)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level in hard copy not published <u>Existing data:</u> - Daily discharge for year 1995 with rating curve - Daily water level for year 1994, and 1996 to 2000
- Bolango Longalo (03 14 01)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1991 to 1997 with rating curve
- Bolango Pilohayanga (03 14 02)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1993, 1994, and 1996, with rating curve
- Bolango Boidu Tapa (03 14 03)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level in raw data <u>Existing data:</u> - Daily discharge for year 1991 to 1995 with rating curve - Daily water level for year 1985 to 1990 and from 1996 to 2000
- Bolango Tenggela (03 14 04)	PU - PDSA	<u>Format:</u> - Daily discharge in hard copy publication - Daily water level in raw data <u>Existing data:</u> - Daily discharge for year 1991 to 1995 with rating curve - Daily water level for year 1996 to 1999, not compiled
- Bone Lombongo (03 15 01)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily discharge for year 1991 to 1993 - Rating curve available
- Bone Tulabolo	PLN - Jasa Teknik Kelistrikan Jakarta	<u>Format:</u> Hard copy unpublished <u>Existing data:</u> - Daily discharge for year 1983 to 1987 - Incomplete water level for year 1988 to 1992 - No Rating curve available

## HIDROLOGICAL DATA

Title	Organization	Note
<b>2. Rainfall Data:</b>		
- Jalaludin Airport Gorontalo (031315)	BMG Manado	<u>Format:</u> Digital <u>Existing data:</u> - Daily and hourly, from January 1975 to May 2001. <u>Daily data:</u> prior to 1990 <u>Hourly data:</u> started 1990 - Year 2001: no data for the months of March and May - Year 1999: no data for the month of September
- Bone-Kabila (031503)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily, from July 1993 to August 1995 - No data for September to December 1995, and entire 1996
- Alo-Alo (031302)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Daily and hourly rainfall from August 1993 to December 1996 <u>Daily data :</u> year 1993 and 1996 <u>Hourly data :</u> started 1994 - Year 1993: No data for entire August, and for Oct 17-31. - Year 1994: No data for 7 Feb-23 March, and entire July - Year 1995: complete data
- Bionga-Huludupitango (031303)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> - Complete daily rainfall from January 1993 to December 1996
- DAS Limboto - Dembe (031307)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data :</u> - Complete daily rainfall from January 1993 to December 1993
- Bolango-Longalo (031405)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data :</u> - Daily rainfall from January 1979 to December 1996
- Bone-Lombongo (031502)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data :</u> daily rainfall: - January 1985 to December 1993 - January to May 1994 - January 1995 to December 1996
- Bone-Pinogu (031511)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data :</u> daily rainfall from January 1991 to December 1993

### HIDROLOGICAL DATA

Title	Organization	Note
- Pohulongo (031513)	PLN Jasa Teknik Kelistrikan	<u>Format:</u> hard copy <u>Existing data:</u> incomplete hourly from year 1991 to 1993
- Kayumerah-Limboto (031306)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> complete daily rainfall from January 1983 to December 1993
- UPP Tibawa (031309)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> <ul style="list-style-type: none"> <li>- Complete daily rainfall from January 1986 to December 1987 no data for year 1998 to 1989</li> <li>- Complete data from January 1990 to July 1994</li> </ul>
- UPP Batudaa (031310)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> from January 1990 to December 1993
- Boidu-Tapa (031406)	PU - PDSA and BMG	<u>Existing data:</u> <ul style="list-style-type: none"> <li>- PDSA hard copy publication: Daily rainfall January 1972 to December 1993</li> <li>- BMG digital: Daily rainfall January 1994 to December 2000</li> </ul>
- UPP-Telaga (031407)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> daily rainfall: <ul style="list-style-type: none"> <li>- January 1986 to December 1987</li> <li>- No data for year 1988 and 1989</li> <li>- January to December 1990</li> <li>- No data for year 1991</li> <li>- January 1992 to December 1993</li> </ul>
- Lonuo-Kabila (031512)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> daily rainfall: <ul style="list-style-type: none"> <li>- January 1981 to December 1992</li> <li>- No data for year 1993</li> <li>- January to December 1994</li> </ul>
- UPP Suwawa (031514)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> daily rainfall <ul style="list-style-type: none"> <li>- January 1986 to December 1987</li> <li>- No data for year 1988 to 1989</li> <li>- January 1990 to December 1993</li> </ul>
- Butahu - Datahu (031516)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> daily rainfall from January 1992 to December 1994
- Bulota - Hepuhulawa (031221)	PU - PDSA	<u>Format:</u> Hard copy publication <u>Existing data:</u> daily rainfall from January 1995 to December 1996
- Bone-Pinogu Hulu	PLN Jasa Teknik Kelistrikan Jakarta	<u>Format:</u> Hard copy unpublished <u>Existing data:</u> Incomplete hourly data from January 1991 to December 1993

### HIDROLOGICAL DATA

Title	Organization	Note
- Tulabolo	PLN Jasa Teknik Kelistrikan Jakarta	<u>Format</u> : Hard copy unpublished <u>Existing data</u> : Incomplete hourly data from January 1983 to December 1992
<b>3. Other Data:</b>		
Hydrological and Water Availability, Analysis of Toraut Irrigation Area	CIDA	Library of Dinas SDA, North Sulawesi
Hydro-Meteorological, Network Report	CIDA	Library of Dinas SDA, North Sulawesi
Reliable Flow Data & Rainfall Data of Limboto-Bolango-Bone	Dave Cooper / Tonny Gultom / CIDA	Library of Dinas SDA, North Sulawesi
Hydrological and Water Availability, Analysis, Proposed for Ollot Irrigation Area	CIDA	Library of Dinas SDA, North Sulawesi
Quarterly Report IV: Pengukuran Banjir (Flood Measurement)	Hydrology Section, Dinas SDA	Library of Dinas SDA, North Sulawesi
Quarterly Report: Jaringan Pos Hidrometeorologi Volume I and Data Base Hidrologi Volume II	Hydrology Section, Dinas SDA	Library of Dinas SDA, North Sulawesi
Institutional Strengthening in Hydrology Unit, Water Resources Agency, North Sulawesi	Hydrology Section, Dinas SDA	Library of Dinas SDA, North Sulawesi
Interim Report Limboto-Bolango-Bone Water Resources Development Master Plan, Annex 2: Hydrology, Lake Survey, Fisheries and Environmental Assessment of Lake Limboto	CIDA	Library of Dinas SDA, North Sulawesi
Technical Report: Tolinggula Irrigation Project, Design Review, Hydrology Report	CIDA	Library of Dinas SDA, North Sulawesi

**HIDROLOGICAL DATA**

<b>Title</b>	<b>Organization</b>	<b>Note</b>
Technical Report No. 11: Hydrological and Water Availability Analysis, Proposed Randangan Irrigation Area	CIDA	Library of Dinas SDA, North Sulawesi
Water Quality and Sediment in River and Tondano Lake & Monitoring Program	E.L. Mamarimbing, P3SU Project/CIDA	Library of Dinas SDA, North Sulawesi
Manual for Flood Control	CIDA	Library of Dinas SDA, North Sulawesi
Quarterly Report: Jaringan Pos Hidrometeorologi	Hydrology Section, Dinas SDA	Library of Dinas SDA, North Sulawesi
Memo G.D. Rose to CTL, Re: Randangan Backwater Calculations	CIDA	Library of Dinas SDA, North Sulawesi
Memo G.D. Rose to Project Manager of North Sulawesi Irrigation Project, Re: Water Availability and Water Demand at Toraut and Kosinggolan Scheme	CIDA	Library of Dinas SDA, North Sulawesi

