

## BAB V KESIMPULAN DAN SARAN

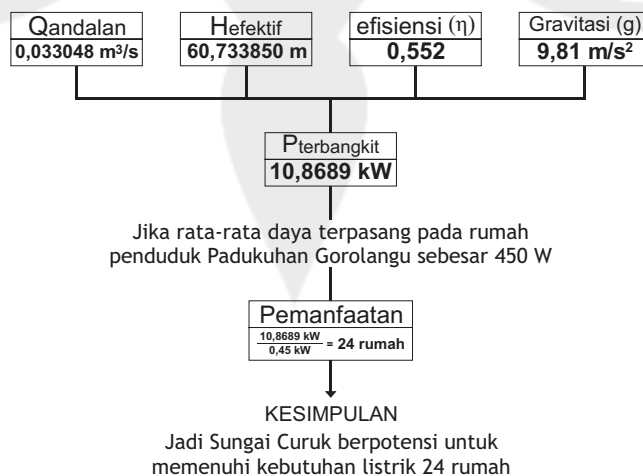
### 5.1 Kesimpulan

Potensi Sungai Curuk sebagai Pembangkit Listrik Tenaga Mikro Hidro (PLTMH) diketahui melalui besarnya daya listrik yang mungkin terbangkitkan. Daya listrik terbangkitkan itu nantinya akan digunakan untuk memenuhi kebutuhan listrik Padukuhan Gorolangu.

Daya listrik terbangkitkan dapat dihitung dengan perkalian debit andalan, *head* efektif, efisiensi sistem, dan gaya gravitasi ( $9,81 \text{ m/s}^2$ ). Debit pada Sungai Curuk dicari melalui Metode Mock yang memperhitungkan hujan, evapotranspirasi, serta aliran bawah tanah (*base flow*). Debit andalan yang digunakan untuk pembangkit listrik dianalisis sebesar 80%, sehingga diperoleh  $Q_{80} = 0,033048 \text{ m}^3/\text{s}$ .

Selain debit, parameter lain yang dihitung adalah *head* efektif yang didapat dari representasi komponen PLTMH pada pemodelan tiga dimensi peta topografi. Setelah selisih elevasi *forebay* (475 m) dengan *power house* (412,5 m) dikurangi kehilangan energi (1,76605 m), maka didapat *head* efektif sebesar 60,73385 m.

Nilai efisiensi sistem yang terdiri dari efisiensi konstruksi sipil, *penstock*, generator, trafo, turbin, dan sistem kontrol didapatkan 0,552. Jika semua parameter tersebut dikalikan, diperoleh daya listrik terbangkit sebesar 10,8689 kW. Nilai ini dapat memenuhi kebutuhan listrik 24 rumah warga yang memiliki rata-rata daya terpasang 450 W. (Gambar 5.1)



**Gambar 5.1 Kesimpulan Penelitian**

### **5.2. Saran**

Pemenuhan kebutuhan listrik di Padukuhan Gorolangu melalui PLTMH dapat dimanfaatkan lebih banyak kepala keluarga dengan melakukan rekayasa hidrolika. Dalam mendapatkan debit yang kontinu dapat dilakukan peninggian bendung dan tampungan air. Selain itu, penempatan *forebay*, *penstock*, dan *power house* dapat dilakukan pada lokasi lain, sehingga mendapatkan tinggi jatuh efektif yang lebih besar. Perhitungan rekayasa hidrolika ini dapat diteruskan pada penelitian selanjutnya.



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# LAMPIRAN





## Lampiran A.2. Perhitungan Evapotranspirasi Potensial tahun 2002

Uraian	Satuan	JAN 31	FEB 28	MARET 31	APRIL 30	MEI 31	JUNI 30	JULI 31	AGUST 31	SEPT 30	OKTBR 31	NOV 30	DES 31
<b>ETo (Evapotranspirasi Potensial)</b>	mm/bulan	207,31	179,49	156,87	121,66	116,89	112,02	129,50	111,51	106,78	112,71	110,26	110,33
Et <sub>o</sub> = (0,408 Δ (Rn-G)+y(900/T+273) U (es- <i>e<sub>a</sub></i> ))/Δ+y(1+0,34U)	mm/hari	6,69	6,41	5,06	4,06	3,77	3,73	4,18	3,60	3,56	3,64	3,68	3,56
<b>U (Kecepatan Angin)</b>													
U = Uz (4,87/ln (67,8 z-5,42))	m/s	0,29	0,29	0,31	0,27	0,20	0,22	0,28	0,36	0,48	0,43	0,39	0,27
Uz (Kecepatan Angin)	m/s	0,56	0,56	0,59	0,52	0,39	0,42	0,53	0,70	0,93	0,84	0,75	0,53
z (Ketinggian di atas muka laut)	m	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00
<b>Δ (Slope of saturation vapour pressure curve)</b>													
Δ = 4098 (0,6108 exp (17,27 T/(T+237,3)))/(T+237,3) <sup>2</sup>	Kpa/°C	0,18	0,18	0,18	0,19	0,19	0,18	0,17	0,16	0,17	0,18	0,19	0,18
T (Temperatur udara)	°C	24,12	24,12	24,21	24,68	24,88	24,35	22,81	21,33	22,78	23,89	24,62	24,53
<b>G (Energi yang diperlukan untuk memanaskan tanah)</b>													
G = 0,14 (Tn - Tn-1)	°C	0,06	0,00	0,01	0,07	0,03	-0,07	-0,21	-0,21	0,20	0,16	0,10	-0,01
Tn (Temperatur udara bulan itu)	°C	24,12	24,12	24,21	24,68	24,88	24,35	22,81	21,33	22,78	23,89	24,62	24,53
Tn-1 (Temperatur udara sebelumnya)	°C	23,72	24,12	24,21	24,21	24,68	24,88	24,35	22,81	21,33	22,78	23,89	24,62
<b>y (Tetapan Psikrometrik)</b>													
y = 0,665.10 <sup>-3</sup> P	Kpa/°C	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
P (Tekanan Atmosfir)													
P = 101,3 (293-0,0065.z/293) <sup>-2,6</sup>	Kpa	99,19	99,19	99,19	99,19	99,19	99,19	99,19	99,19	99,19	99,19	99,19	99,19
z (Ketinggian di atas muka laut)	m	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00
<b>es (mean saturation vapour pressure)</b>													
es = e <sup>0</sup> (Tmax)+e <sup>0</sup> (Tmin)/2	Kpa	82,22	76,47	84,61	84,50	83,45	78,14	64,90	58,00	63,39	74,87	78,33	73,93
<b>ea (actual vapour pressure)</b>													
ea = e <sup>0</sup> (Tmin).RHmax/100 + e <sup>0</sup> (Tmax).RHmin/100	Kpa	67,14	62,45	77,30	81,38	81,66	76,86	60,88	56,38	62,03	73,69	77,14	72,79
e <sup>0</sup> (saturation vapour pressure at the air temperature)													
e <sup>0</sup> = 0,6108 exp (17,27 T/(T+237,3))	Kpa	3,38	3,14	3,42	3,45	3,41	3,27	2,89	2,76	2,91	3,21	3,18	3,07
T (Temperatur udara)	°C	26,09	24,87	26,28	26,45	26,22	25,55	23,47	22,70	23,57	25,24	25,07	24,48
Tmax (Temperatur udara max)	°C	27,20	27,20	26,70	26,40	26,40	26,00	25,95	25,05	25,05	26,75	26,00	26,20
Tmin (Temperatur udara min)	°C	21,45	21,45	22,80	22,55	22,60	21,75	18,95	17,00	18,55	19,85	23,25	21,95
RHmax (Kelembaban relative max)	%	99,00	99,00	100,00	99,00	100,00	100,00	99,00	99,00	99,00	99,00	99,00	99,00
RHmin (Kelembaban relative min)	%	68,00	68,00	84,00	94,00	96,00	97,00	90,00	96,00	97,00	98,00	98,00	98,00
<b>Rn (net radiation)</b>													
Rn = Rns-Rni	MJ/m <sup>2</sup> hari	11,07	10,90	11,36	11,66	11,79	11,89	11,17	10,95	10,99	11,45	11,52	11,30
Rns (Net solar or shortwave radiation)													
Rns = (1-α)Rs	MJ/m <sup>2</sup> hari	7,67	7,67	7,64	7,69	7,73	7,83	7,82	7,82	7,74	7,73	7,69	7,68
α (Koeffisien albedo)		0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23
Rs (solar or shortwave radiation)													
Rs = (as +bs. n/N)Ra		9,96	9,96	9,92	9,99	10,04	10,17	10,15	10,16	10,06	10,04	9,99	9,97
as (konstanta regresi)		0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
bs (rekomendasi)		0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
n (lama penyinaran matahari)		9,25	9,25	7,99	10,53	12,34	16,80	16,27	16,54	12,89	12,23	10,54	9,87
N (daylight hour)													
N = (24/π) ws	Jam	687,93	687,93	687,93	687,93	687,93	687,93	687,93	687,93	687,93	687,93	687,93	687,93
ws (sunset hour angle)	rad	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00
Ra (extraterrestrial radiation)													
Ra = 24(G0)/π. Gsc.dr (ws sin (φ) sin (δ) + cos(δ)sin(ws))	MJ/m <sup>2</sup> hari	38,78	38,78	38,78	38,78	38,78	38,78	38,78	38,78	38,78	38,78	38,78	38,78
Gsc (solar constant)	MJ/m <sup>2</sup> menit	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08
φ (latitude)	rad	7,68	7,68	7,68	7,68	7,68	7,68	7,68	7,68	7,68	7,68	7,68	7,68
δ (solar declination)													
δ = 0,409 sin (2π/365 J - 1,39)	rad	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
J (jumlah hari dalam satu tahun)		365,00	365,00	365,00	365,00	365,00	365,00	365,00	365,00	365,00	365,00	365,00	365,00
dr (inverse relative distance Earth-Sun)													
dr = 1+0,033 cos ((π/365) . J)		1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03	1,03
ws = arc cos (-tan (φ) tan (δ))	rad	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00	90,00
<b>Rni (net outgoing longwave radiation)</b>													
Rni = σ (Tmax. K <sup>4</sup> + Tmin. K <sup>4</sup> /2) (0,34-0,14 (ea <sup>0,65</sup> )) (1,35 Rs/Rso - 0,35)	MJ/m <sup>2</sup> hari	-3,41	-3,24	-3,73	-3,96	-4,06	-4,06	-3,36	-3,12	-3,25	-3,72	-3,83	-3,62
σ (Tetapan Stefan-Boltzmann)	MJ/k <sup>4</sup> m <sup>2</sup> hari	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Tmax (Temperatur udara max)	°K	300,36	300,36	299,86	299,56	299,56	299,16	299,11	298,21	298,21	299,91	299,16	299,36
Tmin (Temperatur udara min)	°K	294,61	294,61	295,96	295,71	295,76	294,91	292,11	290,16	291,71	293,01	296,41	295,11
<b>Rso (clear-sky radiation)</b>													
Rso = (0,75+2.10 <sup>-2</sup> )Ra	MJ/m <sup>2</sup> hari	29,22	29,22	29,22	29,22	29,22	29,22	29,22	29,22	29,22	29,22	29,22	29,22
z (Ketinggian di atas muka laut)	m	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00	180,00