**ANNUAL MAXIMUM 1 TO 24 HOUR RAINFALLS**

Station : Jalaludin / No.031315

Year	Max 1 hour rainfall			Max 3 hours rainfall			Max 6 hour rainfall			Max 12 hour rainfall			Max 24 hour rainfall		
	R (mm)	Time (hr)	Date- Month	R (mm)	Time (hr)	Date- Month	R (mm)	Time (hr)	Date- Month	R (mm)	Time (hr)	Date- Month	R (mm)	Time (hr)	Date- Month
1990	55.50	13-14	14 Jul	56.20	13-16	14 Jul	60.90	8-14	14 Jul	70.50	8-20	14 Jul	82.30	8-7	14-15 Jul
1991	50.20	15-16	8 May	57.20	15-18	8 May	58.20	12-18	8 May	58.20	12-18	8 May	58.20	12-18	8 May
1992	47.70	16-17	15 May	52.40	15-18	15 May	52.70	15-21	15 May	52.70	15-21	15 May	52.70	15-21	15 May
1993	64.10	14-15	5 Apr	72.50	14-17	5 Apr	72.90	13-19	5 Apr	72.90	13-19	5 Apr	72.90	13-19	5 Apr
1994	43.00	16-17	29-Nov	49.00	15-18	29-Nov	49.00	15-18	29-Nov	49.00	15-18	29-Nov	49.00	15-18	29-Nov
1995	49.00	14-15	30-Aug	62.10	14-17	30-Aug	66.50	01-07	30-Aug	90.00	00-11	30-31 Au	99.80	20-19	30-31 Au
1996	51.20	11-12	11-Mar	51.50	11-14	11-Mar	51.70	11-17	11-Mar	51.70	11-17	11-Mar	51.70	11-17	11-Mar
1997	61.80	15-16	10-Mar	92.10	14-17	31-Mar	98.60	15-21	31-Mar	98.60	15-21	31-Mar	98.60	15-21	31-Mar
1998	59.00	13-14	1-May	88.50	13-16	1-May	97.70	14-20	11-Dec	97.70	14-20	11-Dec	97.70	14-20	11-Dec
1999	43.90	13-14	3-Mar	59.70	13-16	3-Mar	72.50	13-19	3-Mar	72.70	13-01	3-Mar	72.70	13-	3-Mar
2000	59.00	14-15	7-Feb	109.00	14-17	7-Feb	136.40	14-20	7-Feb	137.70	13-01	7-Feb	139.00	21-21	6-7Feb
2001	60.30	15-16	11-Jan	63.30	14-16	11-Jan	65.20	14-20	11-Jan	65.20	14-20	11-Jan	65.30	14-14	11-12 Jan



**ANNUAL MAXIMUM DAILY RAINFALLS (1/2)**

No	Station No.	Station Name	year 72		year 73		year 74		year 75		year 76	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin							82	18-Oct	58	12-Nov
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo										
7	03 15 02	Bone-Lombongo										
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	34	23-Nov	66	29-May	99	12-Sep	86	11-Apr	52	31-Aug
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila									51	12-May
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 77		year 78		year 79		year 80		year 81	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	73	2-July	57	2-September	55	18-November	60	3-December	70	24-February
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo					10.1	27-December	7.5	20-June	30	9-November
7	03 15 02	Bone-Lombongo										
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	90	24-June	71	16-April	112	27-December	50	2-February	84	5-September
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila									51	21-May
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 82		year 83		year 84		year 85		year 86	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	64	29-March	86.2	2-October	73	18-July	58	1-February	48	28-July
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II	40	1 Jan/5 Feb	57	9-July	57	18-June	61	26-August	56	15-November
6	03 14 05	Bolango-Longalo	30	6-April	23	22-October	31	7-May	66	30-October	30	16-March
7	03 15 02	Bone-Lombongo							79.3	7-November	36.5	7-November
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto			64	24-October	72	30-January	72	7-April	43	15-May
11	03 13 09	UPP Tibawa									37	21-November
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	68	2-December	72	13-August	71	25 Jun	58	25-October	63	16-December
15	03 14 07	UPP Telaga									37	15-November
16	03 15 12	Lonuo-Kabila	68	4-May	73	18-October	56	12-September	65	7-November	68	14-November
17	03 15 14	UPP Suwawa									75	15-November
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

**ANNUAL MAXIMUM DAILY RAINFALLS (2/2)**

No	Station No.	Station Name	year 87		year 88		year 89		year 90		year 91	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	79	2-June	74	20-July	120	2-April	86	8-March	61.2	8-May
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II	51	10-December	60	19-January	59	24-October	55	13-September	75	4-April
6	03 14 05	Bolango-Longalo	30	21-December	37	19-July	43	24-June	66	8-March	64.6	29-May
7	03 15 02	Bone-Lombongo	50.4	9-December	68	18-July	95	20-August	95	10-January	96	3-June
8	03 15 11	Bone-Pinogu									76.5	14-October
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto	50	1-December	81	14-June	19	19 Jan/20 Oct	18	13-August	17	20 Jan/31Mar
11	03 13 09	UPP Tibawa	75	2-December					48	29-October	61	6-November
12	03 13 10	UPP Batudaa							65	12-November	48	13-August
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	64	21-December	75	26-January	72	21-October	59	14-May	60	18-November
15	03 14 07	UPP Telaga	48.5	3-April					325	29-October		
16	03 15 12	Lonuo-Kabila	54	2-April	75	26-January	60	3-April	75	27-October	64	29-May
17	03 15 14	UPP Suwawa	112	9-December					36	29-October	40	4-April
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 92		year 93		year 94		year 95		year 96	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	69	17 Dec	73.3	5-April	56.2	4-November	82	18-January	52.5	11-April
2	03 15 03	Bone-Kabila			34.9	8-November	61.9	2-July	75.2	1-August	66	12-February
3	03 13 02	Alo-Alo			43.8	14 -November	64	29-November	100	18-January	63	2-February
4	03 13 03	Bionga-Huludupitango			35	9 December	55.8	2-November	94.6	18-January	85	20-August
5	03 13 07	DAS Limboto-Dembe II	57	30-November	73	25-March						
6	03 14 05	Bolango-Longalo	30.2	9-May	114	29-May	45.1	10-February	49.2	18-January	57.5	18-March
7	03 15 02	Bone-Lombongo	81	2-May	72	17-January	120	14-March	105.3	1-August	70	22-October
8	03 15 11	Bone-Pinogu	64	15-November	76.8	7-May						
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto	49	21 December	70	29-May						
11	03 13 09	UPP Tibawa	50	5-December	69	5-April	32	11-April				
12	03 13 10	UPP Batudaa	53	7-October	51	16-January						
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	62	22-December	96	8-November			107	19-January	83	31-October
15	03 14 07	UPP Telaga	62	22-December	82	30-May						
16	03 15 12	Lonuo-Kabila	65	22-December	67	29-May	60	2-July	118	11-July	75	24-March
17	03 15 14	UPP Suwawa	20.5	19-January	42	30-May						
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu	69.2	22-December	61.2	6-June	139	7-February				
20	03 12 21	Bulota-Hepuhulawa							43	8-July	61.9	7 February

No	Station No.	Station Name	year 97		year 98		year 99		year 2000		year 2001	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	98.6	31-March	97	11-December	72.7	3-March	137.7	7-February	65.2	11-January
2	03 15 03	Bone-Kabila					89	13 May				
3	03 13 02	Alo-Alo	89	31-March	92	3 January	66	6 July				
4	03 13 03	Bionga-Huludupitango	93	31-March	78.5	5 May	65	23 March				
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo	50.9	19 May	36.2	9 Oct	40	19 Oct				
7	03 15 02	Bone-Lombongo	83	22 March	83.9	21 Dec	85.4	19 January				
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	161	19May								
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila	96	18-May	60	26-September	65	16-May	69	1-August		
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa	55.5	30 March	49.2	18 July	66	14 Nov				

**Maximum Two days summation Annual Rainfall**

No	Station No.	Station Name	year 72		year 73		year 74		year 75		year 76	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin							85	18-19 October	93	12-13 Nov
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo										
7	03 15 02	Bone-Lombongo										
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	53	23-24Nov	74	29-30 May	129	12-13 Septem.	108	11-12 Apr	59	31-Aug - 1 Sep
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila										
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 77		year 78		year 79		year 80		year 81	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	73	2-July	84	11-12 May	71	18-19 Nov	61	3-4 December	70	24-February
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II									78.5	23-24 May
6	03 14 05	Bolango-Longalo					19	27-28December	12.2	19-20-June	42.5	4-5 Sept
7	03 15 02	Bone-Lombongo										
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	107	23-24 June	83	8-9March	112	27-December	66	19-20 June	93	28-29 March
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila									57	22-23 July
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 82		year 83		year 84		year 85		year 86	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	100	28-29 March	98	7-8July	111	16-17 April	91	6-7 Feb	82	28-29 Jul
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II	65	1-2 Jan	90	8-9 July	90	11-13 Sept.	62	26-27 August	60	12-13 July
6	03 14 05	Bolango-Longalo	34	15-16 April	39	7-8 Oct	31	7-May	74	30-31October	39	16-17March
7	03 15 02	Bone-Lombongo							103.4	7-8 November	39	11-12 Feb
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto			77	23-24 October	97	29-30 January	72	7 April	43	15-May
11	03 13 09	UPP Tibawa									37	21-November
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	91	7-8 April	96	6-7 Nov	91	4-5 Sept	59	25-26 Oct	76	6-7May
15	03 14 07	UPP Telaga									42	6-7November
16	03 15 12	Lonuo-Kabila	68	4-May	73	18-October	87	20-21 April	79.5	6-7 November	68	14-November
17	03 15 14	UPP Suwawa									75	15-November
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

**Maximum Two days summation Annual Rainfall**

No	Station No.	Station Name	year 87		year 88		year 89		year 90		year 91	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	100	2-3 June	95	19-20 July	121	1-2 April	90	7-8 March	73	6-7 Nov
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II	55	9-10 Dec	79	29-30 Apr	110	24-25 October	96	14-15 May	80	19-20 May
6	03 14 05	Bolango-Longalo	30	21-December	58	19-20July	67	19-20 July	76	28-29 October	83.3	28-29 May
7	03 15 02	Bone-Lombongo	85.8	8-9 December	116	18-19 July	125	19-20 August	115	10-11January	126	3-4 June
8	03 15 11	Bone-Pinogu									87.5	12-13 August
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto	55	5-6 Nov	151	14-15 June	33	20-21 Oct.	25	15-16 Jan	29	31Mar-1Apr
11	03 13 09	UPP Tibawa	90	2-3 December					51	11-12 Nov	78	6-7 November
12	03 13 10	UPP Batudaa							65	12-November	70	31Mar-1Apr
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	64	21-December	121	14-15May	109	21-22 Oct	111	14-15May	86	28-29Mar
15	03 14 07	UPP Telaga	56	2-3 April					(345)	28-29 October		
16	03 15 12	Lonuo-Kabila	68	1-2 April	97	27-28 August	90	2-3-April	98	26-27 October	114	30-31 March
17	03 15 14	UPP Suwawa	129	8-9 December					44	29-30 October	61	28-29 May
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 92		year 93		year 94		year 95		year 96	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	76	17-18 Dec	91	13-14 Nov	78	4-5 November	105	18-19 January	52.8	10-11 April
2	03 15 03	Bone-Kabila			48.7	8-9November	75.4	9-10 Jan	77.6	1-2 August	97.2	12-13February
3	03 13 02	Alo-Alo			62.8	13-14 Nov	84.9	28-29 Nov	100	18-January	93.5	1-2 February
4	03 13 03	Bionga-Huludupitango			36	5-6 April	73.6	2-3 November	124.4	18-19 January	93	8-9 Feb
5	03 13 07	DAS Limboto-Dembe II	98	29-30 Nov	115	14-15 April						
6	03 14 05	Bolango-Longalo	43.2	8-9 May	87.2	29-30 May	47.1	9-10 February	59.6	16-17 April	76.7	18-19 March
7	03 15 02	Bone-Lombongo	91	1-2 May	95.5	7-8 Nov	120	14-March	114	1-2 August	96	18-19 March
8	03 15 11	Bone-Pinogu	96	17-18 Jan	103.6	6-7 May						
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto	67	20-21 Dec	103	29-30 May						
11	03 13 09	UPP Tibawa	50	5-December	75	4-5 May	47	4-5 June				
12	03 13 10	UPP Batudaa	53	7-October	72	16-17January						
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	75	4-5May	108	8-9Nov			135	7-8July	127	18-19Mar
15	03 14 07	UPP Telaga	62	22-December	127	29-30 May						
16	03 15 12	Lonuo-Kabila	79	21-22 December	112	28-29 May	82	23-24 Jan	158	11-12 July	104	18-19 March
17	03 15 14	UPP Suwawa	26	18-19January	77	29-30 May						
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu	85	19-20 June	80	5-6 Febr	155	7-8 February				
20	03 12 21	Bulota-Hepuhulawa							63	7-8 July	68.3	11-12 Nov

No	Station No.	Station Name	year 97		year 98		year 99		year 2000		year 2001	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	115.7	30-31March	97.2	10-11-Dec	72.7	3-March	155.7	7-8 February	94.4	24-25Jan
2	03 15 03	Bone-Kabila					94	12-13 May				
3	03 13 02	Alo-Alo	100	30-31 March	97	3-4 Jan	124	4-5 July				
4	03 13 03	Bionga-Huludupitango	149	31March-1Apr	101	5-6 May	78	22-23 March				
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo	58	31March-1Apr	50.9	28-29 Oct	79	19-20 Oct				
7	03 15 02	Bone-Lombongo	87	2 April	92.7	21-22 Dec.	90	18-19 Jan				
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	165	18-19May								
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila	106	18-19 May	88	26-27 Sept	97	16-17 May	107	6-7 Jan.		
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa	70	30-31March	83.2	18-19 July	90	14-15 Nov				