## B. Perhitungan Debit DAS PDA Kalibawang Metode Mock

### Lampiran B.1. Perhitungan Debit DAS PDA Kalibawang tahun 2001

Uraian	Satuan	JAN 31	FEB 28	MARET 31	APRIL 30	MEI 31	JUNI 30	JULI 31	AGUST 31	SEPT 30	OKTBR 31	NOV 30	DES 31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro - A	m <sup>3</sup> /s	48,50805	70,52349	94,78973	82,38175	32,37	30,78629	29,99912	23,17818	22,72738	11,70028	127,8564	48,27892
Luas DAS (A)	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bln	74,77607	98,19263	146,1201	122,8965	49,89895	45,92675	46,2442	35,72959	33,90453	180,362	190,7352	74,42285
<b>DRO (Direct runoff)</b>													
DRO = WS - I													
WS (Water Surplus)													
WS = (P - Ea) - SS													
(P - Ea)													
P (Hujan)	mm/bln	325,0765	365,7093	495,7566	303,7034	98,50893	86,98812	156,131	3,890981	21,0581	498,5692	510,0908	137,6221
Ea (Evapotranspirasi aktual)													
Ea = Eto - ΔE	mm/bln	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
ΔE (Evapotranspirasi Terbatas)													
ΔE = Eto (m/20) (18-h)													
Exposed Surface (m)	%	-3,00717	1,297928	-1,5222	4,178393	13,20514	10,50347	16,90134	17,71584	16,7635	-2,05135	0,94342	7,627595
Jumlah Hari Hujan (n)	hari	21,0000	17,0000	19,0000	14,0000	5,0000	8,0000	4,0000	2,0000	2,0000	20,0000	17,0000	10,0000
Eto (Evapotranspirasi potensial)	mm/bln	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
SS (Soil Storage) = SMI - SMI-1	mm/bln	38,33031	0	0	-24,3925	23,93782	10,06463	-10,06463	0	0	48,33031	0	0
SMI (Soil Moisture bulan ini)	mm	48,33031	48,33031	48,33031	48,33031	23,93782	0	10,06463	0	0	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)	mm	10	48,33031	48,33031	48,33031	23,93782	0	10,06463	0	0	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	10	48,33031	48,33031	48,33031	48,33031	23,93782	0	10,06463	0	0	48,33031	48,33031
i (Infiltrasi) = WS - (WIC atau DIC)													
WIC (Koefisien infiltrasi musim hujan)													
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV													
i (Infiltrasi)	mm/bln	12,04409	21,29293	33,81065	44,00704	44,97351	41,57735	38,43765	35,53504	32,85162	38,26089	54,01217	61,28841
ΔV (perubahan volume tanah)													
ΔV = GWS - IGWS	mm	106,9428	128,7631	190,2501	69,60393	-44,9735	-41,5773	-38,4376	-35,5353	-32,8516	170,7064	230,7138	-45,2795
GWS (Ground Water Storage)	mm	206,9428	335,7058	525,9559	595,5598	550,5863	509,009	470,5713	435,0363	402,1847	572,891	803,6048	758,3253
IGWS (kefisien resesi aliran tanah)	mm	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
SRO (Strom Run Off)	mm/bln	16,25382	18,28546	24,78783	15,18517	4,925446	4,349406	7,806551	0,194549	0,052905	24,92846	25,50454	6,881107
Percentage factor (PF)													
<b>Debit Terukur</b>	m <sup>3</sup> /s	48,99355	57,44286	129,7871	116,92	33,64194	37,63667	30,5129	17,51935	17,79333	79,40323	80,37014	21,07742
<b>Debit Terhitung</b>	m <sup>3</sup> /s	48,50805	70,52349	94,78973	82,38175	32,37	30,78629	29,99912	23,17818	22,72738	11,70028	127,8564	48,27892
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	48,04327	2,304274	5,455628	3720,405	496,5293	334,4585	645,7682	1474,984	1454,014	551,233	597,5711	1214,345
<b>D<sup>2</sup> = Σ (Qterukur - Qterhitung)<sup>2</sup></b>		0,235706	171,1029	1224,816	1192,891	1,617828	46,92761	0,263976	32,02226	24,34482	141,373	2254,943	739,9216

Lampiran B.2. Perhitungan Debit DAS PDA Kalibawang tahun 2002

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	117,0679	119,3915	83,4496	104,8739	55,4819	49,96712	44,31908	40,88005	39,0797	34,94486	35,34365	84,44847
Luas DAS (A)	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bh	180,4623	166,2336	128,6391	156,4501	85,52639	74,54056	68,31868	63,01736	58,2988	53,86815	52,72538	130,1789
<b>DRO (Direct runoff)</b>													
DRO = WS - I		91,89367	69,30996	32,78599	59,88007	0	0	0	0	0	0	0	59,594
WS (Water Surplus)		327,147	246,7476	116,7201	166,6932	0	0	0	0	0	0	0	212,1583
WS = (P-Ea)-SS		327,147	246,7476	116,7201	166,6932	-7,48188	-110,927	-142,989	-133,967	-125,962	-123,921	-55,4804	260,4886
P (Hujan)	mm/bh	448,4281	403,7867	300,8943	293,0814	115,4195	16,15701	3,077589	0	0,803464	0,17813	58,66595	375,8484
Ea (Evapotranspirasi aktual)													
Ea = Eto - ΔE	mm/bh	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
ΔE (Evapotranspirasi Terbatas)													
ΔE = Eto (m/20) (18-n)		-6,85364	1,483515	1,296547	3,016666	12,55903	14,81336	18,19589	16,58966	15,88547	16,76725	10,02445	1,823825
Exposed Surface (m)	%	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653
Jumlah Hari Hujan (n)	hari	22,0000	17,0000	17,0000	15,0000	5,0000	2,0000	1,0000	1,0000	0,0000	0,0000	7,0000	16,0000
Eto (Evapotranspirasi potensial)	mm/bh	207,3092	179,0937	156,872	121,6643	116,988	112,0206	129,5035	111,5122	106,7787	112,7059	110,2618	110,3342
SS (Soil Storage) = SMI-SMI-I	mm/bh	0	0	0	0	-7,48188	-40,8484	0	0	0	0	0	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	40,84843	0	0	0	0	0	0	48,33031
SMI-I (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	40,84843	0	0	0	0	0	0
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	40,84843	0	0	0	0	0	0
I (Infiltrasi) = WS . (WIC atau DIC)		235,2534	177,4377	85,93413	106,8051	0	0	0	0	0	0	0	152,5643
WIC (Koefisien infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
DIC (Koefisien infiltrasi musim kemarau)					0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	
<b>BSF (Aliran dasar)</b>													
BSF = I - ΔV		66,14723	76,72426	80,8084	81,90799	79,75541	73,73271	68,1648	63,01736	58,25863	53,85924	49,79208	51,79247
I (Infiltrasi)	mm/bh	235,2534	177,4377	85,93413	106,8051	0	0	0	0	0	0	0	152,5643
ΔV (perubahan volume tanah)													
ΔV = GWS - IGWS	mm	169,1061	100,7034	3,125726	24,89716	-79,7554	-73,7327	-68,1648	-63,0174	-58,2586	-53,8592	-49,7921	100,7718
GWS (Ground Water Storage)													
GWS = 0.5 . (1+k) . k . IGWS	mm	927,4314	1028,135	1031,261	1056,158	976,4023	902,6696	834,5048	771,4875	713,2288	659,3696	609,5775	710,3493
k (Koefisien resesi aliran tanah)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
IGWS (Initial Ground Water Storage)	mm	758,3253	927,4314	1028,135	1031,261	1056,158	976,4023	902,6696	834,5048	771,4875	713,2288	659,3696	609,5775
<b>SRO (Strom Run Off)</b>													
SRO = I + BSF	mm/bh	22,42141	20,18934	15,04472	14,65407	5,70977	0,807851	0,153879	0	0,040173	0,008907	2,933297	18,79242
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terukur</b>	m <sup>3</sup> /s	21,41613	117,725	108,529	119,07	62,39032	44,21333	34,09677	32,15161	25,73333	24,59355	47,56667	91,30645
<b>Debit Terhitung</b>	m <sup>3</sup> /s	117,0679	119,3915	83,4496	104,8739	55,4819	49,96712	44,31908	40,88005	39,0797	34,94486	35,34365	84,44847
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	60,73268											
<b>Debit Terukur - Qterhitung rata-rata<sup>2</sup></b>		1545,791	3248,124	2284,491	3403,242	2,747767	272,8889	709,4717	816,8776	1224,955	1306,037	173,344	934,7553
<b>D<sup>2</sup> = Σ (Qterukur - Qterhitung)<sup>2</sup></b>		9149,256	2,777374	628,978	201,5381	47,72626	33,10603	104,4955	76,18565	176,1256	107,1496	149,4022	47,03186