**Maximum Three days summation annual rainfall**

No	Station No.	Station Name	year 72		year 73		year 74		year 75		year 76	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin							99	18-20 Oct	93	12-13 Nov
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo										
7	03 15 02	Bone-Lombongo										
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	54	22-24Nov	75	27-29May	137	11-13 Septem.	131	9-11 April	64	30-Aug-1Sept
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila										
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 77		year 78		year 79		year 80		year 81	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	96	2-4 April	136	11-13 May	72	17-19 Nov	66	18-20 June	83	4-6 Sept
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II									66.5	24-May
6	03 14 05	Bolango-Longalo					21.5	27-29December	14.5	18-20-June	49.5	3-5 Sept.
7	03 15 02	Bone-Lombongo										
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	107	23-24-June	120	6-8 March	114	25-27December	75	15-17Apr	137	28-30Mar
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila									75	22-24 July
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 82		year 83		year 84		year 85		year 86	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	100	28-29March	126	6-8 July	114	16-18 April	94	6-8-February	82	28-29 July
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II	40	1 Jan/5 Feb	100	7-9 July	77	18-19 July	92	8-10 June	56	15-November
6	03 14 05	Bolango-Longalo	45	6-8April	59	6-8 Oct	53	10-12 Apr	77	29-31October	66	16-18March
7	03 15 02	Bone-Lombongo							118.5	6-8 November	40	10-12 Feb
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto			101	21-23 Jan	72	30-January	108	5-7 April	57	1-3 May
11	03 13 09	UPP Tibawa									37	21-November
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	110	6-8Apr	102	6-8 Nov	96	3-5 Sept	64	25-27 Oct	78	5-7Mar
15	03 14 07	UPP Telaga									59	23- 25 Nov
16	03 15 12	Lonuo-Kabila	80	4-6 Feb	75.5	15-17 May	105	10-12 Sept.	91.5	6-8 November	68	14-November
17	03 15 14	UPP Suwawa									75	15-November
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

**Maximum Three days summation annual rainfall**

No	Station No.	Station Name	year 87		year 88		year 89		year 90		year 91	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	104	1-3 June	129	18-20 July	160	31Mar-3 Apr	82.3	8-March	74	6-8 Nov
2	03 15 03	Bone-Kabila										
3	03 13 02	Alo-Alo										
4	03 13 03	Bionga-Huludupitango										
5	03 13 07	DAS Limboto-Dembe II	51	10-December	94	28-30 April	140	24-26 October	55	13-September	105	29-31 May
6	03 14 05	Bolango-Longalo	33	11-13 Nov	65	15-17 May	88	18-20 July	86.1	27-29 October	87.5	27-29 May
7	03 15 02	Bone-Lombongo	110.9	7-9 December	133	14-16 May	95	20-August	95	10-January	130	30Mar-1Apr
8	03 15 11	Bone-Pinogu									92	11-13 August
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto	93	4-6 Nov	162	14-16 June	47	25-27 Dec	36	14-16 Jan	43	31Mar-2Apr
11	03 13 09	UPP Tibawa	75	2-December					66	14-16 July	61	6-November
12	03 13 10	UPP Batudaa							65	12-November	90	30Mar-1Apr
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	64	21-December	121	14-15 May	109	21-22 Oct	111	14-15 May	102	30Mar-1Apr
15	03 14 07	UPP Telaga	48.5	3-April					365	27-29 October		
16	03 15 12	Lonuo-Kabila	68	1-2-April	124	27-29 August	90	2-3-April	122	27-29October	165	30Mar-1Apr
17	03 15 14	UPP Suwawa	135	7-9 December					36	29-October	83.5	30Mar-1Apr
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa										

No	Station No.	Station Name	year 92		year 93		year 94		year 95		year 96	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	62.7	15-May	105	11-13 Nov	91	3-5 Nov	105	17-19 April	52.5	11-April
2	03 15 03	Bone-Kabila			49.6	7-9 Nov	81.5	9-11Jan	118.3	1-3 August	101.4	11-13 February
3	03 13 02	Alo-Alo			69.5	13-15 Nov	86.9	27-28 Nov	100	18-January	63	2-February
4	03 13 03	Bionga-Huludupitango			51.6	15-17 Nov	96.4	2-4 November	130.4	3-5 August	124	6-8 Feb
5	03 13 07	DAS Limboto-Dembe II	143	28-30 Nov	137	27-29 Apr						
6	03 14 05	Bolango-Longalo	48.7	8-10 May	107.2	28-30 May	54.9	8-10 February	63.8	8-10 August	78.8	17-19 March
7	03 15 02	Bone-Lombongo	110	2-4 May	72	17-January	123	12-14 March	153.4	1-3 August	133	18-20 March
8	03 15 11	Bone-Pinogu	101.5	17-19 Jan	129.2	5-7 May						
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto	40	6-November	113	28-30May						
11	03 13 09	UPP Tibawa	50	5-December	77	4-6 May	53.5	4-6 June				
12	03 13 10	UPP Batudaa	53	7-October	86.5	24-26 Nov						
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	80	4-6 May	110	8-10Nov			135	7-8 Jul	162	18-20Mar
15	03 14 07	UPP Telaga	62	22-December	159	28-30May						
16	03 15 12	Lonuo-Kabila	89	20-22 December	142	27-29 May	105	9-11 Jan	164	10-12 July	141	17-19 March
17	03 15 14	UPP Suwawa	36.5	17-19January	82	28-30 May						
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu	85	18-20 June	92	4-6 Febr	163.5	6-8 Febr				
20	03 12 21	Bulota-Hepuhulawa							80.9	3-5 August	61.9	7 February

No	Station No.	Station Name	year 97		year 98		year 99		year 2000		year 2001	
			R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 13 15	Bandara Jalaluddin	113.6	10-12 March	98	19-21 Dec	72.7	3-March	158	7-9 February	118	16-18 Jan
2	03 15 03	Bone-Kabila					95	11-13 May				
3	03 13 02	Alo-Alo	102	30March-1Apr	111	3-5 January	132	11-13 May				
4	03 13 03	Bionga-Huludupitango	178	30March-1Apr	117	5-7 May	102	21-23 March				
5	03 13 07	DAS Limboto-Dembe II										
6	03 14 05	Bolango-Longalo	86.4	30March-1Apr	78.7	28-30 Oct	103	18-20 Oct				
7	03 15 02	Bone-Lombongo	117	1-3 April	102	21-23 Dec	92	4-6 July				
8	03 15 11	Bone-Pinogu										
9	03 15 13	Pohulongo										
10	03 13 06	Kayumerah-Limboto										
11	03 13 09	UPP Tibawa										
12	03 13 10	UPP Batudaa										
13	03 13 11	UPP Limboto										
14	03 14 06	Boidu-Tapa	166	18-19May								
15	03 14 07	UPP Telaga										
16	03 15 12	Lonuo-Kabila	113	30Mar-1Apr	96	27-29 Dec	113	2-4 Oct	119	1-3 August		
17	03 15 14	UPP Suwawa										
18	03 13 17	Bionga-Kayubulan										
19	03 15 16	Butahu - Datahu										
20	03 12 21	Bulota-Hepuhulawa	91	30March-1Apr	85.9	18-20 July	96.5	14-16 Nov				

### Daily discharge

No	Station No.	River Name	Station Name	year 91		year 92		year 93		year 94		year 95		year 96		year 97	
				D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month
1	03 12 01	Bolango	at outlet					13.5	1 Jun								
2	03 13 01	Topudu	Topudu							29.6	12 Mar			39.7	6 Aug		
3	03 13 16	Bionga Up	Lingkubulan IV											14.95	3 Jul		
4	03 13 17	Bionga	Kayubulan											22.9	3 Jul		
5	03 13 21	Alo Pohu	weir at Ilomanga											8.22	17 Jun		
6	03 13 22	Alo Pohu	Alo Pohu Weir											208	1 Aug		
7	03 13 24	Bulota	Hepuhulawa											5.38	13 May		
8	03 13 25	Meluppo	Pone											15.41	5 Aug		
9	03 13 26	Pohu	Pilolalenga														
10	03 13 28	Molalahu	Datuhu														
11	03 14 01	Bolango	Longalo														
12	03 14 02	Bolango	Pilohayanga	84.69	29 May	10.3	17 Jun	7.02	1 Jun	77.7	11 Mar			11.49	20 Apr		
13	03 14 03	Bolango	Boidu Tapa	132.86	29 May	32.6	15 Jun	1.27	29 May	95.9	11 Mar			426	19 Jan <sup>(*)</sup>		
14	03 14 04	Bolango	Tengalla Lowuo	25.55	8 Apr	69	17 Jun	68.46	30 May	64.5	11 Feb			160	6 Aug		
15	03 15 01	Bone	Lombongo	62.11	31 Mar	41.5	17 Jun	64.4	3 May								
16	20.102.108	Bone	Pimogu-PLN														
17	-	Tolabolo	PLN														
18	-	Bolongo	Lomaya weir														
19	-	Bolongo	Pilohayanga weir														
20	-	Bone	Alale weir														
21	-	Bionga	Huidupitango														
22	-	Alo	Alo weir														
23	-	Pohu	Pohu weir														
24	-	Molalahu	Molalahu weir														
25	-	AloPohu	AloPohu weir														

Notes <sup>(\*)</sup>: In this year, station 03 14 04 gave the highest discharge occur in 19 Jan. At that time other stations did not produce any data because of some reasons such as not functioning, damage, or else.

**Two-days discharge**

No	Station No.	River Name	Station Name	year 91		year 92		year 93		year 94		year 95		year 96		year 97	
				D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month	D	Date-Month	R	Date-Month
1	03 12 01	Bolango	at outlet					28.67	29-30 May								
2	03 13 01	Topudu	Topudu							57.8	12-13 Mar	79.3	6-7 Aug	71.4	11-12 Jul	59.84	20-21 May
3	03 13 16	Bionga Up	Lingkubulan IV									20.54	3-4 Jul				
4	03 13 17	Bionga	Kayubulan									32.9	3-4 Jul	49.75	16-17 Aug	44.23	3-4 Apr
5	03 13 21	Alo Pohu	weir at Ilomanga									16.71	6-7 Aug				
6	03 13 22	Alo Pohu	Alo Pohu Weir									228.6	30Jun-1Aug				
7	03 13 24	Bulota	Hepuhulawa									6.27	12-13 May	12.08	15-16 Aug		
8	03 13 25	Melupu	Pone														
9	03 13 26	Pohu	Pilotalenga														
10	03 13 28	Molalahu	Datahu														
11	03 14 01	Bolango	Longalo	126.94	29-30 May	18.01	16-17 Jun	11.46	1-2 Jun	110.6	11-12 Mar	69.34	5-6 Aug	20.82	9-10 Jul	25.66	3-4 Apr
12	03 14 02	Bolango	Pilohayanga					3.05	29-30 May	74.1	11-12 Mar						
13	03 14 03	Bolango	Boidu Tapa	238.72	28-29 May	54.8	15-16 Jun	2.19	29-30 May	146.4	10-11 Mar	522.2	19-20Jan	340.02	4-5 Jul		
14	03 14 04	Bolango	Tengalla Lowuo	45.41	8-9 Apr	102.3	16-17 Jun	129.11	29-30 May	110.8	10-11 Feb	291	5-6 Aug	195.28	10-11 Jul		
15	03 15 01	Bone	Lombongo	116.37	30-31Mar	71	16-17 Jun	124.63	2-3 May								
16	20.102.108	Bone	Pinogu-PLN														
17	-	Bolongo	Lomaya weir														
18	-	Bolongo	Pilohayanga weir														
19	-	Bone	Alale weir														
20	-	Bionga	Huludupiango														
21	-	Alo	Alo weir														
22	-	Pohu	Pohu weir														
23	-	Molalahu	Molalahu weir														
24	-	AloPohu	AloPohu weir														



**Threedays discharge**

No	Station No.	River Name	Station Name	year 91		year 92		year 93		year 94		year 95		year 96		year 97	
				R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month	R	Date-Month
1	03 12 01	Bolango	at outlet					26.73	30May-1Jun	84.4	11-13 Mar	118.5	5-7 Aug	106.91	11-13 Jul	81.84	19-21 May
2	03 13 01	Topudu	Topudu														
3	03 13 16	Bionga Up	Lingkungan IV														
4	03 13 17	Bionga	Kayubulan														
5	03 13 21	Alo Pohu	weir at Ilomanga														
6	03 13 22	Alo Pohu	Alo Pohu Weir														
7	03 13 24	Bulota	Hepuhulawa														
8	03 13 25	Meluupo	Pone														
9	03 13 26	Pohu	Pilotalenga														
10	03 13 28	Molalahu	Datahu														
11	03 14 01	Bolango	Longalo	159.8	20-30 May	19.27	15-17 Jun	17.34	31May-2Jun	121.8	11-13 Mar	85.98	4-6 Aug	29.06	10-12 Jul	34.16	3-5 Apr
12	03 14 02	Bolango	Pilohayanga					4.47	29-31 May	98.5	11-13 Mar						
13	03 14 03	Bolango	Boidu Tapa	319.6	29-30 May	81.9	14-16 Jun	71.9	28-30 May	193.7	10-12 Mar	568.1	19-21 Jan	380.4	4-6 Jul	334.93	2-4 Apr
14	03 14 04	Bolango	Tengalla Lowuo	55.42	8-10 Apr	122	17-19 Jun	179	29-31 May	150.6	10-12 Feb	412	4-6 Aug	266.94	9-11 Jul		
15	03 15 01	Bone	Lombongo	172.83	30Mar-1Apr	99.4	16-18 Jun	174.64	1-3 May			101.2	12-14 Jul				
16	20.102.108	Bone	Pinogu-PLN														
17	-	Bolongo	Lomaya weir														
18	-	Bolongo	Pilohayanga weir														
19	-	Bone	Alale weir														
20	-	Bionga	Huludupianglo														
21	-	Alo	Alo weir														
22	-	Pohu	Pohu weir														
23	-	Molalahu	Molalahu weir														
24	-	AloPohu	AloPohu weir														