### Lampiran B.3. Perhitungan Debit DAS PDA Kalibawang tahun 2003

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro - A	m <sup>3</sup> /s	91,57444	145,5354	107,4447	58,10805	53,37484	47,52668	42,14504	38,96247	37,4015	37,43779	74,33897	108,5504
Luas DAS (A)	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bih	141,1637	202,6347	165,6279	86,68513	82,27831	70,89993	64,96737	60,06138	55,79527	57,71106	110,8983	167,3324
<b>DRO (Direct runoff)</b>													
DRO = WS - I		63,90535	104,5796	62,8626	0	0	0	0	0	0	0	43,53403	85,9782
WS (Water Surplus)		227,5069	372,3096	223,7947	0	0	0	0	0	0	0	154,9838	306,0876
WS = (P-Ea)-SS		227,5069	372,3096	223,7947	-37,1526	2,379042	-114,567	-146,066	-133,967	-121,378	3,465316	199,8488	306,0876
P (Hujan)	mm/bih	348,788	529,3487	407,9689	89,23552	125,2805	12,51673	0	0	5,388223	127,5642	313,9952	421,4475
Ea (Evapotranspirasi aktual)													
Ea = Eto - ΔE	mm/bih	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
ΔE (Evapotranspirasi Terbatas)													
ΔE = Eto (m/20) / (18-n)		6,868187	-2,91569	1,915762	11,22732	14,11412	15,60882	17,03239	19,59129	16,61723	8,921591	3,211219	1,144487
Exposed Surface (m)	%	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653
Jumlah Hari Hujan (n)	hari	13,0000	21,0000	16,0000	8,0000	5,0000	1,0000	0,0000	0,0000	2,0000	10,0000	15,0000	17,0000
Eto (Evapotranspirasi potensial)	mm/bih	166,1993	117,5919	115,8961	135,8417	131,3614	111,0909	114,4881	131,6884	125,6596	134,9303	129,5107	138,4739
SS (Soil Storage) = SMI-SMI-I	mm/bih	0	0	-37,1526	2,379042	-13,5567	0	0	0	0	0	3,465316	44,86499
SMI (Soil Moisture bulan ini)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-I (Soil Moisture bulan lalu)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	163,6016	267,73	160,9321	0	0	0	0	0	0	0	3,465316	48,33031
I (Infiltrasi) = WS - (WIC atau DIC)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106	0,719106
WIC (Koefisien Infiltrasi musim kemarau)													
DIC (Koefisien Infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = I - ΔV	mm/bih	59,81896	71,58768	82,3669	82,22336	76,01429	70,27409	64,96737	60,06138	55,52586	51,33284	51,66451	60,28187
I (Infiltrasi)	mm/bih	163,6016	267,73	160,9321	0	0	0	0	0	0	0	111,4498	220,1094
ΔV (perubahan volume tanah)	mm	103,7826	196,1424	78,56516	-82,2234	-76,0143	-70,2741	-64,9674	-60,0614	-55,5259	-51,3328	59,78526	159,8275
GWS (Ground Water Storage)	mm	814,1319	1010,274	1088,839	1006,616	930,6018	860,3277	795,3603	735,289	679,7731	628,4403	688,2255	848,063
k (Koefisien resesi aliran tanah)	mm	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
IGWS (Initial Ground Water Storage)	mm	710,3493	814,1319	1010,274	1088,839	1006,616	930,6018	860,3277	795,3603	735,289	679,7731	628,4403	688,2255
<b>SRO (Strom Run Off)</b>	mm/bih	17,4394	26,46743	20,39844	4,461776	6,264023	0,625836	0	0	0,269411	6,378211	15,69976	21,07237
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terukur</b>	m <sup>3</sup> /s	111,029	195,2857	156,729	41,76	27,68065	23,46667	24,8	77,29359	16,95333	25,05161	57,27667	93,26452
<b>Debit Terhitung</b>	m <sup>3</sup> /s	70,88257											
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	1611,739	15476,14	7369,615	848,1239	1866,406	2248,268	2123,603	41,10122	2908,362	2100,476	185,1205	500,9516
D <sup>2</sup> = Σ (Qterukur - Qterhitung rata-rata) <sup>2</sup>		378,481	2475,092	2428,949	267,2587	660,1917	578,8842	300,8505	1469,375	418,1277	153,4175	291,1223	233,6579
D <sup>2</sup> = Σ (Qterukur - Qterhitung) <sup>2</sup>													



### Lampiran B.4. Perhitungan Debit DAS PDA Kalibawang tahun 2004

Uraian	Satuan	JAN 31	FEB 28	MARET 31	APRIL 30	MEI 31	JUNI 30	JULI 31	AGUST 31	SEPT 30	OKTR 31	NOV 30	DES 31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	114,9585	95,73946	81,35438	53,8887	49,37214	44,69149	40,56333	36,37526	34,77158	31,32028	42,1627	94,1546
Luas DAS (A)	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bh	177,2106	133,3018	125,4093	80,39074	76,10807	66,67041	62,52913	56,07313	51,87197	48,28079	62,89798	145,1411
<b>DRO (Direct runoff)</b>													
DRO = WS - i - ΔV		84,02694	39,70809	31,09035	0	0	0	0	0	0	0	8,299744	76,07629
WS (Water Surplus)		299,141	141,3632	110,6835	0	0	0	0	0	0	0	29,54759	270,8362
(P-Ea)		299,141	141,3632	110,6835	-50,0158	-102,558	-131,171	-123,517	-114,578	-114,578	-114,578	77,8779	270,8362
P (Hujan)	mm/bh	420,4221	298,4023	294,8577	76,3724	106,3655	40,53979	2,795899	3,248359	9,521395	192,0243	386,1961	
Ea (Evapotranspirasi aktual)		121,2811	157,0991	184,1742	126,3882	127,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
Ea (Evapotranspirasi Terbatas)		-3,46757	0	-13,4023	34,90589	34,11516	36,71244	33,00746	36,23894	43,51135	29,52276	10,0926	-3,34655
AE = Eto (m/20)/(18-n)		0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653
Exposed Surface (m)	%	19,0000	18,0000	22,0000	7,0000	8,0000	3,0000	3,0000	1,0000	1,0000	6,0000	15,0000	19,0000
Jumlah Hari Hujan (n)	hari	419,5493	386,2479	405,3943	383,9398	412,7666	296,1278	266,2428	257,9192	309,6783	297,6685	407,0416	404,9063
Eto (Evapotranspirasi potensial)	mm/bh	0	0	0	-48,33031	0	0	0	0	0	0	48,33031	0
SS (Soil Storage) = SMI-SMI-1	mm/bh	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	215,1141	101,6551	79,59318								21,24785	194,7599
i (Infiltrasi) = WS . (WIC atau DIC)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106	0,719106
WIC (Koefisien infiltrasi musim hujan)													
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		72,16258	78,67961	79,57605	76,57212	70,7898	65,44413	60,50214	55,93344	51,70955	47,80472	44,99703	49,75497
i (infiltrasi)	mm/bh	215,1141	101,6551	79,59318	0	0	0	0	0	0	0	21,24785	194,7599
ΔV (perubahan volume tanah)	mm	142,9515	22,98151	0,017131	-76,5721	-70,7898	-65,4441	-60,5021	-55,9333	-51,7096	-47,8047	-23,7492	145,005
GWS (Ground Water Storage)	mm	991,0045	1013,986	1014,003	937,431	866,6412	801,1971	740,695	684,7616	633,0521	585,2474	561,4982	706,5031
GWS = 0.5 . (1+k) . i . k (IGWS)	mm	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
k (Koefisien resesi aliran tanah)	mm	848,053	991,0045	1013,986	1014,003	937,431	866,6412	801,1971	740,695	684,7616	633,0521	585,2474	561,4982
IGWS (Initial Ground Water Storage)													
<b>SRO (Strom Run Off)</b>	mm/bh	21,02111	14,92011	14,74289	3,81862	5,318274	1,26281	2,026989	1,139795	0,162418	0,47607	9,601214	19,3098
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terukur</b>	m <sup>3</sup> /s	113,229	110,8862	159,129	102,2833	58,92258	39,02	35,98387	18,70968	15,91333	15,44516	71,37333	135,6677
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	114,9585	95,73946	81,35438	53,8887	49,37214	44,69149	40,56333	36,37526	34,77158	31,32028	42,1627	94,1546
<b>Debit = Σ (Qterukur - Qterhitung rata-rata)<sup>2</sup></b>	m <sup>3</sup> /s	1614,6	1431,81	7410,126	854,7666	199,4976	1157,833	1373,671	2952,538	3264,249	3317,965	2,800966	3921,365
<b>D<sup>2</sup> = Σ (Qterukur - Qterhitung)<sup>2</sup></b>		2,990987	229,424	6048,897	2342,941	91,2109	32,16577	20,97145	312,0727	355,6334	252,0193	853,2612	1723,341