## Water Level Record of Lake Limboto

Staff reading (m)

Year	Day	Month												
		1	2	3	4	5	6	7	8	9	10	11	12	
1993	1													1.190
	2													1.200
	3													1.210
	4													1.220
	5													1.220
	6													1.220
	7													1.210
	8													1.200
	9													1.190
	10													1.190
	11												0.900	1.200
	12												0.900	1.200
	13												0.900	1.190
	14												0.910	1.190
	15												0.910	1.200
	16												0.920	1.210
	17												0.960	1.220
	18												0.970	1.230
	19												0.980	1.230
	20												0.960	1.230
	21												0.950	1.230
	22												0.960	1.230
	23												0.950	1.220
	24												0.940	1.220
	25										0.800		0.960	1.220
	26										0.800		0.970	1.210
	27										0.800		1.000	1.210
	28										0.800		1.130	1.210
	29										0.800		1.070	1.210
	30										0.800		1.190	1.190
	31										0.800			1.180
1994	1	1.180	1.545	1.730	2.050	2.120	2.360	2.380	1.900	1.480	1.190	1.010	1.010	
	2	1.190	1.545	1.700	2.040	2.170	2.340	2.380	1.880	1.470	1.180	1.000	1.010	
	3	1.200	1.545	1.660	2.040	2.200	2.320	2.400	1.850	1.460	1.170	1.010	1.010	
	4	1.200	1.545	1.670	2.050	2.090	2.300	2.420	1.840	1.450	1.170	1.020	1.010	
	5	1.190	1.590	1.660	2.070	2.370	2.340	2.420	1.830	1.430	1.160	1.020	1.040	
	6	1.190	1.620	1.660	2.080	2.420	2.390	2.430	1.820	1.420	1.150	1.020	1.050	
	7	1.090	1.655	1.710	2.090	2.420	2.440	2.440	1.800	1.410	1.140	1.010	1.060	
	8	1.090	1.760	1.790	2.100	2.440	2.490	2.430	1.790	1.400	1.130	1.000	1.070	
	9	1.080	1.830	1.830	2.100	2.450	2.510	2.410	1.770	1.390	1.120	1.000	1.080	
	10	1.100	1.860	1.860	2.080	2.500	2.500	2.390	1.760	1.380	1.110	1.010	1.080	
	11	1.140	2.025	1.890	2.090	2.530	2.480	2.360	1.760	1.370	1.100	1.010	1.110	
	12	1.150	2.090	1.990	2.070	2.550	2.460	2.340	1.740	1.350	1.100	1.020	1.110	
	13	1.160	2.125	2.010	2.070	2.580	2.450	2.320	1.720	1.340	1.090	1.020	1.120	
	14	1.160	2.145	2.050	2.060	2.630	2.450	2.280	1.710	1.340	1.090	1.010	1.120	
	15	1.160	2.165	2.090	2.040	2.690	2.430	2.260	1.700	1.330	1.090	1.010	1.120	
	16	1.150	2.175	2.120	2.030	2.710	2.410	2.230	1.690	1.320	1.080	1.010	1.120	
	17	1.140	2.175	2.130	2.050	2.700	2.390	2.200	1.670	1.310	1.080	1.000	1.110	
	18	1.150	2.170	2.130	2.090	2.670	2.360	2.180	1.650	1.300	1.070	0.990	1.110	
	19	1.140	2.160	2.130	2.120	2.640	2.440	2.150	1.640	1.290	1.060	0.990	1.100	
	20	1.140	2.150	2.140	2.140	2.620	2.530	2.130	1.630	1.280	1.050	0.980	1.100	
	21	1.140	2.140	2.160	2.140	2.610	2.530	2.110	1.620	1.270	1.040	0.980	1.090	
	22	1.130	2.120	2.160	2.140	2.590	2.520	2.090	1.600	1.260	1.030	0.970	1.090	
	23	1.130	2.115	2.160	2.140	2.570	2.490	2.070	1.590	1.250	1.020	0.970	1.090	
	24	1.130	2.105	2.160	2.140	2.530	2.470	2.030	1.580	1.240	1.010	0.960	1.080	
	25	1.130	2.090	2.150	2.130	2.500	2.440	2.010	1.570	1.230	1.000	0.960	1.080	
	26	1.130	2.080	2.130	2.130	2.470	2.420	2.000	1.550	1.220	1.000	0.950	1.070	
	27	1.130	2.070	2.120	2.130	2.440	2.390	1.990	1.540	1.210	0.990	0.940	1.070	
	28	1.170	2.060	2.100	2.130	2.410	2.390	1.980	1.520	1.210	0.990	0.940	1.080	
	29	1.200		2.090	2.110	2.420	2.380	1.960	1.500	1.200	0.980	0.970	1.090	
	30	1.210		2.080	2.100	2.400	2.340	1.940	1.500	1.190	0.980	1.010	1.100	
	31	1.220		2.060		2.390		1.920	1.490		0.970		1.100	

## Water Level Record of Lake Limboto

Staff reading (m)