Lampiran B.5. Perhitungan Debit DAS PDA Kalibawang tahun 2005

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	82,88992	103,8194	60,39288	80,05631	44,92665	43,15738	36,7435	32,99074	32,14329	31,39766	31,38752	90,92826
<b>Luas DAS (A)</b>	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bh	127,7764	144,5519	93,09675	119,4274	69,25527	64,38185	56,64079	50,85584	47,95111	48,40008	46,82366	140,1676
<b>DRO (Direct runoff)</b>													
DRO = WS . i		53,63056	60,72256	13,94184	40,93665	0	0	0	0	0	0	0	75,27601
WS (Water Surplus)													
WS = (P-Ea)-SS		190,928	216,176	49,63378	113,9436	0	0	0	0	0	0	0	267,9872
(P-Ea)		190,928	216,176	49,63378	113,9436	-22,0142	-26,6877	-110,837	-131,553	-105,822	-23,3367	20,57692	295,7406
P (Hujan)	mm/bh	312,2091	373,2151	233,808	240,3318	100,8872	100,396	35,22907	2,413655	20,94419	100,7622	134,7233	411,1004
Ea (Evapotranspirasi aktual)													
Ea = Eto - ΔE	mm/bh	121,2811	157,0391	184,1742	126,3882	127,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
ΔE (Evapotranspirasi Terbatas)													
ΔE = Eto (m/20) . (18-n)		1,092659	0,977365	2,092605	4,309074	17,52129	10,8799	12,38936	14,29653	11,74118	7,197829	7,945751	-5,33938
Exposed Surface (m)	%	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653
Jumlah Hari Hujan (n)	hari	17,0000	17,0000	16,0000	14,0000	3,0000	6,0000	4,0000	1,0000	4,0000	10,0000	11,0000	23,0000
Eto (Evapotranspirasi potensial)	mm/bh	132,2032	118,2534	126,5944	130,341	141,3292	109,6985	107,0725	101,7511	101,4707	108,8601	137,3391	129,2046
SS (Soil Storage) = SM1-SM1-1	mm/bh	0	0	0	-22,0142	-26,3161	0	0	0	0	0	20,57692	27,75339
SM1 (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	26,31613	0	0	0	0	0	20,57692	48,33031
SM1-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	26,31613	0	0	0	0	0	20,57692
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	26,31613	0	0	0	0	0	20,57692
i (Infiltrasi) = WS . (WIC atau DIC)		137,2975	155,4534	35,69195	73,00895	0	0	0	0	0	0	0	192,7112
WIC (Koefisien Infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Alliran dasar)</b>													
BSF = i - ΔV		58,53534	65,16856	67,46452	66,47414	64,21091	59,36205	54,87934	50,73514	46,9039	43,36196	40,0875	44,33656
i (infiltrasi)	mm/bh	137,2975	155,4534	35,69195	73,00895	0	0	0	0	0	0	0	192,7112
ΔV (perubahan volume tanah)													
ΔV = GWS - IGWS	mm	78,76213	90,28488	-31,7726	6,522809	-64,2109	-59,362	-54,8793	-50,7351	-46,9039	-43,362	-40,0875	148,3746
GWS (Ground Water Storage)													
GWS = 0,5 . (1+k) . i . k (IGWS)	mm	785,2653	875,5501	843,7776	850,3104	786,0995	726,7374	671,8581	621,1229	574,719	530,8571	480,7686	639,1442
k (Koefisien resesi aliran tanah)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
IGWS (Initial Ground Water Storage)	mm	706,5031	785,7653	875,5501	843,7776	850,3104	786,0995	726,7374	671,8581	621,1229	574,719	530,8571	480,7686
<b>SRO (Strom Run Off)</b>													
SRO = i - BSF	mm/bh	15,61046	18,66075	11,6904	12,01659	5,044362	5,019802	1,761454	0,120693	1,047209	5,038112	6,736165	20,55502
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terukur</b>	m <sup>3</sup> /s	111,029	195,2857	156,729	41,76	27,68065	23,46667	24,64516	18,04639	16,95333	25,05161	57,27667	93,26452
<b>Debit Terhitung</b>	m <sup>3</sup> /s	82,88992	103,8194	60,39288	80,05631	44,92665	43,15738	36,7435	32,99074	32,14329	31,39766	31,38752	90,92826
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	65,93256											
Dt <sup>2</sup> = Σ (Qterukur - Qterhitung.rata2) <sup>2</sup>		2033,691											
D <sup>2</sup> = Σ (Qterukur - Qterhitung) <sup>2</sup>		791,8096	8366,082	9280,654	1466,607	297,4248	387,7243	146,3699	232,2739	230,7347	40,2723	670,2477	5,458105

## Lampiran B.6. Perhitungan Debit DAS PDA Kalibawang tahun 2006

Uraian	Satuan	JAN 31	FEB 28	MARET 31	APRIL 30	MEI 31	JUNI 30	JULI 31	AGUST 31	SEPT 30	OKTBR 31	NOV 30	DES 31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro. A	m <sup>3</sup> /s	125,6257	100,5278	71,49282	106,0169	83,17294	48,83175	43,6842	40,2694	38,63134	34,60793	35,90351	104,0495
Luas DAS (A)	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bh	193,6544	139,9688	110,2075	158,1552	128,2126	72,84682	67,34001	62,07604	57,62994	53,34877	53,56058	160,3942
<b>DRO (Direct runoff)</b>													
DRO = WS - i - ΔV													
WS (Water Surplus)		109,3037	52,69138	24,43692	68,55714	40,84674	0	0	0	0	0	0	83,86187
WS = (P-Ea)-SS													
(P-Ea)		389,1279	187,5845	86,9969	190,8228	113,6933	0	0	0	0	0	0	298,5534
P (Hujan)		389,1279	187,5845	86,9969	190,8228	113,6933	-121,799	-141,296	-133,134	-121,164	-117,506	-23,2424	346,8837
Ea (Evapotranspirasi aktual)		510,4091	344,6236	271,1711	317,211	236,5947	5,285153	4,770029	0,833439	5,601597	6,59326	90,90398	462,2435
Ea = Eto - ΔE													
Ea = Eto - ΔE		121,2811	157,0391	184,1742	126,3882	127,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
AE (Evapotranspirasi Terbatas)													
AE = Eto (m/20) / (18-n)		-3,49421	0	1,850619	0,879526	6,421849	15,27675	15,08172	14,87017	14,06082	15,39907	12,01547	-1,32181
Exposed Surface (m)	%	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653
Jumlah Hari Hujan (n)	hari	21,0000	18,0000	16,0000	17,0000	11,0000	1,0000	1,0000	1,0000	2,0000	2,0000	6,0000	19,0000
Eto (Evapotranspirasi potensial)	mm/bh	140,9239	100,727	111,9551	106,4158	110,999	108,7275	107,3394	105,8337	106,328	116,4479	121,1481	159,9282
SS (Soil Storage) = SMI-SMI-I	mm/bh	0	0	0	0	-48,3303	0	0	0	0	0	0	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-I (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
i (Infiltrasi) = WS - (WIC atau DIC)		279,8242	134,8931	62,55988	122,2657	72,84659	0	0	0	0	0	0	214,6915
WIC (Koefisien infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		58,83018	70,04636	72,21204	73,7375	75,53616	72,58256	67,10151	62,03436	57,34986	53,0191	49,01538	53,42018
i (infiltrasi)	mm/bh	279,8242	134,8931	62,55988	122,2657	72,84659	0	0	0	0	0	0	214,6915
ΔV (perubahan volume tanah)													
ΔV = GWS - IGWS	mm	220,994	64,84687	-9,65206	48,52818	-2,68957	-72,58256	-67,10151	-62,0344	-57,3499	-53,0191	-49,0154	161,2713
GWS (Ground Water Storage)													
GWS = 0.5 (1+k).i.k (IGWS)	mm	860,1382	974,9851	915,333	963,8612	961,1716	888,589	821,4875	759,4532	702,1033	649,0842	600,0688	761,3401
k (Koefisien resesi aliran tanah)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
IGWS (Initial Ground Water Storage)	mm	639,1442	860,1382	974,9851	915,333	963,8612	961,1716	888,589	821,4875	759,4532	702,1033	649,0842	600,0688
<b>SRO (Strom Run Off)</b>													
SRO = Tro + BSF	mm/bh	25,2045	17,23118	13,55855	15,86055	11,82974	0,264258	0,238501	0,041672	0,28008	0,329663	4,545199	23,11218
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terukur</b>	m <sup>3</sup> /s	160,2161	139,525	86,34516	134,06	57,73871	25,68	17,19355	15,37742	13,14667	11,70968	17,37333	79,30645
<b>Debit Terhitung</b>	m <sup>3</sup> /s	125,6257	100,5278	71,49282	106,0169	83,17294	48,83175	43,6842	40,2694	38,63134	34,60793	35,90351	104,0495
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	9423,903	8834,769	538,5101	5029,74	29,16682	1403,202	2111,016	2281,201	2499,268	2645,01	2094,527	261,3755
D <sup>2</sup> = Σ (Qterukur - Qterhitung rata-rata) <sup>2</sup>		1196,497	1520,781	220,592	786,4151	646,8999	536,0034	701,7549	619,6109	649,4688	524,3299	343,3676	612,2182
D <sup>2</sup> = Σ (Qterukur - Qterhitung) <sup>2</sup>													

Lampiran B.7. Perhitungan Debit DAS PDA Kalibawang tahun 2007

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	44,38635	87,15968	68,83582	98,16645	42,95603	41,36228	34,49524	31,26286	29,85936	28,43146	36,34694	142,9374
<b>Luas DAS (A)</b>	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507
<b>Total Limpasan (Tro)</b>													
Tro = DRO + BSF + SRO	mm/bh	68,42238	121,3559	106,1117	146,4439	66,21752	61,70393	53,17505	48,19228	44,54395	43,82762	54,22208	220,3407
<b>DRO (Direct runoff)</b>													
DRO = WS - i - ΔV		4,033107	49,58976	33,85333	69,55774	0	0	0	0	0	0	6,657722	147,9632
<b>WS (Water Surplus)</b>													
WS = (P-Ea)-SS		11,2258	138,0288	94,25562	193,6079	0	0	0	0	0	0	18,53119	411,8428
<b>P (Hujan)</b>	mm/bh	132,5069	295,0679	278,4298	319,9961	104,9026	106,717	21,27176	0,31988	0,113779	53,05293	181,0079	527,2026
<b>Ea (Evapotranspirasi aktual)</b>													
Ea = Eto - ΔE	mm/bh	121,2811	157,0391	184,1742	126,3882	127,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
<b>AE (Evapotranspirasi Terbatas)</b>													
AE = Eto (m/20) (18-n)		8,006677	-1,5536	0	-0,89266	11,40697	10,43277	14,40683	15,03997	14,86202	12,78832	4,283096	-3,41763
<b>Exposed Surface (m)</b>	%	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653	0,1653
<b>Jumlah Hari Hujan (n)</b>	hari	9,0000	20,0000	18,0000	19,0000	6,0000	6,0000	1,0000	0,0000	0,0000	0,0000	13,0000	22,0000
<b>Eto (Evapotranspirasi potensial)</b>	mm/bh	107,6383	93,98682	105,916	108,0045	115,9128	105,1903	102,536	101,0955	99,89928	103,1524	103,6442	103,3766
<b>SS (Soil Storage) = SWI-SWI-I</b>	mm/bh	0	0	-17,9988	-20,3668	-9,96467	0	0	0	0	0	48,33031	0
<b>SWI (Soil Moisture bulan ini)</b>	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
<b>SWI-I (Soil Moisture bulan lalu)</b>	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
<b>SMC (Soil Moisture Capacity)</b>	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
<b>ISM (Initial Soil Moisture)</b>	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
<b>i (Infiltrasi) = WS - (WIC atau DIC)</b>		7,192694	88,43901	60,39229	124,0502	0	0	0	0	0	0	11,87347	263,8795
<b>WIC (Koefisien infiltrasi musim hujan)</b>		0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729
<b>DIC (Koefisien infiltrasi musim kemarau)</b>													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV	mm/bh	57,76393	57,0127	58,32688	60,8864	60,97239	56,36808	52,11146	48,17628	44,53826	41,17497	38,51397	46,0173
<b>I (infiltrasi)</b>	mm/bh	7,192694	88,43901	60,39229	124,0502	0	0	0	0	0	0	11,87347	263,8795
<b>ΔV (perubahan volume tanah)</b>	mm	-50,5712	31,42631	2,065409	63,16376	-60,9724	-56,3681	-52,1115	-48,1763	-44,5383	-41,175	-26,6405	217,8622
<b>GWS (Ground Water Storage)</b>	mm	710,7689	742,1952	744,2606	807,4244	746,452	690,0839	637,9724	589,7962	545,2579	504,0829	477,4424	695,3046
<b>k (koefisien resesi aliran tanah)</b>		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
<b>IGWS (Initial Ground Water Storage)</b>	mm	761,3401	710,7689	742,1952	744,2606	807,4244	746,452	690,0839	637,9724	589,7962	545,2579	504,0829	477,4424
<b>SRO (Strom Run Off)</b>	mm/bh	6,625346	14,75339	13,92149	15,9998	5,245129	5,335849	1,063588	0,015994	0,005689	2,652646	9,050394	26,36013
<b>Percentage factor (PF)</b>		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terukur</b>	m <sup>3</sup> /s	58,3642	124,8284	104,9668	144,6149	57,42042	45,24758	29,10255	16,28502	12,15308	13,17761	42,01252	121,7778
<b>Debit Terhitung</b>	m <sup>3</sup> /s	44,38635	87,15968	68,83582	98,16645	42,95603	41,36228	34,49524	31,26286	29,85936	28,43146	36,34694	142,9374
<b>Debit Terukur rata-rata</b>	m <sup>3</sup> /s	64,16257											
<b>Debit Terukur - Oterhitung rata-rata<sup>2</sup></b>		33,62108											
<b>D<sup>2</sup> = Σ (Qterukur - Qterhitung)<sup>2</sup></b>		195,3804	1418,934	1305,445	2157,462	209,2185	15,09554	29,0811	224,3357	313,5123	232,6797	32,09876	447,7303

## Lampiran B.8. Perhitungan Debit DAS PDA Kalibawang tahun 2008

Uraian	Satuan	JAN		FEB		MARET		APRIL		MEI		JUNI		JULI		AGUST		SEPT		OKTBR		NOV		DES		
		31	31	28	31	31	30	31	30	31	31	30	31	30	31	31	30	31	30	31	30	31	30	31		
<b>Debit yang tersedia (Qn)</b>																										
Qn = Tro - A	m <sup>3</sup> /s	64,29356	62,94585	67,75624	81,53689	49,93538	37,32208	33,04292	30,6308	29,27546	46,93367	91,90233	60,57574													
Luas DAS (A)	km <sup>2</sup>	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	1737,507	
Total Limpasan (Tro)																										
Tro = DRO + BSF + SRO	mm/bh	99,10972	87,64199	104,4475	121,6391	76,97631	55,67679	50,93628	47,21796	43,67291	72,34913	137,0992	93,37864													
<b>DRO (Direct runoff)</b>																										
DRO = WS - i - ΔV																										
WS (Water Surplus)																										
WS = (P-Ea)-SS																										
(P-Ea)																										
P (Hujan)	mm/bh	234,5068	227,7925	299,2348	263,3007	152,2248	11,59764	0	2,562237	2,780729	226,6004	370,1544	220,1073													
Ea (Evapotranspirasi aktual)																										
Ea = Eto - ΔE																										
AE (Evapotranspirasi Terbatas)																										
AE = Eto (m/20) / (18-n)																										
Exposed Surface (m)	%	1,803533	0,800307	0	2,639521	8,049242	12,81038	13,83394	13,81677	15,05412	5,315298	0	2,401457													
Jumlah Hari Hujan (n)	hari	16,0000	17,0000	18,0000	15,0000	9,0000	2,0000	0,0000	0,0000	1,0000	12,0000	18,0000	15,0000													
Eto (Evapotranspirasi potensial)	mm/bh	109,1067	96,83091	107,6286	106,4538	108,2106	96,87216	92,9888	98,33651	101,1905	107,1849	101,4632	96,85248													
SS (Soil Storage) = SMI-SMI-I	mm/bh	0	0	0	0	0	-48,3303	0	0	0	0	0	0													
SMI (Soil Moisture bulan ini)																										
SMI-I (Soil Moisture bulan lalu)																										
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031													
ISM (Initial Soil Moisture)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031													
i (Infiltrasi) = WS - (WIC atau DIC)																										
WIC (Koefisien Infiltrasi musim hujan)																										
DIC (Koefisien Infiltrasi musim kemarau)																										
<b>BSF (Aliran dasar)</b>																										
BSF = i - ΔV																										
i (Infiltrasi)	mm/bh	55,57995	56,37816	57,16592	59,38534	58,83004	55,09691	50,93628	47,08984	43,53387	41,55695	46,68032	52,95033													
ΔV (perubahan volume tanah)																										
ΔV = GWS - IGWS																										
GWS (Ground Water Storage)	mm	25,84129	-5,49899	25,57484	28,43845	-40,0417	-55,0969	-50,9363	-47,0898	-43,5339	-6,84787	137,4166	22,37418													
IGWS = 0.5 (1+k) i.k (IGWS)	mm	721,1459	715,6469	741,2218	769,6602	729,6185	674,5216	623,5853	576,4955	532,9616	576,1137	663,5303	685,9045													
k (koefisien resesi aliran tanah)																										
IGWS (Initial Ground Water Storage)	mm	695,3046	721,1459	715,6469	741,2218	769,6602	729,6185	674,5216	623,5853	576,4955	532,9616	576,1137	663,5303													
<b>SRO (Strom Run Off)</b>																										
Percentage factor (PF)	mm/bh	11,72534	11,38962	14,96174	13,16503	7,611238	0,579882	0	0,128112	0,139036	11,33002	18,50772	11,00537													
<b>Debit Terukur</b>	m <sup>3</sup> /s	63,38853	164,7904	146,3141	105,6744	48,41866	24,03182	15,04144	14,58424	12,86407	38,42404	116,6116	67,23871													
<b>Debit Terhitung rata-rata</b>	m <sup>3</sup> /s	64,29356	62,94585	67,75624	81,53689	49,93538	37,32208	33,04292	30,6308	29,27546	46,93367	91,90233	60,57574													
Dt <sup>2</sup> = Σ (Qterukur - Qterhitung rata-rata) <sup>2</sup>		22,34108	9346,107	6115,07	1410,695	387,9525	1943,342	2816,82	2865,561	3052,684	881,5635	2351,905	0,768176													
D <sup>2</sup> = Σ (Qterukur - Qterhitung) <sup>2</sup>		0,819066	10377,32	6171,335	582,5315	3,300432	176,631	324,0533	257,4923	269,3338	72,41397	610,5486	44,39515													