Year	Day	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
1995	1	1.090	1.430	1.480	1.400	1.450	1.710	2.430	2.590	2.900	2.200	1.880	2.060
	2	1.090	1.420	1.480	1.380	1.470	1.700	2.400	2.720	2.880	2.190	1.870	2.070
	3	1.090	1.420	1.480	1.380	1.480	1.690	2.400	2.780	2.880	2.170	1.850	2.070
	4	1.110	1.420	1.480	1.370	1.500	1.680	2.470	2.880	2.910	2.170	1.830	2.080
	5	1.110	1.430	1.470	1.360	1.510	1.670	2.500	2.960	2.920	2.160	1.820	2.100
	6	1.110	1.440	1.470	1.350	1.510	1.680	2.510	3.180	2.920	2.160	1.810	2.100
	7	1.100	1.440	1.450	1.340	1.510	1.680	2.510	3.300	2.900	2.170	1.810	2.110
	8	1.100	1.440	1.440	1.330	1.500	1.680	2.540	3.360	2.880	2.200	1.800	2.110
	9	1.110	1.430	1.440	1.320	1.520	1.680	2.650	3.410	2.860	2.210	1.800	2.100
	10	1.110	1.430	1.430	1.310	1.530	1.670	2.680	3.450	2.860	2.190	1.830	2.100
	11	1.100	1.430	1.420	1.300	1.530	1.670	2.690	3.490	2.860	2.170	1.900	2.100
	12	1.100	1.430	1.410	1.290	1.600	1.670	2.680	3.500	2.840	2.150	1.920	2.100
	13	1.090	1.480	1.400	1.290	1.660	1.680	2.890	3.470	2.810	2.130	1.940	2.120
	14	1.090	1.480	1.400	1.300	1.780	1.680	2.920	3.450	2.750	2.110	1.970	2.130
	15	1.080	1.470	1.390	1.300	1.820	1.700	2.980	3.430	2.620	2.090	2.000	2.150
	16	1.080	1.470	1.380	1.290	1.860	1.700	2.990	3.430	2.580	2.070	2.030	2.180
	17	1.070	1.460	1.360	1.290	1.860	1.730	2.970	3.400	2.550	2.050	2.050	2.200
	18	1.070	1.450	1.350	1.310	1.860	1.800	2.940	3.360	2.510	2.030	2.060	2.210
	19	1.140	1.460	1.340	1.310	1.850	1.810	2.910	3.320	2.480	2.010	2.090	2.190
	20	1.360	1.460	1.330	1.300	1.850	1.890	2.880	3.270	2.440	2.010	2.100	2.170
	21	1.400	1.450	1.340	1.300	1.840	1.930	2.830	3.220	2.410	2.010	2.110	2.170
	22	1.420	1.450	1.340	1.300	1.830	2.010	2.820	3.170	2.400	2.010	2.120	2.160
	23	1.430	1.450	1.340	1.300	1.820	2.070	2.800	3.130	2.400	2.000	2.120	2.140
	24	1.450	1.440	1.340	1.290	1.810	2.190	2.770	3.090	2.380	2.000	2.120	2.130
	25	1.450	1.440	1.340	1.290	1.800	2.270	2.740	3.050	2.360	1.980	2.110	2.120
	26	1.460	1.450	1.345	1.310	1.790	2.360	2.710	3.000	2.330	1.970	2.090	2.120
	27	1.450	1.450	1.380	1.310	1.780	2.420	2.680	2.950	2.310	1.960	2.080	2.110
	28	1.450	1.460	1.410	1.310	1.770	2.440	2.650	2.920	2.280	1.940	2.070	2.120
	29	1.440		1.410	1.390	1.760	2.440	2.620	2.930	2.250	1.930	2.070	2.170
	30	1.440		1.410	1.435	1.750	2.440	2.590	2.910	2.230	1.910	2.060	2.240
	31	1.430		1.410		1.730		2.590	2.910		1.900		2.250
1996	1	2.290	2.290	2.640	2.800	2.420	2.050	2.900	2.640	2.510	2.120	2.650	2.400
	2	2.270	2.290	2.620	2.770	2.420	2.050	2.890	2.600	2.680	2.110	2.700	2.380
	3	2.250	2.310	2.590	2.750	2.400	2.050	2.870	2.570	2.770	2.120	2.720	2.360
	4	2.250	2.380	2.570	2.770	2.380	2.040	2.850	2.540	2.790	2.130	2.730	2.370
	5	2.250	2.570	2.540	2.750	2.380	2.070	2.830	2.500	2.790	2.150	2.760	2.400
	6	2.250	2.610	2.510	2.720	2.370	2.120	2.810	2.470	2.760	2.160	2.770	2.400
	7	2.240	2.680	2.490	2.690	2.360	2.230	2.800	2.440	2.730	2.160	2.760	2.390
	8	2.220	2.740	2.460	2.660	2.360	2.320	2.800	2.420	2.710	2.170	2.750	2.400
	9	2.210	2.840	2.430	2.630	2.430	2.420	2.790	2.410	2.680	2.180	2.730	2.400
	10	2.190	2.900	2.410	2.590	2.450	2.450	2.850	2.380	2.640	2.230	2.700	2.450
	11	2.180	2.940	2.370	2.570	2.470	2.470	3.020	2.360	2.600	2.280	2.660	2.540
	12	2.170	2.980	2.350	2.550	2.470	2.490	3.090	2.350	2.580	2.290	2.640	2.560
	13	2.170	2.990	2.330	2.530	2.460	2.490	3.170	2.360	2.540	2.310	2.670	2.570
	14	2.160	2.970	2.300	2.510	2.440	2.500	3.220	2.370	2.510	2.300	2.670	2.570
	15	2.170	2.950	2.270	2.480	2.410	2.500	3.230	2.410	2.470	2.270	2.660	2.570
	16	2.160	2.930	2.260	2.450	2.390	2.500	3.230	2.450	2.440	2.260	2.640	2.570
	17	2.150	2.930	2.240	2.430	2.360	2.540	3.200	2.490	2.410	2.230	2.620	2.560
	18	2.130	2.930	2.220	2.380	2.330	2.590	3.170	2.500	2.390	2.230	2.610	2.540
	19	2.120	2.930	2.260	2.400	2.310	2.600	3.140	2.520	2.360	2.240	2.590	2.550
	20	2.110	2.860	2.370	2.390	2.290	2.640	3.120	2.540	2.330	2.240	2.560	2.540
	21	2.150	2.850	2.410	2.380	2.250	2.800	3.080	2.540	2.300	2.250	2.540	2.530
	22	2.210	2.810	2.430	2.370	2.220	2.920	3.020	2.520	2.280	2.270	2.510	2.510
	23	2.220	2.800	2.460	2.360	2.200	2.970	3.000	2.510	2.250	2.310	2.480	2.490
	24	2.230	2.780	2.520	2.370	2.170	2.980	2.960	2.510	2.230	2.350	2.460	2.460
	25	2.230	2.760	2.710	2.370	2.140	2.960	2.920	2.510	2.210	2.380	2.440	2.430
	26	2.230	2.750	2.740	2.430	2.120	2.940	2.870	2.500	2.190	2.410	2.440	2.400
	27	2.230	2.720	2.800	2.470	2.100	2.940	2.830	2.480	2.170	2.460	2.430	2.380
	28	2.260	2.690	2.790	2.460	2.080	2.920	2.840	2.480	2.140	2.470	2.420	2.350
	29	2.290	2.650	2.800	2.450	2.070	2.900	2.760	2.470	2.120	2.480	2.400	2.300
	30	2.280		2.820	2.430	2.060	2.870	2.720	2.460	2.110	2.500	2.390	2.290
	31	2.270		2.820		2.060		2.680	2.480		2.520		2.260

## Water Level Record of Lake Limboto

Staff reading (m)