## C. Perhitungan Debit DAS Curuk Metode Mock

### Lampiran C.1. Perhitungan Debit DAS Curuk tahun 2001

Uraian	Satuan	JAN 31	FEB 28	MARET 31	APRIL 30	MEI 31	JUNI 30	JULI 31	AGUST 31	SEPT 30	OKTBR 31	NOV 30	DES 31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,018185	0,030105	0,019542	0,047927	0,017535	0,012299	0,01087	0,009042	0,009228	0,058894	0,074734	0,032735
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bln	35,04143	52,39678	37,65665	89,37509	33,78909	22,93607	20,94662	17,42342	17,2077	113,4871	139,3638	63,07927
Tro = DRO + BSF + SRO													
<b>DRO (Direct runoff)</b>													
DRO = WS - i		15,30552	27,23575	11,21492	56,26612	5,24485	0	0	0	0	74,57421	86,47427	15,34809
WS (Water Surplus)		54,48857	96,96092	39,9258	156,6118	14,59858	0	0	0	0	207,5708	307,8536	54,64012
WS = (P-Ea)-SS		92,81888	96,96092	39,9258	156,6118	14,59858	-76,0838	-104,066	-133,967	-104,766	255,9011	307,8536	54,64012
(P-Ea)		214,10	254,00	224,10	283,00	137,50	51,00	42,00	0,00	22,00	380,00	422,00	170,00
P (Hujan)	mm/bln	121,2811	157,0891	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
Ea (Evapotranspirasi aktual)	mm/bln												
Ea = Eto - ΔE													
AE (Evapotranspirasi Terbatas)		0	0	0	0	0	0	0	0	0	0	0	0
AE = Eto (m/20) (1,8-n)													
Exposed Surface (m)	%	0	0	0	0	0	0	0	0	0	0	0	0
Jumlah Hari Hujan (n)	hari	20,0000	15,0000	8,0000	14,0000	5,0000	4,0000	2,0000	0,0000	2,0000	16,0000	19,0000	12,0000
Eto (Evapotranspirasi potensial)	mm/bln	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
SS (Soil Storage) = SMI-SMI-1	mm/bln	38,33031	0	0	0	-48,3303	0	0	0	0	48,33031	0	0
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	0	0	0	0	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)		10	48,33031	48,33031	48,33031	48,33031	48,33031	0	0	0	0	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	10	48,33031	48,33031	48,33031	48,33031	48,33031	0	0	0	0	48,33031	48,33031
i (Infiltrasi) = WS . (WIC atau DIC)		39,18305	69,72517	28,71088	100,3457	9,353732	0	0	0	0	132,9966	221,3794	39,29203
WIC (Koefisien infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		9,030915	12,46103	15,23673	18,95896	21,66924	20,38607	18,84662	17,42342	16,1077	19,91293	31,7895	39,23119
i (Infiltrasi)	mm/bln	39,18305	69,72517	28,71088	100,3457	9,353732	0	0	0	0	132,9966	221,3794	39,29203
ΔV (perubahan volume tanah)													
ΔV = GWS - IGWS	mm	30,15214	57,26414	13,47416	81,38675	-12,3155	-20,3861	-18,8466	-17,4234	-16,1077	113,0837	189,5899	0,060848
GWS (Ground Water Storage)													
IGWS = 0,5 . (1+k) . Hk (IGWS)	mm	130,1521	187,4163	200,8904	282,2772	269,9617	249,5756	230,729	213,3056	197,1979	310,2815	499,9322	499,9322
k (koefisien resesi aliran tanah)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
IGWS (Initial Ground Water Storage)	mm	100	130,1521	187,4163	200,8904	282,2772	269,9617	249,5756	230,729	213,3056	197,1979	310,2815	499,9322
<b>SRO (Strom Run Off) = P . PF</b>	mm/bln	10,705	12,7	11,205	14,15	6,875	2,55	2,1	0	1,1	19	21,1	8,5
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,018185	0,030105	0,019542	0,047927	0,017535	0,012299	0,01087	0,009042	0,009228	0,058894	0,074734	0,032735

Lampiran C.2. Perhitungan Debit DAS Curuk tahun 2002

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,064865	0,091226	0,041753	0,058369	0,031252	0,028095	0,025136	0,023238	0,022199	0,019861	0,02085	0,069868
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)													
Tro = DRO + BSF + SRO	mm/bin	124,992	158,7773	80,45736	108,8469	60,22196	52,3924	48,436	44,77837	41,39695	38,27087	38,88086	134,6335
<b>DRO (Direct runoff)</b>													
DRO = WS - I		63,68399	81,72921	10,06326	38,66183	0	0	0	0	0	0	0	73,54083
WS (Water Surplus)													
WS = (P-Ea)-SS		226,7189	290,9609	35,8258	107,6118	0	0	0	0	0	0	0	261,8098
(P-Ea)		226,7189	290,9609	35,8258	107,6118	-51,9014	-127,084	-146,066	-133,967	-126,766	-124,099	-44,1464	310,1401
P (Hujan)	mm/bin	348,00	448,00	220,00	234,00	71,00	0,00	0,00	0,00	0,00	0,00	70,00	425,50
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
AE (Evapotranspirasi Terbatas)													
AE = Eto (m/20) (18-n)	%	0	0	0	0	0	0	0	0	0	0	0	0
Exposed Surface (m)	hari	20,0000	16,0000	18,0000	14,0000	3,0000	0,0000	0,0000	0,0000	0,0000	0,0000	6,0000	21,0000
Jumlah Hari Hujan (n)		207,3092	179,4937	156,872	121,6643	116,888	112,0206	129,5035	111,5122	106,7787	112,7059	110,2618	110,3342
Eto (Evapotranspirasi potensial)	mm/bin	0	0	0	0	-48,3303	0	0	0	0	0	0	48,33031
SS (Soil Storage) = SMI-SMI-1	mm/bin	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	163,0349	209,2317	25,76255	68,95	0	0	0	0	0	0	0	0
i (Infiltrasi) = WS . (WIC atau DIC)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
WIC (Koefisien infiltrasi musim hujan)													
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		43,90798	54,64808	59,39411	58,48507	56,67196	52,3924	48,436	44,77837	41,39695	38,27087	35,38086	39,81762
i (Infiltrasi)	mm/bin	163,0349	209,2317	25,76255	68,95	0	0	0	0	0	0	0	188,269
ΔV (perubahan volume tanah)	mm	119,1269	154,5836	-33,6316	10,46493	-56,672	-52,3924	-48,436	-44,7784	-41,3969	-38,2709	-35,3809	148,4514
GWS (Ground Water Storage)	mm	619,0591	773,6428	740,0112	750,4761	693,8042	641,4118	592,9758	548,1974	506,8004	468,5296	433,1487	581,6001
GWS = 0,5 . (1+k).i.k.(IGWS)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
k (koefisien resesi aliran tanah)		499,9322	619,0591	773,6428	740,0112	750,4761	693,8042	641,4118	592,9758	548,1974	506,8004	468,5296	433,1487
IGWS (Initial Ground Water Storage)	mm	17,4	22,4	11	11,7	3,55	0	0	0	0	0	3,5	21,275
SRO (Strom Run Off) = P . PF	mm/bin	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Percentage factor (PF)													
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,064865	0,091226	0,041753	0,058369	0,031252	0,028095	0,025136	0,023238	0,022199	0,019861	0,02085	0,069868

### Lampiran C.3. Perhitungan Debit DAS Curuk tahun 2003

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,078285	0,116313	0,120433	0,048767	0,043532	0,041213	0,036152	0,033422	0,031928	0,030381	0,050561	0,058719
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bin	150,8516	202,4411	232,0695	90,94167	83,88379	76,85368	69,66337	64,40276	59,53941	58,54331	94,28641	113,1493
Tro = DRO + BSF + SRO													
<b>DRO (Direct runoff)</b>													
DRO = WS - i		79,13317	109,2568	118,7693	0	0	0	0	0	0	0	27,67462	43,29705
WS (Water Surplus)													
WS = (P-Ea).SS		281,7189	388,9609	422,8258	0	0	0	0	0	0	0	98,52331	154,1401
(P-Ea)		281,7189	388,9609	422,8258	-70,8882	-75,4014	-97,0838	-146,066	-133,967	-126,766	-54,0989	146,8536	154,1401
P (Hujan)	mm/bin	403,00	546,00	607,00	55,50	47,50	30,00	0,00	0,00	0,00	70,00	261,00	269,50
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
Ea = Eto - ΔE													
ΔE (Evapotranspirasi Terbatas)		0	0	0	0	0	0	0	0	0	0	0	0
ΔE = Eto (m/20) (18-n)	%	0	0	0	0	0	0	0	0	0	0	0	0
Exposed Surface (m)	hari	15,0000	22,0000	21,0000	10,0000	6,0000	1,0000	0,0000	0,0000	0,0000	0,0000	17,0000	18,0000
Jumlah Hari Hujan (n)		166,1993	117,5919	115,9961	135,8417	131,3614	111,0909	114,4881	131,6884	125,6596	134,9303	129,5107	138,4739
Eto (Evapotranspirasi potensial)	mm/bin	0	0	0	-48,3303	0	0	0	0	0	0	48,33031	0
SS (Soil Storage) = SMI-SMI-1	mm/bin	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
i (Infiltrasi) = WS . (WIC atau DIC)		202,5857	279,7041	304,0565	0	0	0	0	0	0	0	70,8487	110,8431
WIC (Koefisien Infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106	0,719106
DIC (Koefisien Infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		51,56844	65,88424	82,95026	88,16667	81,50879	75,35368	69,66337	64,40276	59,53941	55,04331	53,56179	56,37729
i (Infiltrasi)	mm/bin	202,5857	279,7041	304,0565	0	0	0	0	0	0	0	70,8487	110,8431
ΔV (perubahan volume tanah)	mm	151,0173	213,8199	221,1063	-88,1667	-81,5088	-75,3537	-69,6634	-64,4028	-59,5394	-55,0433	-17,28691	54,46578
GWS (Ground Water Storage)	mm	732,6174	946,4372	1167,543	1079,377	997,868	922,5143	852,851	788,4482	728,9088	673,8655	691,1524	745,6182
GWS = 0.5 . (1+K) . h . k (IGWS)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
k (Koefisien resepsi aliran tanah)	mm	581,6001	732,6174	946,4372	1167,543	1079,377	997,868	922,5143	852,851	788,4482	728,9088	673,8655	691,1524
IGWS (Initial Ground Water Storage)	mm	20,15	27,3	30,35	2,775	2,375	1,5	0	0	0	3,5	13,05	13,475
SRO (Strom Run Off) = P . PF	mm/bin	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Percentage factor (PF)													
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,078285	0,116313	0,120433	0,048767	0,043532	0,041213	0,036152	0,033422	0,031928	0,030381	0,050561	0,058719



## Lampiran C.4. Perhitungan Debit DAS Curuk tahun 2004

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,07728	0,061622	0,04586	0,073069	0,040028	0,033787	0,030094	0,026814	0,026206	0,074084	0,089244	0,045717
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bin	148,9156	107,2521	88,36959	136,2585	77,13208	63,00602	57,99071	51,67014	48,86828	142,7569	166,4232	88,09534
<b>DRO (Direct runoff)</b>													
DRO = WS - i		67,89741	27,23575	11,21492	56,26612	5,24485	0	0	0	0	74,57421	86,47427	15,34809
WS (Water Surplus)													
WS = (P-Ea)-SS		241,7189	96,96092	39,9258	156,6118	14,59858	0	0	0	0	207,5708	307,8536	54,64012
(P-Ea)		241,7189	96,96092	39,9258	156,6118	14,59858	-76,0838	-104,066	-133,967	-104,766	255,9011	307,8536	54,64012
P (Hujan)	mm/bin	363,00	254,00	224,00	283,00	137,50	51,00	42,00	0,00	22,00	380,00	422,00	170,00
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
AE (Evapotranspirasi Terbatas)													
AE = Eto (m/20) (18-n)	%	0	0	0	0	0	0	0	0	0	0	0	0
Exposed Surface (m)	hari	23,0000	19,0000	19,0000	6,0000	9,0000	1,0000	1,0000	0,0000	0,0000	3,0000	14,0000	22,0000
Jumlah Hari Hujan (n)	mm/bin	419,5493	386,2479	405,9943	383,9398	412,7666	296,1278	266,2428	257,9192	309,6783	297,6685	407,0416	404,9063
Eto (Evapotranspirasi potensial)	mm/bin	0	0	0	0	0	-48,3303	0	0	0	48,3303	0	0
SS (Soil Storage) = SMI-SMI-1	mm/bin	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	173,8215	69,72517	28,71088	100,3457	9,353732	0	0	0	0	132,9966	221,3794	39,29203
i (Infiltrasi) = WS . (WIC atau DIC)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
WIC (Koefisien infiltrasi musim hujan)													
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		62,86815	67,31635	65,94967	65,84233	65,01223	60,45602	55,89071	51,67014	47,76828	49,18267	58,84895	64,24725
i (Infiltrasi)	mm/bin	173,8215	69,72517	28,71088	100,3457	9,353732	0	0	0	0	132,9966	221,3794	39,29203
ΔV (perubahan volume tanah)	mm	110,9533	2,408817	-37,2388	34,50338	-55,6585	-60,456	-55,8907	-51,6701	-47,7683	83,81391	162,5304	-24,9552
GWS (Ground Water Storage)	mm	856,5715	858,9803	821,7415	856,2449	800,5864	740,1304	684,2397	632,5695	584,8013	668,6152	831,1456	806,1904
GWS = 0,5 . (1+k).i.k.(IGWS)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
k (koefisien resesi aliran tanah)	mm	745,6182	856,5715	858,9803	821,7415	856,2449	800,5864	740,1304	684,2397	632,5695	584,8013	668,6152	831,1456
IGWS (Initial Ground Water Storage)	mm/bin	18,15	12,7	11,205	14,15	6,875	2,55	2,1	0	1,1	19	21,1	8,5
<b>SRO (Strom Run Off) = P . PF</b>		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Percentage factor (PF)													
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,07728	0,061622	0,04586	0,073069	0,040028	0,033787	0,030094	0,026814	0,026206	0,074084	0,089244	0,045717

## Lampiran C.5. Perhitungan Debit DAS Curuk tahun 2005

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,06386	0,044837	0,03536	0,034064	0,026806	0,026331	0,023325	0,021258	0,02085	0,021631	0,0289	0,063225
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bin	123,0558	78,03761	68,13642	63,52258	51,65338	49,10279	44,94676	40,96303	38,88105	41,6818	53,89223	121,8315
Tro = DRO + BSF + SRO													
<b>DRO (Direct runoff)</b>													
DRO = WS - I		44,02141	4,483329	0	0	0	0	0	0	0	0	11,07408	66,04947
WS (Water Surplus)		156,7189	15,96092	0	0	0	0	0	0	0	0	39,42441	235,1401
WS = (P-Ea)-SS		156,7189	15,96092	-30,1742	26,61184	-122,901	-100,084	-130,066	-130,967	-103,766	11,9011	75,85362	235,1401
(P-Ea)		278,00	173,00	154,00	153,00	0,00	27,00	16,00	3,00	23,00	136,00	190,00	350,50
P (Hujan)	mm/bin												
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
Ea = Eto - ΔE													
AE (Evapotranspirasi Terbatas)		0	0	0	0	0	0	0	0	0	0	0	0
AE = Eto (m/20) (18-n)	%												
Exposed Surface (m)	hari	17,0000	14,0000	11,0000	12,0000	0,0000	5,0000	2,0000	2,0000	3,0000	15,0000	13,0000	26,0000
Jumlah Hari Hujan (n)		132,2032	118,2534	126,5944	130,341	141,3292	109,6985	107,0725	101,7511	104,4707	108,8601	137,3391	129,2046
Eto (Evapotranspirasi potensial)	mm/bin	0	0	0	0	0	0	0	0	0	0	0	0
SS (Soil Storage) = SMI-SMI-1	mm/bin	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	0	48,33031	48,33031	18,15611	44,76795	0	0	0	0	0	11,9011	48,33031
i (Infiltrasi) = WS . (WIC atau DIC)		112,6975	11,47759	0	0	0	0	0	0	0	0	0	0
WIC (Koefisien infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106	0,719106
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		65,13436	64,90428	60,43642	55,87258	51,65338	47,75279	44,14676	40,81303	37,73105	34,8818	33,31814	38,25698
i (Infiltrasi)	mm/bin	112,6975	11,47759	0	0	0	0	0	0	0	0	28,35033	169,0906
ΔV (perubahan volume tanah)	mm	47,56311	-53,4267	-60,4364	-55,8726	-51,6534	-47,7528	-44,1468	-40,813	-37,731	-34,8818	-4,96782	130,8337
GWS (Ground Water Storage)	mm	853,7535	800,3268	739,8904	684,0178	632,3644	584,6116	540,4649	499,6518	464,9208	427,039	422,0712	552,9048
GWS = 0.5 . (1+k).i.k.(IGWS)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
k (koefisien resesi aliran tanah)		806,1904	853,7535	800,3268	739,8904	684,0178	632,3644	584,6116	540,4649	499,6518	464,9208	427,039	422,0712
IGWS (Initial Ground Water Storage)	mm												
<b>SRO (Strom Run Off) = P . PF</b>	mm/bin	13,9	8,65	7,7	7,65	0	1,35	0,8	0,15	1,15	6,8	9,5	17,525
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,06386	0,044837	0,03536	0,034064	0,026806	0,026331	0,023325	0,021258	0,02085	0,021631	0,0289	0,063225

Lampiran C.6. Perhitungan Debit DAS Curuk tahun 2006

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,07356	0,054511	0,039922	0,067396	0,034953	0,028939	0,025757	0,022805	0,022375	0,070657	0,085971	0,042788
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bin	141,7476	94,87607	76,92813	125,681	67,35337	53,96575	49,63311	43,94366	41,72527	136,1533	160,3183	82,45141
Tro = DRO + BSF + SRO													
<b>DRO (Direct runoff)</b>													
DRO = WS - i		73,69085	27,23575	11,21492	56,26612	5,24485	0	0	0	0	74,57421	86,47427	15,34809
WS (Water Surplus)													
WS = (P-Ea)-SS		262,3439	96,96092	39,9258	156,6118	14,59858	0	0	0	0	207,5708	307,8536	54,64012
(P-Ea)		262,3439	96,96092	39,9258	156,6118	14,59858	-76,0838	-104,066	-133,967	-104,766	255,9011	307,8536	54,64012
P (Hujan)	mm/bin	383,63	254,00	224,10	283,00	137,50	51,00	42,00	0,00	22,00	380,00	422,00	170,00
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
AE (Evapotranspirasi Terbatas)													
AE = Eto (m/20) (18-n)	%	0	0	0	0	0	0	0	0	0	0	0	0
Exposed Surface (m)	hari	15,0000	20,0000	19,0000	17,0000	14,0000	2,0000	0,0000	0,0000	3,0000	0,0000	0,0000	16,0000
Jumlah Hari Hujan (n)		140,9239	100,727	111,9551	106,4158	110,999	108,7275	107,3394	105,8337	106,328	116,4479	121,1481	159,9282
Eto (Evapotranspirasi potensial)	mm/bin	0	0	0	0	0	-48,3303	0	0	0	48,33031	0	0
SS (Soil Storage) = SMI-SMI-1	mm/bin	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	188,653	69,72517	28,71088	100,3457	9,353732	0	0	0	0	132,9966	221,3794	39,29203
i (Infiltrasi) = WS . (WIC atau DIC)		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
WIC (Koefisien infiltrasi musim hujan)													
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		48,87547	54,94032	54,50821	55,26487	55,23352	51,41575	47,53311	43,94366	40,62527	42,57906	52,74401	58,60332
i (Infiltrasi)	mm/bin	188,653	69,72517	28,71088	100,3457	9,353732	0	0	0	0	132,9966	221,3794	39,29203
ΔV (perubahan volume tanah)	mm	139,7776	14,78485	-25,7973	45,08084	-45,8798	-51,4158	-47,5331	-43,9437	-40,6253	90,41752	168,6353	-19,3113
GWS (Ground Water Storage)	mm	692,6824	707,4673	681,6699	726,7508	680,871	629,4552	581,9221	537,9785	497,3532	587,7707	756,4061	737,0948
GWS = 0.5 . (1+k).i.k.(IGWS)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
k (koefisien resesi aliran tanah)		552,9048	692,6824	707,4673	681,6699	726,7508	680,871	629,4552	581,9221	537,9785	497,3532	587,7707	756,4061
IGWS (Initial Ground Water Storage)	mm	19,18125	12,7	11,205	14,15	6,875	2,55	2,1	0	1,1	19	21,1	8,5
SRO (Strom Run Off) = P . PF	mm/bin	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
Percentage factor (PF)													
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,07356	0,054511	0,039922	0,067396	0,034953	0,028939	0,025757	0,022805	0,022375	0,070657	0,085971	0,042788