Year	Day	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
1997	1	2.210	2.310	2.250	2.440	2.780	2.280	1.680	1.380	1.090	0.900	0.750	0.720
	2	2.200	2.310	2.250	2.660	2.750	2.240	1.670	1.370	1.090	0.890	0.750	0.740
	3	2.160	2.290	2.260	2.720	2.710	2.200	1.670	1.350	1.080	0.880	0.740	0.750
	4	2.150	2.270	2.240	2.820	2.670	2.190	1.660	1.350	1.070	0.880	0.740	0.770
	5	2.120	2.270	2.240	2.980	2.640	2.160	1.660	1.330	1.070	0.880	0.730	0.780
	6	2.100	2.260	2.230	3.000	2.600	2.120	1.650	1.330	1.060	0.870	0.720	0.800
	7	2.080	2.250	2.210	2.990	2.570	2.090	1.640	1.320	1.050	0.860	0.710	0.810
	8	2.050	2.240	2.210	2.970	2.570	2.070	1.630	1.320	1.040	0.850	0.700	0.820
	9	2.030	2.230	2.210	2.970	2.550	2.050	1.620	1.310	1.030	0.840	0.700	0.830
	10	2.010	2.250	2.230	2.970	2.530	2.030	1.620	1.300	1.030	0.840	0.690	0.850
	11	1.990	2.270	2.230	2.980	2.510	2.000	1.620	1.290	1.020	0.830	0.690	0.860
	12	1.970	2.260	2.240	3.060	2.480	1.990	1.610	1.270	1.020	0.830	0.680	0.870
	13	1.970	2.240	2.320	3.090	2.450	1.980	1.610	1.270	1.020	0.830	0.680	0.890
	14	1.990	2.220	2.350	3.080	2.430	1.970	1.590	1.260	1.010	0.830	0.670	0.910
	15	2.000	2.200	2.350	3.050	2.410	1.960	1.590	1.260	1.010	0.820	0.670	0.920
	16	2.020	2.200	2.350	3.040	2.420	1.930	1.580	1.240	1.000	0.810	0.670	0.940
	17	2.060	2.190	2.330	3.030	2.400	1.930	1.550	1.230	1.000	0.810	0.660	0.950
	18	2.120	2.180	2.320	3.020	2.380	1.890	1.540	1.220	0.990	0.800	0.660	0.960
	19	2.150	2.180	2.310	3.000	2.380	1.870	1.530	1.210	0.980	0.800	0.670	0.970
	20	2.150	2.180	2.340	2.960	2.510	1.850	1.510	1.200	0.970	0.800	0.680	0.970
	21	2.170	2.160	2.370	2.920	2.550	1.830	1.510	1.190	0.970	0.800	0.700	0.980
	22	2.220	2.160	2.450	2.880	2.540	1.820	1.510	1.180	0.970	0.790	0.720	0.990
	23	2.250	2.160	2.420	2.830	2.530	1.800	1.510	1.170	0.960	0.790	0.740	0.990
	24	2.280	2.170	2.420	2.790	2.510	1.790	1.480	1.160	0.950	0.780	0.740	1.000
	25	2.380	2.190	2.390	2.750	2.480	1.760	1.480	1.150	0.940	0.780	0.740	1.000
	26	2.400	2.210	2.360	2.720	2.460	1.730	1.460	1.140	0.930	0.780	0.740	1.000
	27	2.400	2.230	2.330	2.720	2.430	1.710	1.440	1.130	0.930	0.770	0.730	1.010
	28	2.390	2.250	2.300	2.760	2.400	1.710	1.430	1.120	0.920	0.770	0.730	1.010
	29	2.370		2.300	2.780	2.370	1.700	1.420	1.110	0.910	0.770	0.720	1.010
	30	2.350		2.280	2.810	2.330	1.690	1.400	1.110	0.910	0.770	0.720	1.020
	31	2.330		2.300		2.310		1.390	1.100		0.770		1.020
1998	1	1.020	1.350	1.140	0.910	0.980					2.450	2.390	
	2	1.040	1.340	1.130	0.910	0.990					2.450	2.400	
	3	1.040	1.330	1.110	0.900	0.990					2.440	2.430	
	4	1.160	1.330	1.100	0.900	1.000					2.430	2.420	
	5	1.300	1.320	1.090	0.890	1.010					2.420	2.410	
	6	1.320	1.310	1.090	0.890	1.060					2.410	2.400	
	7	1.340	1.300	1.800	0.900	1.090					2.410	2.380	
	8	1.400	1.290	1.070	0.900	1.140					2.410	2.370	
	9	1.400	1.280	1.060	0.900	1.180					2.400	2.400	
	10	1.400	1.270	1.050	0.890	1.240					2.440	2.420	
	11	1.400	1.260	1.040	0.890	1.310					2.430	2.440	
	12	1.440	1.250	1.040	0.890	1.360					2.420	2.470	
	13	1.460	1.240	1.030	0.890	1.470					2.410	2.480	
	14	1.470	1.230	1.020	0.880	1.540					2.400	2.500	
	15	1.480	1.220	1.010	0.880	1.580					2.370	2.525	
	16	1.480	1.210	1.010	0.880	1.650					2.330	2.545	
	17	1.480	1.200	1.000	0.870	1.690					2.320	2.565	
	18	1.470	1.210	1.000	0.870	1.740					2.310	2.585	
	19	1.470	1.210	1.000	0.880	1.790					2.280	2.605	
	20	1.450	1.220	0.990	0.910	1.820					2.260	2.625	
	21	1.440	1.230	0.990	0.900	1.870					2.240	2.645	
	22	1.430	1.190	0.980	0.910	1.890					2.230	2.665	
	23	1.430	1.180	0.970	0.910	1.900					2.220	2.685	
	24	1.420	1.180	0.970	0.910	1.910					2.200	2.705	
	25	1.410	1.170	0.960	0.900	1.900					2.200	2.725	
	26	1.400	1.160	0.960	0.900	1.890					2.200	2.745	
	27	1.400	1.150	0.950	0.900	1.880					2.200	2.790	
	28	1.390	1.140	0.940	0.910	1.870					2.200	2.810	
	29	1.380		0.930	0.950	1.850					2.260	2.845	
	30	1.370		0.920	0.970	1.830					2.330	2.860	
	31	1.360		0.920							2.380		

## Water Level Record of Lake Limboto

Staff reading (m)

Year	Day	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
1999	1	3.500	2.760	2.260			2.730	2.690	2.355				
	2	3.500	2.760	2.250			2.720	2.725	2.305				
	3	3.500	2.745	2.255			2.695	2.745	2.290				
	4	3.440	2.725	2.270			2.680	2.760	2.275				
	5	3.390	2.710	2.275			2.635	2.780	2.245				
	6	3.290	2.710	2.320			2.580	2.850	2.215				
	7	3.255	2.695	2.310			2.525	2.920	2.210				
	8	3.235	2.675	2.310			2.490	2.995	2.235				
	9	3.200	2.655	2.315			2.445	3.030	2.250				
	10	3.165	2.635	2.300			2.415	3.020	2.265				
	11	3.145	2.595	2.300			2.395	2.990	2.275				
	12	3.115	2.575	2.300			2.365	2.975	2.245				
	13	3.100	2.560	2.285			2.335	2.960	2.205				
	14	3.085	2.545	2.270			2.305	2.935	2.185				
	15	3.040	2.530	2.265			2.290	2.905	2.165				
	16	3.010	2.520	2.285			2.275	2.875	2.145				
	17	2.950	2.510	2.310			2.260	2.830	2.130				
	18	2.950	2.495	2.345			2.245	2.775	2.115				
	19	2.950	2.475	2.360			2.230	2.765	2.070				
	20	2.960	2.445	2.360			2.250	2.740	2.045				
	21	2.965	2.425	2.360			2.250	2.690	2.030				
	22	2.945	2.405	2.390			2.250	2.645	2.030				
	23	2.895	2.385	2.400			2.250	2.610	2.020				
	24	2.865	2.365	2.545			2.235	2.570	2.045				
	25	2.845	2.335	2.600			2.240	2.520	2.045				
	26	2.825	2.315	2.650			2.255	2.490	2.065				
	27	2.820	2.295	2.670			2.285	2.465	2.085				
	28	2.805	2.275	2.645			2.385	2.450	2.090				
	29	2.795		2.625			2.520	2.450	2.040				
	30	2.775		2.605			2.590	2.425	2.010				
	31	2.770		2.590				2.405	1.960				