## Lampiran C.7. Perhitungan Debit DAS Curuk tahun 2007

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,031844	0,082913	0,041325	0,082409	0,033846	0,032047	0,027652	0,025603	0,024421	0,023351	0,027095	0,072719
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bin	61,36147	144,309	79,63254	153,6761	65,2194	59,76148	53,28408	49,33535	45,54047	44,9965	50,52744	140,1273
Tro = DRO + BSF + SRO													
<b>DRO (Direct runoff)</b>													
DRO = WS - I													
WS (Water Surplus)													
WS = (P-Ea)-SS													
(P-Ea)	mm/bin	-7,28112	243,6609	29,3258	208,6118	-65,4014	-84,5838	-146,066	-132,467	-126,766	-66,1989	58,05362	273,3401
P (Hujan)	mm/bin	114,00	400,70	213,50	335,00	57,50	42,50	0,00	1,50	0,00	57,90	172,20	388,70
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
Ea = Eto - ΔE													
AE (Evapotranspirasi Terbatas)													
AE = Eto (m/20) (18-n)													
Exposed Surface (m)	%												
Jumlah Hari Hujan (n)	hari	10,0000	22,0000	19,0000	21,0000	10,0000	7,0000	0,0000	1,0000	0,0000	5,0000	19,0000	29,0000
Eto (Evapotranspirasi potensial)	mm/bin	107,6383	93,98682	105,916	108,0045	115,0128	105,1903	102,536	101,0955	99,89928	103,1524	103,6442	103,3766
SS (Soil Storage) = SMI-SMI-1	mm/bin	-7,28112	7,28112	0	0	-48,3303	0	0	0	0	0	48,33031	0
SMI (Soil Moisture bulan ini)	mm	41,04919	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMI-1 (Soil Moisture bulan lalu)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	48,33031	41,04919	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
i (Infiltrasi) = WS . (WIC atau DIC)													
WIC (Koefisien infiltrasi musim hujan)													
DIC (Koefisien infiltrasi musim kemarau)													
		0,719106	0,719106	0,719106	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,640729	0,719106
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV													
i (Infiltrasi)	mm/bin	55,66147	57,87629	60,72009	61,97785	62,3444	57,63648	53,28408	49,26035	45,54047	42,1015	39,18622	43,91269
ΔV (perubahan volume tanah)	mm	0	169,9821	21,08836	133,6636	0	0	0	0	0	0	6,992093	196,5605
ΔV = GWS - IGWS													
GWS (Ground Water Storage)	mm	-55,6615	112,1058	-39,6317	71,68576	-62,3444	-57,6365	-53,2841	-49,2604	-45,5405	-42,1015	-32,1941	152,6478
IGWS (Initial Ground Water Storage)	mm	684,4333	793,5391	753,9074	825,5932	763,2488	705,6123	652,3282	603,0678	557,5274	515,4259	483,2317	635,8796
k (koefisien resesi aliran tanah)													
IGWS (Initial Ground Water Storage)	mm	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
<b>SRO (Strom Run Off) = P . PF</b>	mm/bin	5,7	20,035	10,675	16,75	2,875	2,125	0	0,075	0	2,895	8,61	19,435
Percentage factor (PF)													
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,031844	0,082913	0,041325	0,082409	0,033846	0,032047	0,027652	0,025603	0,024421	0,023351	0,027095	0,072719

## Lampiran C.8. Perhitungan Debit DAS Curuk tahun 2008

Uraian	Satuan	JAN	FEB	MARET	APRIL	MEI	JUNI	JULI	AGUST	SEPT	OKTBR	NOV	DES
		31	28	31	30	31	30	31	31	30	31	30	31
<b>Debit yang tersedia (Qn)</b>													
Qn = Tro . A	m <sup>3</sup> /s	0,045889	0,083022	0,040537	0,081656	0,033172	0,030264	0,027076	0,025071	0,023913	0,037514	0,114965	0,034478
Luas DAS (A)	km <sup>2</sup>	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996	1,38996
Total Limpasan (Tro)	mm/bin	88,42563	144,4979	78,11407	152,2723	63,9216	56,43669	52,17489	48,30992	44,59248	72,28729	214,3871	66,43796
Tro = DRO + BSF + SRO													
<b>DRO (Direct runoff)</b>													
DRO = WS - i		26,94305	68,44292	8,237445	74,94822	0	0	0	0	0	18,59975	131,9229	0
WS (Water Surplus)													
WS = (P-Ea)-SS		95,91888	243,6609	29,3258	208,6118	0	0	0	0	0	51,77079	469,6536	0
(P-Ea)		95,91888	243,6609	29,3258	208,6118	-65,4014	-127,084	-146,066	-132,467	-126,766	100,1011	469,6536	-26,6599
P (Hujan)	mm/bin	217,20	400,70	213,50	335,00	57,50	0,00	0,00	1,50	0,00	224,20	583,80	88,70
Ea (Evapotranspirasi aktual)	mm/bin	121,2811	157,0391	184,1742	126,3882	122,9014	127,0838	146,0664	133,9673	126,7657	124,0989	114,1464	115,3599
Ea = Eto - ΔE													
AE (Evapotranspirasi Terbatas)													
AE = Eto (m/20) (18-n)		0	0	0	0	0	0	0	0	0	0	0	0
Exposed Surface (m)	%	0	0	0	0	0	0	0	0	0	0	0	0
Jumlah Hari Hujan (n)	hari	18,0000	22,0000	19,0000	21,0000	10,0000	0,0000	0,0000	1,0000	0,0000	14,0000	25,0000	10,0000
Eto (Evapotranspirasi potensial)	mm/bin	109,1067	96,83091	107,6286	106,4538	108,2106	96,87216	92,9888	98,33651	101,1905	107,1849	101,4632	96,85248
SS (Soil Storage) = SMI-SMI-1	mm/bin	0	0	0	0	-48,3303	0	0	0	0	48,33031	0	-26,6599
SMI (Soil Moisture bulan ini)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	21,67043
SMI-1 (Soil Moisture bulan lalu)		48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
SMC (Soil Moisture Capacity)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
ISM (Initial Soil Moisture)	mm	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031	48,33031
i (Infiltrasi) = WS . (WIC atau DIC)		68,97583	175,218	21,08836	133,6636	0	0	0	0	0	33,17104	337,7307	0
WIC (Koefisien infiltrasi musim hujan)		0,719106	0,719106	0,719106	0,719106	0,719106	0,719106	0,719106	0,719106	0,719106	0,719106	0,719106	0,719106
DIC (Koefisien infiltrasi musim kemarau)													
<b>BSF (Aliran dasar)</b>													
BSF = i - ΔV		50,62258	56,01994	59,20162	60,57405	61,0466	56,43669	52,17489	48,23492	44,59248	42,47754	53,27412	62,00296
i (Infiltrasi)	mm/bin	68,97583	175,218	21,08836	133,6636	0	0	0	0	0	33,17104	337,7307	0
ΔV (perubahan volume tanah)													
ΔV = GWS - IGWS	mm	18,35325	119,1981	-38,1133	73,08956	-61,0466	-56,4367	-52,1749	-48,2349	-44,5925	-9,3065	284,4566	-62,003
GWS (Ground Water Storage)													
GWS = 0,5 . (1+k).i.k.(IGWS)	mm	654,2328	773,4309	735,3176	808,4072	747,3606	690,9239	638,749	590,5141	545,9216	536,6151	821,0716	759,0687
k (koefisien resesi aliran tanah)		0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485	0,924485
IGWS (Initial Ground Water Storage)	mm	635,8796	654,2328	773,4309	735,3176	808,4072	747,3606	690,9239	638,749	590,5141	545,9216	536,6151	821,0716
<b>SRO (Strom Run Off) = P . PF</b>	mm/bin	10,86	20,035	10,675	16,75	2,875	0	0	0,075	0	11,21	29,19	4,435
Percentage factor (PF)		0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
<b>Debit Terhitung</b>	m <sup>3</sup> /s	0,045889	0,083022	0,040537	0,081656	0,033172	0,030264	0,027076	0,025071	0,023913	0,037514	0,114965	0,034478